

In Search of Corporate Growth and Scale-up in the Entrepreneurial Context: What Affects the Growth of Enterprise Value, the Pace of Growth, and the Effectiveness of Growth.

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Abstract

This study investigated the corporate growth with more emphasis on longitudinal characteristics, not the results of companies with relatively more emphasis on cross-sectional, in the 21st-century entrepreneurial context. As of the end of 2019, sampled 479 global unicorn companies, and 333 high-growth companies with revenue of more than \$100 million among 5,000 private companies in the U.S. with a compound annual growth rate (CAGR) exceeding 15% for the past three years. They were examined with 3 perspectives in terms of corporate growth that 1) the growth of enterprise value, 2) the pace of growth, and 3) the effectiveness of growth.

As a result of our study, the corporate growth of the perspective of creating enterprise value had a relatively higher relationship with the characteristics of industries and markets. The pace of growth was more fully explained by the characteristics of the industry and the market environment and the choice of strategies that make up a valid combination. In addition, growth in terms of the effectiveness of corporate performance was influenced by the choice of strategy, the characteristics of the industry and market environment, and its business age, the proxy variable of resource accumulation, comprehensively.

This study through a sample based on companies with an enterprise value of more than \$1 billion and annual revenue of more than \$100 million can be a valid reference in terms of creating milestones and roadmaps for scale-up of early-stage startups, particularly in terms of practitioners' point of view.

It also provides a critical reference for overcoming the limitations of mainstream theories of the 20th century and developing the theory of corporate growth that fits the 21st-century entrepreneurial context.

Keywords: Corporate Growth, Scale-Up, Unicorns, Hyper-Growing Companies, Theory of Corporate Growth of the Firm

1. Introduction

The Unicorn Club is a dominant practical term to name high potential startups, which are valued at over \$1 billion in corporate value privately. As of the end of 2019, out of 479 unicorn companies globally, 65 have an enterprise value of more than 5 billion dollars. Their median enterprise value is \$7.8 billion. Their business career is merely 7 years(median), and it means likely that they created an enterprise value of 1 billion dollars simply arithmetically each year. Some startups take less than a year after their establishment to be listed on the Global Unicorn club(Lee et al., 2020). Despite these phenomenal cases related to the over-valuation issues in terms of the capital market

point of view such as 'the Unicorn Badge Effect', these trends also reflect ways and phenomena from the entrepreneurial economy in terms of the real world of business(Lee et al., 2020).

Out of the US's 5,000 private companies with a compound annual growth rate(CAGR) of over 15% in revenue over the past three years as of the end of 2019, 333 companies have over 100 million dollars revenue in 2019. Among them, there are 31 companies with a CAGR of over 100% in revenue over the past three years. Their annual revenue in 2019 is \$170 million(median), and their business years are 8.4 years(median).

Despite they are not very early-stage ventures, which have usually less than 3-year business careers and 100-million-dollar

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revenue size as the thresholds, their CAGR of revenue over the past three years was dramatically higher such as a rocket's thrust with a booster. Their mean value was 167%, it is not an annum, it is a CAGR over the past three years(Lee & Oh, 2021).

Rather than traditional SMEs developing their businesses gradually and linearly being based on their owned capable resources, ways of entrepreneurial business development and building up innovative companies are beyond their controlled resources significantly to pursue their high potentials and opportunities. Strategic partnerships with the capital market are beyond the meaning of business networks, it is a crucial point in the entrepreneurial context(Cavallo et al., 2019).

Under such an innovative and entrepreneurial business environment, the emergence of hyper & super-growing companies like the above references is not unfamiliar and outlier cases, and it is going to be highly likely to emerge as the mainstream trend of corporate growth in terms of the startup and scale-up ecosystem perspective in the future.

Tesla Inc., an electric vehicle and clean energy company based in Palo Alto, California, became the largest market-capitalization company in the world car and mobility industries from mid of 2020. Tesla began production of its first car model, the Roadster, in 2009. Then it has reached the position of the world's largest market capitalization company just one decade after bringing its first model to the market. It has a market value today that is several times greater than that of companies with around 100 years of experience in producing and supplying automobiles in the US, Europe, and Japan.

What theories can properly and effectively explain these hyper & super-growing companies in the entrepreneurial context?

'Positioning View(Industrial Organization-Porter, 1985)' and 'Resource-Based View(RBV-Barney, 1991)' are the main theories, developed and broadly accepted in the 20th-century context, explaining the performance and growth of the firms in the field of strategic management. Do these two main theories explain the hyper-growing companies clearly and completely in the 21st-century context, which is extremely innovative and entrepreneurial? I/O and RBV can properly and significantly explain the hyper & super-growing of the firm such as the case of Tesla, Inc. in terms of corporate growth theory? If not, is 'Dynamic Capability View(Teece et al., 1997)' a valid corporate growth theory in an extremely innovative and entrepreneurial environment that can explain hyper-growing companies? How about 'Upper Echelon Perspective(Hambrick & Mason, 1984; Carpenter et al., 2016)'? Could it be a valid corporate growth theory for those hyper-growing companies, particularly unicorn companies, which are mostly driven by entrepreneurial and

founding teams? Recent studies, 'Adaptive Capability & Entrepreneurial Orientation(Eshima & Anderson, 2017)' and 'Attention-Based View(ABV-Joseph & Wilson, 2018), are they also do explain hyper-growing companies properly?

Academic scholars argue that they can better explain firms' performances competitively with each other, but their explanatory or theoretical arguments in the real world of business are absolutely not supported and accepted by entrepreneurs and practitioners. 'Positioning View (I/O)' has less than 20% of the effectiveness to explain corporate performance, and 'Resource-Based View' has from less than 30% to less than 45%. And from less than 30% to less than 50% are explained by other perspectives in firms' generating of performances(Rothaermel, 2012).

The explanatory effectiveness of these major theories is more limited in terms of "business growth", which is a more specific dependent variable than "business performances", which is a relatively broader concept dependent variable.

Achtenhagen et al.(2010) has investigated that practitioners and scholars talk "Business Growth" with different perspective and terminology through their literature reviews in terms of both quantitative and qualitative studies. Despite the skepticism of entrepreneurs who are doing business in the real world, many academic studies take an increase in employment as an indicator of whether a company is growing successfully or not. For practitioners, growth is a more complex phenomenon - with a strong emphasis on internal development - which differs from the simplified conceptualization of growth used in empirical studies. To avoid likely these constraints, and to make concrete research for business growth studies, they suggested and recommended four critical points as below.

The choice and operationalization of growth variables should: (1)be clearly based on the theoretical reasoning driving the study; (2)should carefully consider whether the suggested outcome variable really represents an outcome or rather an intermediary or independent variable; (3)be meaningful and relevant to practitioners and entrepreneurs, and (4)be critically reflected upon. Quantitative studies should consider the heterogeneity of firms and the impact this might have on business growth-some examples of important factors, such as ownership structure, financing, or future plans.

In fact, there are several types of companies in terms of business entities. It ranges from Sole proprietorships, such as self-employed and not incorporated, to public companies, such as C Corporation in the US, with an average of between 4 or 5 company types follow by each nations' corporate law or company law(Lee et al., 2017). Existing corporate growth theories take an approach that views the company as a

simplified conceptual firm as a simple black box, without identifying institutional and legal types of business entities (Penrose, 1959; Porter, 1985; Barney, 1991; Teece et al., 1997; Carpenter et al., 2016). In the case of ownership-based companies, 'Limited Liability Companies, LLC' and 'Limited Partnerships, LP', the upper echelon perspective is more likely significant in explaining their business growth, and in the case of shares-based companies, partially S Corporation and C Corporation in the US, the SCP paradigm, or strategic management perspectives, might be more significant in explaining their corporate growth caused by its principle and structure.

As Achtenhagen et al. (2010) have highlighted four critical points for the study of "business growth", it needs more accurate and rigorous approaches to ground new perspectives in the 21st-century business context, which is extremely innovative and entrepreneurial.

For foremost, it requires taking the right terminology and definition of "Growth" from the perspective of practitioners and entrepreneurs. Therefore, "business growth" and "corporate growth" must be selected respectively followed by the purpose of the study and its samples.

The term "business growth" is more likely ambiguous to define and confirm the scope of samples for the study. It covers a full range of business entity types like from sole-proprietorships to corporations, which could be publicly listed. In terms of the measure of "business growth" therefore, there are many indicators such as channels, the number of customers and clients, product lines, and etc. follows by the type of businesses and their entities. Since 'LLC' and 'LP' are ownership-based business entities, they have fundamental limitations to be considered as key players in the entrepreneurial and scale-up context despite they are occupying over 40% proportion of all incorporated entities. It can affect the interpretation of the result inappropriately beyond its significance in terms of its basic principles and structures (Lee et al., 2017).

The term "corporate growth" is occupying incorporated companies only, and focused on mainly 'S' and 'C Corporation' in the case of the US legal standard (Lee et al., 2017). It is a proper term to study the growth in the entrepreneurial and scaleup context rather than taking the term "business growth". To measure its growth is mainly from the market point of view. An enterprise or market value of a company and revenue growth of a company is key two indicators to investigate its growth academically and practically.

The major theories of corporate growth and previous findings by the theories have limitations primarily in terms of its definition of the firms and growth, effective sampling, and its measures. Studies, based on the inaccurate definition, sampling,

and measures did not elicit significant supports from entrepreneurs and practitioners of the real business world eventually.

Therefore, the study aims to explore the definition of corporate growth and scale-up, which previous studies have not elaborated on in terms of practitioners' and entrepreneurs' points of view, and to exploit the grounding of a new theory of corporate growth and scale-up with appropriate samples on the entrepreneurial contexts.

Through this study, it is expected that the existing corporate growth theory can be updated more elaborately or individual theories can be dealt with in an integrated manner to form a new theory.

II. Theoretical Background

2.1 Definitions of corporate growth

Previously, companies with high growth are often called 'High-growth firms (HGF)', 'Hyper-growth firms', or 'Gazelles', as shown in <Table 1>. Often, the growth is measured by the annual revenue growth or employment growth. In previous studies, hyper-growing companies are identified to have a relatively shorter firm age and have its presence in a wide range of industries (Acs & Mueller, 2008; Moreno & Coad, 2015). While the studies did not distinguish between 'sole proprietorship' and 'incorporated companies', they found out that hyper-growing companies were not particularly focused on high-technology industries. Furthermore, scholars have used different terms of hyper-growing companies as synonyms to describe firms showing high growth, suggesting the insufficiency of research made on the concept of hyper-growing companies.

<Table 1> Definitions of Corporate Growth

		Definitions
OECD(2003)		All enterprises with average annualized growth greater than 20% per annum, over three years, and with ten or more employees at the beginning of the observation period. Growth is thus measured by the number of employees and by turnover
Delmar et al.(2003)	"High-growth"	Provides 19 distinct measures of firm growth (relative and absolute sales growth, relative and absolute employee growth, organic growth vs. acquisition growth, and the regularity and volatility of growth rates over the 10-year period) and provides seven categories of firm growth patterns
Markman & Gartner(2002)	"Hyper-growth"	Firms with both relative and absolute revenue growth (between 500% and 31,000%) for five years

Halabisky et al.(2006)		Firms with more than 150% employment growth over four years
Cassia et al.(2009)		Firms with a sales growth rate of at least 20% for four years with lower than 10 million euro of turnover for the first year and higher than 50 million euro for the last year
Birch & Medoff (1994)	"Gazelle"	A business establishment which has achieved a minimum of 20% sales growth each year over the interval, starting from a base-year revenue of at least \$100,000
Acs & Muller (2008)		Firms with 20 to 499 employees, which have a low firm age but make rapid growth to have an impact on the regional economy

The OECD(2003) defines that high growth firms are “all enterprises with average annualized growth greater than 20% per annum, over three years, and with ten or more employees at the beginning of the observation period. Growth is thus measured by the number of employees and by turnover mainly.”

Delmar et al.(2003) provides 19 distinct measures of firm growth(“relative and absolute sales growth, relative and absolute employee growth, organic growth vs. acquisition growth, and the regularity and volatility of growth rates over the 10-year period”) and provides 7 categories of firm growth patterns.

The concept of ‘Gazelle’ was first introduced by Birch & Medoff(1994) and frequently used to analyze firms’ employment effects in regional economies in comparison with large firms(‘Elephants’) with more than 500 employees and small firms with less than 20 employees(‘Mice’)(Acs & Mueller, 2008; Bos & Stam, 2014; Henrekson & Johansson, 2010).

Markman & Gartner(2002) first introduced ‘Hyper-growth’ in 2002, which analyzed firms with both relative and absolute revenue growth of between 500% and 31,000% for 5 years. Firms were selected from Inc. 500 ‘High-growth companies’ in the 1990s(Markman & Gartner, 2002). Through the longitudinal study, they revealed that there is no causal relationship between ‘hyper-growth companies’ employment growth rate and their profitability, but there is an inverse relationship between firm’s age and their profitability.

Furthermore, Halabisky et al.(2006) grouped firms based on its firm growth rate: ‘Hyper-Growth Firms(higher than 150% of employment growth)’, ‘Strong Growth Firms(between 50% and 150% of employment growth)’, ‘Slow Growth Firms(lower than 50%)’, and ‘Declining Firms(negative employment growth)’. However, in the 21st century, it is hard to assume that firms’ revenue or profitability growth is proportional to employment growth due to the emergence of digitalization and automation. Therefore, it would be wrong to assume ‘Employment growth=Corporate growth.’

To summarize, Birch & Medoff’s(1994) research has largely

influenced the stream of studies on defining hyper-growing companies, while there is not an agreement on a specific definition. As ‘Gazelles’ are limited to companies with relatively shorter firm age, the sample selection of ‘Gazelles’ has been different from that of ‘high-growth’ or ‘hyper-growth’ companies. Nevertheless, revenue growth and employment growth have been mainly suggested as measures for defining firm growth. Furthermore, previous literature has structural limitations for explaining small firms with a rapid growth rate as Birch & Medoff(1994) set a minimum value on the revenue for defining hyper-growth companies.

The definition and approach of the OECD(2003), the most representative study of high-growth companies, is based on the number of employees for all enterprises, regardless of its types of business entities. In particular, when defining high-growth companies, it is limited to companies with an employment scale of 10 or more. It implies that although there was no specific specification, it can be inferred that the sample is limited to incorporated companies.

In the 21st-century business environment represented by digital, automation, and artificial intelligence, changes in employment size no longer represent the extent of business growth.

Samples that do not take into account the type of company contain the possibility of errors that may lead to over-interpretation or distorted interpretation of the analysis results.

The growth rate of sales, which is a basic and classic indicator for studies on business growth, varies greatly depending on the measurement period, measurement base point, or measurement interval, which can lead to distortion of the interpretation of the results.

In the entrepreneurial context, investing emerges as an important strategic factor in the entire growth phases, from before the establishment of the company. Therefore, the change in corporate value is a valid indicator to explain the degree of growth of the company. Since there was a lack of information and data on the enterprise value of unlisted companies, the corporate value was not reflected as a measure in the existing corporate growth studies particularly for private companies.

In the entrepreneurial context, which reflecting the startup and scale-up ecosystem, the ‘Corporate Growth’ study should be a sample limited to the C & S Corporation type of business entities, based on in case of the US corporate law standard. In very exceptional cases, LLC or LP-type incorporation, which is an ownership-based entity, may also be included in the sample, but in the entrepreneurial context like investments, mergers and acquisitions, public offerings, and its governance changes, the premise of the shares-based entity is a necessary valid approach.

Second, it is necessary to simplify the indicators that measure corporate growth from a practical point of view. The compound annual growth rate of revenue, CAGR, over the past three years is the most basic and traditional measure of corporate growth. In addition to this, enterprise value is also a key measure of corporate growth in the entrepreneurial context. Corporate value has a character that includes both current and future corporate performances, and both financial and non-financial performances.

Third, to measure the speed or degree of growth, it is necessary to make a section. If the starting point of revenue and enterprise value is not set in the concept of intervals, serious deviations or distortions can occur.

2.2 Determinants of corporate growth

Since the 1980s, studies have been conducted to analyze the determinants of corporate growth. However, as they have used different definitions of growth by measuring employment growth, revenue growth, and market share growth, the findings have shown different implications of the findings(Delmar et al., 2003; Moreno & Coad, 2015). Due to divergent patterns of determinants, Henderson et al.(2012) and Coad et al.(2014) suggested a 'Random-Walk model' to explain the relationship between firms' strategies and performance.

The majority of literature focused on the internal and external factors to find the driving factors of corporate growth. Resource-based view, Industrial Organization Theory, agglomeration effect, and knowledge transfer have been the base of these studies(Acs & Mueller, 2008; Baum & Locke, 2004; Henrekson & Johansson, 2010; Krasniqi & Desai, 2016; Motoyama, 2014).

As shown in <Table 2>, The internal determinants of high-growth companies are founder characteristics(Barringer et al.,

2005; Baum & Locke, 2004; Cardon et al., 2012; Harms, 2009), human resources management(Barringer et al., 2005), and business strategies(Barringer et al., 2005; Harms, 2009; Lee, 2014). Through a comparison of 50 rapid-growth firms and 50 slow-growth firms, Barringer et al.(2005) found that companies with high growth have different characteristics. They found that rapid-growth firms are established by highly educated and motivated entrepreneurs with prior industry experience, have a growth-oriented mission statement with inter-organizational relationships, and exhibit an advanced knowledge level about customers. On the other hand, Harms(2009) argued that one of the attributes of firms with high growth is founders' low degree of experience through comparing 225 rapid-growth and normal-growth firms from the database of Ernst & Young's Entrepreneur of the Year Competition. Harms(2009) also found out that firms with high growth have a cost-leadership strategy and internationalization strategy.

Some scholars were particularly interested in exploring the effect of organic growth or acquired growth strategy through M&A on the company's employment growth(Henrekson & Johansson, 2010). Delmar et al.(2003) argue that the acquired growth strategy is more related to companies with a large size and longer experience, while relatively younger and smaller hyper-growth companies might be less relevant concerning the acquired growth strategy. Similarly, Henrekson & Johansson(2010) found that the acquired growth positively influences the firms' productivity increase, while organic growth brings a bigger net employment effect. While Mohr et al.(2014) agree that firms' productivity increases through M&A regardless of firm size, they further claim that firms that chose the acquired growth strategy might perform better with higher productivity than those which chose the organic growth strategy.

<Table 2> Literature review on internal factors of corporate growth

Author(s)	Methodology	Sample	Definitions of corporate growth	Country	Main Findings	Data Source
Smallbone et al.(1995)	Bivariate logistic regression	306 firms between 1979 and 1990	1) Doubled sales between 1970 and 1990; 2) Minimum sales record of 0.5 million pound in 1990; 3) Consistent profitability in the late 1980s.	U.K.	While a company's growth cannot be explained by a single approach or strategy, companies with a high growth rate are more likely to change their production processes to actively supplement their market development strategies. The development of innovative products, introduction of new technologies, and acquisition of external businesses are identified as the characteristics that distinguish high-growth companies from other companies.	ESRC's Small Business Research Initiative
Storey & Wyncarczyk(1996)	Bivariate logistic regression	298 micro enterprises between 1985 and 1994	N/A (survival vs. non-survival)	U.K.	Examined firms' survival with their characteristics, human resources, and strategy variables. They found that the firm age, industry, and region of a company are found to be more important factors than human resources. There is a positive relationship between firms' survival and their firm age.	interviews

Delmar et al.(2003)	K-means clustering	1501 firms in Sweden between 1987 and 1996	Firms with more than 20 employees in 1996; Firms that rank in the top 10% of the total sample with at least one of the measures (absolute or relative growth rates of sales, total employment, or net employment)	Sweden	As a result of clustering, firms were clustered into 7 clusters. (1) Super absolute growers (high absolute sales and employment growth), (2) Steady sales growers (absolute sales growth is positive, but negative employment growth), (3) Acquisition growers (absolute and positive employment growth, but negative organic employment growth), (4) Super relative growers (highest relative growth rate), (5) Erratic one-show growers (negative absolute sales and employment growth rate, but positive relative growth rate), (6) Employment growers (negative absolute sales growth, but weak employment growth), (7) Steady overall owners (positive absolute sales and employment growth, but weak employment growth)	Statistics Sweden
Barringer et al.(2005)	Qualitative content analysis	50 rapid growth and 50 slow growth firms	Three-year annual sales growth rate of 80% or more	U.S.	Provided that the "conceptual framework" of high-growth firms can be explained by founder characteristics, firm characteristics, business practices, and human resource management.	Ernst & Young's Entrepreneur of the Year Competition
Harms(2009)	Multi-variate logistic regression	225 rapid growth and normal growth firms between 2002 and 2005	Follows Ernst & Young's Entrepreneur of the Year Competition's standards, and divided the sample into three categories for regression analysis.	Germany	High-growth firms' strategic choices are characterized by cost-leadership strategies, internationalization strategy, and innovation. However, when firm age and firm size are controlled, the growth rate or competitive forces of the industry do not have significant relationship with firm's growth.	Ernst & Young's Entrepreneur of the Year Competition
Henrekson & Johansson(2010)	Meta analysis	20 studies	N/A Used 'high-growth firms', and 'Gazelles' in 20 studies as its standard.	Global	Acquired growth has a significant impact on a company's productivity, and organic growth has a greater impact on a company's net employment growth than acquired growth. High-growth firms have a lower firm age, and are found in all industries and regions.	American Economic Association's Econlit, Google Scholar, JSTOR, RePEc, SSRN
Markman & Gartner(2002)	Hierarchical regression	358 firms between 1992 and 1998	Firms with a relative and absolute sales growth rate of 500% to 31,000% over a five-year period.	U.S.	Firm's sales growth rate and employment growth rate do not have a significant relationship with the firm's profitability, and this is most likely caused by a "lag effect". Lower firm age has a positive impact on firm's growth.	Inc. 500
Littunen & Tohmo(2003)	Bivariate logistic regression	200 metal-based manufacturing and business services firms between 1990 and 1997	(1) Doubled sales turnover in real terms over 1990-1997; (2) Minimum sales turnover of FIM 500,000 in 1997	Finland	The firm's internal network brings competitiveness, innovation, and efficiency. However, it reveals that the firm growth is not related to its locality, and the growth is affected by changes in the strategic elements of the firm and changes in its competitive position. They also argue that high-growth companies are characterized by an increase in labor productivity, which makes it possible to create new jobs.	Statistics Finland, interviews
Freel & Robson(2004)	Ordinary Least Squares regression	1,347 SMEs in manufacturing between 1998 and 2001	N/A	U.K.	Product innovation and the company's sales growth rate have a negative relationship, and the firm's choice to export has a negative relationship with the sales growth rate. The relationship between firm age and firms' sales growth rate is insignificant.	Survey of Enterprise in Northern Britain
Wasserman (2008)	Ordinary Least Squares regression	317 Professional Services Firms between 1997 and 2000	N/A	U.S.	Based on the Strategy-Structure-Performance paradigm with the sample of PSFs(Professional Services Firms), the core knowledge required for decision making and the coordination challenges in the firms are found to be influencing their internal structures and it affects the firms performance. Furthermore, the firm age has a positive relationship with the increase in firm's IRR at a statistically significant level.	National Venture Capital Association
Rosenbusch et al.(2011)	Meta-regression analysis	42 studies including dataset of 21,000 firms	N/A	Global	Firm's growth and innovation are 'context dependent' and the impact of innovation on the firms' performance differs by firm age, innovation types, and cultural context.	Business Source Elite, EconLite, ISI Web of Knowledge, ABI Inform
Lee(2014)	Probit regression	4,858 SMEs	Firms with an annual sales growth rate of at least 20% over two years.	U.K.	Barriers to firm's growth are found to be hiring talent, lack of skills, financing, cash flow, and business management skills.	SBS 2010, ASBS 2007/2008

The relationship between internal innovation and hyper-growth companies' performance was widely studied as well. There is a general agreement that firms' innovation activities positively affect firms' growth (Bos & Stam, 2014; Harms, 2009; Hölzl & Friesenbichler, 2010; Moreno & Coad, 2015; Smallbone et al., 1995). With the sample of ESRC's Small Business Research Initiative, Smallbone et al. (1995) found out that innovative product development and introduction of new technology are crucial features of hyper-growing companies, although they acknowledge that corporate growth cannot be explained by the employment of a single strategy. Mason et al. (2009) conducted a study on English hyper-growth firms between 2002 and 2005, which showed that successful product innovation and process innovation determine firms' growth. Kirchoff (1993) also mentions that firms can grow without innovation, but having growth without innovation is difficult. On the other hand, Freel & Robson (2004) claim that product innovation and firms' sales growth have a negative relationship.

In addition, Littunen & Tohmo (2003) and Wasserman (2008) emphasize the importance of internal structures and internal networks on corporate growth. Littunen & Tohmo (2003) argues that corporate growth is irrelevant to firms' locality, while firms' internal network contributes more to firms' innovation, competitiveness, and efficiency. They further mentioned that firms' growth is determined by the changes in firms' strategic

factors and competitive positions. Similarly, Wasserman (2008), which adopts the Strategy-Structure-Performance paradigm, argues that the internal structure for decision making and strategic structure affect corporate growth.

The average firm age of hyper-growing companies is estimated to be relatively shorter (Birch, 1981; Henrekson & Johansson, 2010), but the relationship between the firm age and the corporate growth is different depending on the findings. In studies of Storey & Wynczyk (1996), Wasserman (2008), and Greve (2008), the firm age and firm's growth had a statistically significant linear relationship, while Markman & Gartner (2002) argues that lower firm age positively affects firm's growth. Furthermore, Freel & Robson (2004) found that a statistically insignificant relationship between the firm age and revenue growth.

Compared to the internal factors that contribute to corporate growth, insufficient research on analyzing external and environmental factors has been conducted (Bos & Stam, 2014; Janssen, 2009; Krasniqi & Desai, 2016; Motoyama, 2014). Janssen (2009) explains that the paper only focuses on external factors due to the "limited context" of the paper although he acknowledges that growth should be comprehended with both external and internal approaches. Previous literature on external factors of corporate growth is summarized in <Table 3>.

<Table 3> Literature review on external factors of corporate growth

Author(s)	Methodology	Sample	Definitions of corporate growth	Country	Main Findings	Data Source
Storey & Wynczyk(1996)	Bivariate logistic regression	298 firms between 1985 and 1994	N/A (survival vs. non-survival)	U.K.	Firms' locality is statistically significant to explain the firms' survival and non-survival.	interviews
Almus & Nerlinger(1999)	Multi-variate logistic regression	1580,000 firms between 1989 and 1996	N/A	Germany	The average salary level in the region where firms are located has a minor impact on the growth of the new technology-based companies. However, when the agglomeration effects are controlled, the regional characteristics and the industrial characteristics of West Germany had a significant impact on the growth of the new technology-based companies.	ZEW-Foundation Panel (West), CREDITREFORM
Acs & Mueller(2008)	Regression analysis	320 firms located in the Metropolitan Statistical Area(MSA), USA	Firms with 20 to 499 employees, which have a low firm age but make rapid growth to have an impact on the regional economy.	U.S.	The direct employment effect is apparent in areas where high-growth firms are concentrated. Also, the performance of high-growth firms might be affected by the local environment.	Longitudinal Establishment and Enterprise Microdata (LEEM)
Greve(2008)	Hierarchical regression	Norwegian insurance firms 1911-1996	N/A	Norway	Firms' growth rate has a significant and negative relationship with the country's GDP growth. Firm's age has a positive and significant relationship with the firms' sales growth.	Norwegian Insurer's association, Norwegian Central Bureau of Statistics

Janssen(2009)	Bilateral t-test, regression analysis	150 firms between 1994 and 2000	N/A	Belgium	Firms' external environment has a very limited impact on firms' employment growth rate. If located in a economically dynamic region, it has a negative impact on the firms' employment growth rate. Public aid, geographic distance to universities, industrial density and industrial entry barriers do not have significant relationships with corporate growth.	ING Bank
Hölzl & Friesenbichler(2010)	t-test, regression analysis	120,144 manufacturing firms between 1998-2000	N/A	Global	In countries leading the development of advanced technologies, innovation strategy and R&D are the main variables of high-growth companies, but in the case of high-growth companies in 'catch-up' countries, product innovation strategies have a positive impact on employment growth.	CIS-3 data
Motoyama(2014)	Multi-variate regression	Firms listed on Inc. 500 between 2006 and 2010	Follow Inc. 500's definition of 'high-growth'.	U.S.	Knowledge spillover, including academic and government research activities, venture capital investments, and patents, does not have a significant relationship with high-growth firms, but human resources-related factors such as the ratio of STEM graduates to the total population appears as major factors to corporate growth.	Inc. 500
Bos & Stam(2014)	Panel vector auto-regression analysis	Hyper-growth companies between 1997 and 2008	Firms with 5-10 years of experience and employs at least 20 employees.	Netherlands	A high distribution of high-growth firms in an industry leads to the growth of the industry, but the distribution of growing industries does not lead to a long-term increase in the high-growth firms distribution in the industry as an inverse causal relationship. They argue that the interactions between formal and informal institutional variables are significant and impact high-growth firms.	Dutch Chambers of Commerce
Krasniqi & Desai(2016)	principal component analysis, GLS estimation	78 firms (1998-2002; 2002-2005; 2005-2008/9)	Minimum annual employment growth rate of at least 10% over three years, and at least 5 employees in the base year.	Global	The interactions of formal and informal institutional variables with high-growth firms are significant, and they are more useful to explain systematic variations in distribution of high-growth firms in transition economies than direct effects.	BEEPS, EBRD, World Bank Data, EBRD Transition Report
Pe'er et al.(2016)	Maximum likelihood model using Weibull distribution	Manufacturing firms between 1984 and 1998	N/A	Canada	The regional agglomeration of economic activity and the structure of regional competition determine a curvilinear relationship between the firms' growth and failure.	Canadian Longitudinal Employment Analysis Program (LEAP), T2SUF

There is also a stream of research with its focus on the relationship between industry growth and hyper-growing companies' performance. Bos & Stam(2014) argue that a high concentration of hyper-growing companies in an industry can lead to the growth of the industry. However, they mention that a growing industry would not lead to a long-term increase of concentration of hyper-growing companies as an inverse causal relationship. Furthermore, Storey & Wyncarczyk(1996) found that industry and regional environment are more important factors than internal factors, like characteristics of human resources. Furthermore, Almus & Nerlinger(1999) found out that West Germany's industrial structures have a significant impact on new technology-based firms.

In terms of the environment at the level of regions or countries, economic activities(Greve, 2008; Janssen, 2009) and R&D intensity(Hölzl & Friesenbichler, 2010) were examined as determinants of corporate growth. Greve(2008) found that the GDP growth has a negative relationship with firms' growth,

while Janssen(2009) similarly argues that economically dynamic regions might have a negative relationship with firms' employment growth. Furthermore, Hölzl & Friesenbichler(2010) found that the R&D expenditure rate affects corporate growth, especially in frontier economies.

From more comprehensive perspectives, 'knowledge spillover theory'(Motoyama, 2014) and 'Institutional hierarchy approach'(Krasniqi & Desai, 2016) were used to analyze the determinants of hyper-growing companies. Motoyama(2014) found out that hyper-growing companies do not have a direct relationship with knowledge spillover activities like academic or governmental research activities, venture capital investment, and patents. However, human resources factors like a percentage of STEM graduates of the total regional population were found to be significant(Motoyama, 2014). Krasniqi & Desai(2016) studied the effect of formal institution variables and informal institution variables on corporate growth with a sample of hyper-growing companies in 26 countries over the period between 1998 and

2009. However, as the variables like corporate tax rates are grouped under principal component analysis, it is hard to know the impact of individual variables on corporate growth.

Previous literature has focused on internal factors of corporate growth, including entrepreneurs' characteristics and business strategies. While the environmental factors were also considered to analyze corporate growth, there is a gap in the literature for providing a comprehensive model for considering both internal and external determinants of hyper-growing companies.

2.3 Exploratory Studies on 'Unicorn' and 'Hyper-growing' companies

Although previous literature has provided ample findings on determining the driving factors, most scholars did not consider both internal and external factors simultaneously and provided a rather limited understanding of the interaction between the variables. However, like Delmar et al.(2003) mentioned, "Firm growth is not a unidimensional but a multidimensional phenomenon."

Recently, Lee et al.(2020) and Lee & Oh(2021) applied the 'ERIS model' and the 'SCP paradigm' to examine the drivers of corporate growth under considerations of both internal and external factors. Lee et al.(2020) identified the factors affecting the valuation of 479 'Global Unicorn Club' companies in 2019 based on the 'ERIS model(entrepreneur, resource, industry(market), and strategy)', while Lee & Oh(2021) analyzed 333 'Hyper-growing' companies from 'Inc. the 5,000

Fastest-Growing Private Companies in America', which have more than the annual revenue of USD 100 million. They employed both qualitative and quantitative approaches, including descriptive statistics, case studies, hierarchical clustering analysis, ANOVA, and hierarchical regression analysis. As shown in <Table 4> and <Table 5>, the regression models, in particular, provide a coherent finding that the relationship between the strategy factor and the performance should be further examined as it appears to be significant throughout regression models. The results also imply that the 'strategy' factor is determined by entrepreneurs and TMT(Top Management Team) from the Upper Echelon Theory perspective and that the 'Industry(Market)' and the 'firm age' factors have a moderating effect on the relationship between strategy and performance.

For unicorn companies, Lee et al.(2020) show that entrepreneur's 'STEM education' background, and firms' choices in 'Organic' and 'Global' strategies are positively affecting the valuations at statistically significant levels. It also suggests that a higher level of 'Funding' from investors and a higher level of 'Ease of Doing Business' in a country they operate have a positive relationship with the valuation, while 'Cofounder' variable has a negative relationship with the dependent variable.

Similarly, hyper-growing companies from Lee & Oh(2021) show that variables that contribute to the firms' ease of doing business and access to skilled labor have significant interactions with independent variables. 'Science Graduates', 'Corporate Tax Index' and 'R&D expenditure rate' have a significant moderating effect on the relationship between the strategy variables and revenue CAGR.

<Table 4> Independent variables and significant independent variables

	Entrepreneur	Resources	Industry	Strategy	Significant IDVs in conceptual frameworks
Unicorn companies (Lee et al., 2020)	Gender Age Education level STEM education Prior experience Relevant experience	Cofounder Firm age Funding(+)	Population GDP GDP growth Ease of Doing Business GNI group	Generic Strategy Growth Strategy Leading Strategy Target Market Strategy Global Strategy Digital Strategy	STEM Education(+) Cofounder(-) Funding(+) Ease of Doing Business(+) GNI group(-) Growth Strategy(-, Organic) Global Strategy(+, Global)
Hyper-growing (Lee & Oh, 2021)	N/A	Firm age	GRDP (2019) GRDP CAGR Population (2019) Population CAGR Gross Output CAGR Corporate Tax Index R&D expenditure Science Graduates	Generic Strategy Growth Strategy Leading Strategy Target Market Strategy Global Strategy Digital Strategy	Firm age(-) GRDP CAGR(+) Population CAGR(+) Generic Strategy(-, Cost-leadership) Leading Strategy(+, Pioneer) Target Market Strategy(+, B2B) Global Strategy(-, Local)

Source: Lee et al.(2020), Lee & Oh(2021)

<Table 5> Significant strategy variables and interaction terms by regression models

Strategy	Unicorn companies (Lee et al. 2020)		Hyper-growing (Lee & Oh, 2021)			
	Independent variables not categorized	Independent variables categorized	Model A	Model B	Sub-groups	Interaction terms from Model A & B
Generic Strategy	Generic Strategy	Not significant	Not significant	Not significant	(i), (ii), (vi): negative (-), 'cost-leadership' strategy	[Hyper-growing]: positive (+), 'differentiation' strategy
Growth Strategy	Growth Strategy	(v): negative (-), 'organic' strategy	Not significant	Not significant	Not significant	[Group 1]: positive (+), M&A' strategy
Leading Strategy	Leading Strategy	Not significant	Not significant	(iv): positive (+), 'pioneer' strategy	(ii), (iv): positive (+), 'pioneer' strategy	[Group 1] & [Youth]: positive (+), 'pioneer' strategy [Fast-growing]: negative (-), 'fast-follower' strategy
Target Market Strategy	Target Market Strategy	Not significant	Not significant	Not significant	(v): positive (+), 'B2B' strategy	Not significant
Global Strategy	Global Strategy	(v): positive (+), 'global' strategy	(v): positive (+), 'global' strategy	(i), (ii), (iii), (iv): negative (-), 'local' strategy	Not significant	[Adult]: negative (-), 'local' strategy
Digital Strategy	Digital Strategy	Not significant	Not significant	Not significant	Not significant	[Hyper-growing]: negative (-), 'offline' strategy
Firm age	Not significant	Not significant	(iii): negative (-)	(i), (ii), (iii), (v), (vi), (vii), (viii): negative (-)	[Group 1], [Group 2], [Group 3]: negative (-)	Global Strategy (+, Global) Leading Strategy (-, Fast-follower)
G(R)DP (*19)	Not significant	Not significant	Not significant	Not significant	[Super-growing]: positive (+)	Generic Strategy (-, Cost-leadership)
G(R)DP growth	Not significant	Not significant	Not significant	(iv): negative (-)	Not significant	Not significant
GNI (*19)	(iii): negative (-)	(iii), (v): positive (+)	-	-	-	-
Population (*19)	Not significant	Not significant	Not significant	Not significant	[Super-growing]: negative (-)	Generic Strategy (-, Cost-leadership) Growth Strategy (+, M&A)
Population growth	-	-	Not significant	(iv): positive (+)	Not significant	Not significant
Ease of Doing Business	(iii): positive (+)	(iii), (v): positive (+)	-	-	-	-
Industry Gross Output	-	-	Not significant	Not significant	[Super-growing]: positive (+), [Group 1]: negative (-)	Not significant
Corporate Tax	-	-	Not significant	Not significant	[Fast-growing]: positive (+)	Target Market (-, B2C)
R&D expenditure	-	-	Not significant	Not significant	[Adult]: positive (+)	Generic (+, Differentiation) Growth (+, M&A)
Science Graduates	-	-	Not significant	Not significant	[Hyper-growing]: negative (+)	Not significant
Firm age	Not significant	Not significant	(iii): negative (-)	(i), (ii), (iii), (v), (vi), (vii), (viii): negative (-)	[Group 1], [Group 2], [Group 3]: negative (-)	Global Strategy (+, Global) Leading Strategy (-, Fast-follower)

For strategies, the hyper-growing companies showed different directions from the unicorn companies as 'Local' strategy, 'Cost-leadership', 'Pioneer', 'B2B' strategies are positively affecting the firms' performance. Furthermore, Lee & Oh(2021) found that younger firm's age, region's gross domestic product growth, and population growth positively affect the dependent

variable. The firm age variable also shows significant interactions with the 'Pioneer' and 'Global' strategies. The results imply that younger firms with 'Pioneer' strategy and older firms with 'Global' strategies can benefit from their strategic choices, as the combinations can lead to higher revenue growth.

2.4 Scale-Up in the Entrepreneurial Context

The term scale-up is a practical term used relatively more in the OECD and in the UK than in the US. In particular, the OECD led the discourse on Scale-up, emphasizing the importance of sustaining growth after startups in terms of job creation effects in 2003. In 2018, the OECD held an 'SME Ministerial Conference' called 'Enabling SMEs to scaleup', encouraging member governments to make interest and investment in the 'Scaleup Ecosystem Development' in terms of quality economic development(OECD, 2018).

Private level interest is very high in the UK. Barclays, the UK's leading financial company, has worked with the University of Cambridge and the University of Oxford's business schools to create a report called 'Scaleup UK' and propose it to the government. 12 habitational conditions are necessary to build the UK's effective scaleup ecosystem for economic development, they suggested(Hellmann & Kavadias, 2016).

Since the publication of 'the 2014 Scale-Up Report', 'The ScaleUp Institute', a non-profit private organization in the UK, has been actively conducting activities to diagnose the UK's Scaleup Ecosystem every year and seek developmental directions since the publication of the report in 2014.

In the United States, it is interested in Scale-up from the perspective of state and local economic development rather than the federal level. One of the best examples is the 'Scale Up Milwaukee' initiative in Milwaukee, Wisconsin(Isenberg & Onyemah, 2016).

Daniel Isenberg and Vincent Onyemah, who actively deal with entrepreneurship and scale-up ecosystems based on Babson College in the United States, introduced scale-up with a basic concept of 'Scaleup refers to a company that grows consistently and significantly.'(Isenberg & Onyemah, 2016).

In addition, citing a research report from the OECD(2003), the definition of a high-growth company that exceeds the average level is presented as a company with more than 20% of revenue and employment growth over the past three years.

At the time, the threshold point is at least 10 employees, and annual revenue is set at \$1 million. However, it does not explain the background of why this criterion should be set. In addition, it does not clearly explain whether the growth rate is an absolute growth rate or a compound annual growth rate (CAGR) for the period.

'Startup Commons', private research and educational institution in the United States, explains that 'Scale Up Company' is positioned at the intersection of 'High growth ambition and very

scalable business model' and 'Market validated business model'.

Scale-up is actively dealt with at the international organizations, private sector, and government levels, and unlike the trend that is being emphasized particularly in terms of job creation effectiveness, academia has not yet established a conceptual definition for this. It is already being treated as a very important issue from a practical point of view, but from an academic point of view, basic research to support it is very lacking so far.

What we are paying attention to is that 'corporate growth' and 'scale-up' can be assumed to be different in their initiative to lead its growth follows by engagement from multidimensional stakeholders.

As a result of our exploratory and practical researches so far, 'corporate growth' can be close to referring to a series of processes that individual companies self-directed and created. 'Scale-up' can be inferred as driving the growth of individual companies in an ecosystem where private companies-investors-government-research institutes-universities participate together, such as 'Startup Acceleration'. It is our reasoning that in the background of using the term 'scale-up ecosystem' for policy perspective rather than using the term 'corporate growth ecosystem' at the OECD and governments, as described above, there is the aspect of promoting corporate growth by participating and engagements with multiple stakeholders.

Rather than the corporate growth in general driven by a company independently, the entrepreneurial context reflected that startup and scaleup are actively unfolding and proceeding while multiple stakeholders participate and engage together to build and develop its ecosystem.

III. Methods

Eshima & Anderson(2017) adopted a method of testing a single hypothesis and a single research model through two samples as two studies from Korea and the UK to find a theoretical argument that can explain the firm growth, adaptive capability, and entrepreneurial orientation.

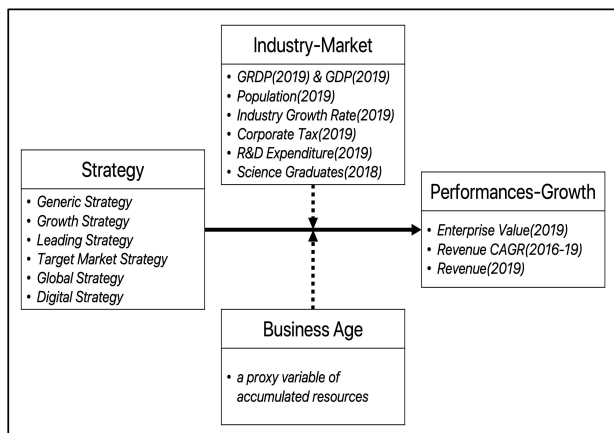
This study basically follows the methodology adopted by Eshima & Anderson(2017) and aims to examine the effective strategy selection in terms of corporate growth follow as 1)the growth of enterprise value: Study A, 2)the pace of growth-CAGR of revenue: Study B, 3)the effectiveness of growth-annual revenue in 2019: Study C. In addition, as a result of the previous two exploratory studies(Lee et al., 2020; Lee & Oh, 2021), we would like to examine the moderate effects of the characteristics of industry & market environment firstly, and

business career, which is age, the proxy variable of accumulated resources simultaneously would be tested.

3.1. Conceptual Framework

In previous studies, research on the strategic factors leading to corporate growth has been extensively conducted in various aspects. However, studies on the relationship between strategic choice and corporate performance with considerations of industry(market) and firm age variables as moderating variables are not extensively studied. From a more integrated perspective, this study intends to examine the effectiveness of each strategy choice by studying the ‘unicorn companies listed on CB Insight in 2019 and ‘hyper-growing’ companies from the list of ‘Inc. the 5,000 Fastest-Growing Private Companies in America’ in 2019.

Based on the findings of Lee et al.(2020) and Lee & Oh(2021), we conduct empirical research to develop a comprehensive understanding of what strategic factors lead to ‘unicorn’ and ‘hyper-growing’ firms. With our novel dataset of both highly valued and rapidly growing companies, we adopted a single conceptual framework as shown in <Figure 1>.



<Figure 1> Conceptual Framework

Prior to conducting regression analysis, we identify which industries the ‘unicorn’ and ‘hyper-growing’ companies are concentrated with descriptive statistics. It enables us to analyze the characteristics of the external environment that potentially contribute to corporate growth.

The framework is then applied to Study A(Unicorn companies’ valuation(\$B, 2019)), Study B(Hyper-growing companies’ revenue CAGR(% , 2016-2019)), and Study C(Unicorn and hyper-growing companies’ revenue(\$M, 2019)).

The strategy variables are considered as independent variables, and the industry(market) and the firm age variable are coded as

moderating variables. The firms’ performance, which are valuations for unicorn companies and revenue compound annual growth rate for hyper-growing companies, is our dependent variable. The strategy variables include ‘Generic(cost-leadership, differentiation, focus) strategies’, ‘Growth(organic, M&A) strategies’, ‘Leading(pioneer, fast-follower) strategies’, ‘Target market(B2B, B2G, B2C, C2C, Mixed) strategies’, ‘Global (Global, Local) strategies’, ‘Digital(Online, Offline) strategies.’ Furthermore, we analyze the moderating effect of the industry(market) variables and the firm age variable. A detailed description of strategy variables is given in the appendix <Table 16>.

The industry(market) factor includes gross domestic product, population, industry growth rate, corporate tax, R&D expenditure rate, science graduates rate variables. We employ hierarchical regression models to compare the impact of each strategic option on the firms’ valuation and revenue growth with interaction terms using STATA 14.0.

3.2. Data

To analyze which strategic choice leads to higher growth and higher valuation, we used two different samples of 479 unicorn companies and 333 hyper-growing companies from the list of ‘Inc the 5,000 Fastest-Growing Private Companies in America.’

Since the two study samples have different units, one at the country-level and the other at the state-level, we adopted a method of classifying and integrating variables into three or five different sub-groups as shown in the appendix <Table 17>. The base year of the dependent, independent, and moderating variables are unified as 2019, while only the ‘Science Graduates’ variable follows the year of 2018 due to data availability issues.

For industry classifications, unicorn and hyper-growing companies initially had different categories defined by CB Insights and Inc. respectively. Therefore, we combined them using the harmonized classifications by using the industry classifications provided by CB Insights and adding a few more classifications which were not available, including ‘Construction’ and ‘Manufacturing.’

<Table 6> Definition of variables

Variable	Definition	Source
Revenue CAGR	Hyper-growth companies' revenue compound annual growth rate(2016-2019)	Inc. 5000
Valuation	Unicorn companies' valuation(2019)	CB Insight
Gross Domestic Product	Unicorn: Gross Domestic Product, GDP Hyper-growth: Gross regional domestic product, GRDP	Bureau of Economic Analysis, U.S. Department of Commerce, World Bank
Population	Unicorn: Population by country(2019) Hyper-growth: Population by state(2019)	US Census Bureau, World Bank
Industry Growth Rate	Compound annual growth rate in revenues over the last 5 years by industry(2015-2019)	Damodaran Online New York University
Corporate Tax	Unicorn: Corporate tax rates(2019); inverse categorization Hyper-growth: 'Corporate tax index' '0=worst', '10=best'(2019)	Tax Foundation
R&D Expenditure Rate	Unicorn: Country-level R&D expenditure/GDP(2018) Hyper-growth: State-level R&D expenditure/GRDP(2019)	National Center for Science and Engineering Statistics, UNESCO
Science Graduates	Unicorn: share of all tertiary graduates in manufacturing, engineering, and construction over all tertiary graduates (by country, 2018) Hyper-growth: Science, Engineering & Health Graduates per 1,000 individuals 25-34 years (by state, 2018)	
Generic Strategy	'1=Cost Leadership', '2=Focus', '3=Differentiation'	Bloomberg, Crunchbase, company websites
Growth Strategy	'1=Organic', '2=Alliance', '3=M&A'	
Leading Strategy	'0=Fast-Follower', '1=Pioneer'	
Target Market Strategy	'1=B2G', '2=B2B', '3=B2C', '4=C2C', '5=Mixed'	
Global Strategy	'0=Local', '1=Global'	
Digital Strategy	'0=Offline', '1=Online'	
Firm Age	Firm age (2019)	

IV. Descriptive Statistics

Based on our unique dataset of both unicorn companies and hyper-growing companies, <Table 7> and <Table 8> provide descriptive statistics by strategy variables and industry classifications.

As shown in <Table 8>, a majority of our sample both adopted 'Organic' strategy(62.7% out of total observations),

'Fast-follower' strategy(60.1%), 'B2B' strategy (54.4%), and 'Online' strategy(63.3%).

However, two studies made heterogeneous choices on 'Generic' strategy(Study A: 'Differentiation(41.5% within the sample of Study A)'; Study B: 'Focus(45.3% within the sample of study B)') and 'Global(Unicorn: 'Global(63.7%)'; Hyper-growing: 'Local(65.5%)') strategy.'

<Table 7> Descriptive statistics of strategy variables

Strategy		Merged		Unicorn companies		Hyper-growing companies	
		Frequency	%	Frequency	%	Frequency	%
Generic Strategy	Cost-leadership	149	18.3%	96	20.04%	53	15.9%
	Focus	335	41.3%	184	38.41%	151	45.3%
	Differentiation	328	40.4%	199	41.54%	129	38.7%
	Total	812	100.0%	479	100.00%	333	100.0%

Growth Strategy	Organic	509	62.7%	329	68.68%	180	54.1%
	Alliance	55	6.8%	32	6.68%	23	6.9%
	M&A	248	30.5%	118	24.63%	130	39.0%
	Total	812	100.0%	479	100.00%	333	100.0%
Leading Strategy	Pioneer	324	39.9%	163	34.03%	161	48.3%
	Fast Follower	488	60.1%	316	65.97%	172	51.7%
	Total	812	100.0%	479	100.00%	333	100.0%
Target Market Strategy	B2B	442	54.4%	234	48.85%	208	62.5%
	B2C	316	38.9%	216	45.09%	100	30.0%
	B2G	19	2.3%	2	0.42%	17	5.1%
	C2C	19	2.3%	18	3.76%	1	0.3%
	Mixed	16	2.0%	9	1.88%	7	2.1%
	Total	812	100.0%	479	100.00%	333	100.0%
Global Strategy	Global	420	51.7%	305	63.67%	115	34.5%
	Local	392	48.3%	174	36.33%	218	65.5%
	Total	812	100.0%	479	100.00%	333	100.0%
Digital Strategy	Online	514	63.3%	339	70.77%	175	52.6%
	Offline	298	36.7%	140	29.23%	158	47.4%
	Total	812	100.0%	479	100.00%	333	100.0%

<Table 8> shows that both unicorn and hyper-growing companies have a high frequency in industries such as 'Investment software & services(N=95, 17.2%)', 'Fintech(N=95, 11.7%)', and 'Health(N=81, 10.1%)'. For traditional industries like 'Construction', 'Manufacturing', 'Real Estate' and 'Consumer &

Retail', hyper-growing companies have a higher percentage. On the other hand, unicorn companies have a stronger presence in 'E-commerce & direct-to-consumer', 'Artificial Intelligence', 'and 'Data management & analytics', which require skills in advanced technologies and talented graduates from STEM(Science, Technology, Engineering, and Mathematics) fields.

<Table 8> Descriptive statistics by industry

Industry	Merged		Study A: Unicorn		Study B: Hyper-growing	
	Frequency	%	Frequency	%	Frequency	%
Internet software & services	140	17.2%	64	13.4%	76	22.8%
Fintech	95	11.7%	66	13.8%	29	8.7%
Health	81	10.0%	39	8.1%	42	12.6%
Supply chain, logistics, & delivery	66	8.1%	26	5.4%	40	12.0%
E-commerce & direct-to-consumer	66	8.1%	63	13.2%	3	0.9%
Consumer & retail	56	6.9%	14	2.9%	42	12.6%
Data management & analytics	45	5.5%	27	5.6%	18	5.4%
Artificial Intelligence	40	4.9%	39	8.1%	1	0.3%
Auto & transportation	36	4.4%	35	7.3%	1	0.3%
Mobile & telecommunications	29	3.6%	22	4.6%	7	2.1%
Construction	27	3.3%	0	0.0%	27	8.1%
Edtech	22	2.7%	20	4.2%	2	0.6%
Cybersecurity	20	2.5%	16	3.3%	4	1.2%
Manufacturing	19	2.3%	7	1.5%	12	3.6%
Hardware	19	2.3%	17	3.5%	2	0.6%
Real Estate	17	2.1%	3	0.6%	14	4.2%
Travel	14	1.7%	12	2.5%	2	0.6%
Energy	10	1.2%	2	0.4%	8	2.4%
Other	10	1.2%	7	1.5%	3	0.9%
Total	812	100.0%	479	100.0%	333	100.0%

V. Regression Analysis and Result

Based on our framework, we conduct hierarchical regression analysis for Study A, Study B, and Study C. To examine the relationship between strategy and performance and the moderating effects of firm age and industry(market) environment, we used hierarchical regression analysis. Our regression analysis include (i)Strategy, (ii)Firm age, (iii)Industry(Market), and (iv)Full Framework. The (iv)Full Framework reflects the entire framework shown in <Figure 1>, as it considers strategy variables as independent variables and industry(market) variables and firm age as moderating variables. The analysis also encompasses interaction terms to measure the moderating effects of moderating variables. Study A, with a sample of 479 unicorn companies, considers their valuation(\$B) in 2019. Study B, with a sample of 333 hyper-growing companies, considers their revenue CAGR (compound annual growth rate) between 2016 and 2019. Lastly, Study C, with the sample of both unicorn and hyper-growing companies, treats their revenue in 2019(\$M) as its dependent variable. The number of firms in Study C only amounts to 786 as 26 unicorn companies do not have revenue data for 2019. In our analysis, we did not normalize or log dependent variables. We used the values that were measured in units of revenue CAGR(%) and valuation(\$B). Furthermore, independent variables

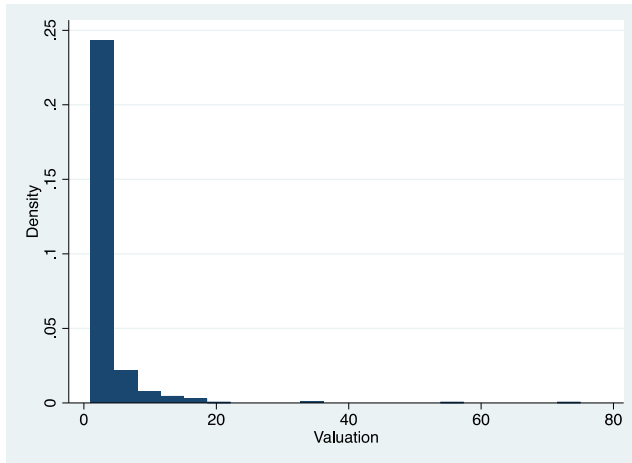
and dependent variables are measured at the same timing.

5.1 Study A: The Growth of Enterprise Value

<Table 9> provides the descriptive statistics of Study A. The average valuation of 479 unicorn companies is \$3.00B, while the median is \$1.50B. As shown in <Figure 2>, the distribution of the unicorn companies by their valuation(\$B) in Study A is right-skewed and the skewness is 8.00. The average firm age of Study A is 8.78 years and its median value is 7.00 years. Furthermore, when divided into two groups(Group 1: \$1.0B-\$1.50B; Group 2: >\$1.50B), Group 1 has 254 unicorn companies and Group 2 has 225 companies. The two groups share similar averages and the same median values for the firm age variable. It implies that the relationship between the firm age and the valuation might be weak. However, the average and median revenue(\$M, 2019) of Group 1 is lower than those of Group 2. It shows a pattern that the companies that are valued at a higher level have a higher record of revenue. For Group 1 companies, 'Internet software & services' has the most dominant industry(n=38), while 'Fintech' has the highest frequency(n=35) in Group 2.

<Table 9> Descriptive Statistics of Study A : The Growth of Enterprise Value

<Study A: Unicorn companies>								
	Valuation (\$B, 2019)	Firm age	GDP (\$B, 2019)	Population (Thousands, 2019)	Industry CAGR	Corporate Tax Rates (2019)	R&D expenditure/GDP	Science Graduates
Count	479	479	479	479	479	479	479	479
Mean	3.00	8.78	14388.96	588.01	14.74	25.53	246.39	22.46
Median	1.50	7.00	14343.00	328.00	14.82	25.89	283.77	17.40
Std. Dev.	5.47	7.03	8033.22	536.43	6.46	3.32	81.36	12.43
Skewness	8.00	5.74	-0.69	0.75	1.03	-2.07	-0.09	3.46
Kurtosis	87.93	64.59	1.85	1.76	3.69	18.42	5.23	14.72
Range	74.00	99.00	21343.00	1397.00	23.64	34.43	478.86	61.70
Minimum	1.00	1.00	31.00	1.00	5.37	0.00	16.42	13.80
Maximum	75.00	100.00	21374.00	1398.00	29.01	34.43	495.28	75.50
			Group 1			Group 2		
Range			\$1.00B-\$1.50B			> \$1.50B		
N			254			225		
Firm age (average)			8.36 years			9.24 years		
Firm age (median)			7.00 years			7.00 years		
Valuation '19 (\$B, average)			\$1.11B			\$5.13B		
Valuation '19 (\$B, median)			\$1.00B			\$3.00B		
Revenue '19 (\$M, average)			\$279.30M			\$613.50M		
Revenue '19 (\$M, median)			\$96.00M			\$156.00M		
Industry (mode)			Internet software & services (n=38)			Fintech (n=35)		
Country (mode)			United States (n=120)			United States (n=108)		



<Figure 2> Histogram of Study A (Unicorn Companies)

The hierarchical regression analysis and regression analysis by sub-groups are conducted on Study A, as shown in <Table 10>.

(i)Strategy only considers ‘strategy’ as our framework assumes that ‘strategy’ has a direct relationship with firms’ performance.

For (i)Strategy, it does not have any significant independent variable, and the R2 is 1.6%. (ii)Firm age, which takes the industry(market) variables as moderating variables as given in our framework, has both significant strategy variables, industry(market) variables, and interaction terms. The generic strategy and the digital strategy showed their statistical significance at 5% and 10%, and the directions are negative and positive respectively. The cost-leadership strategy and the online strategy contribute to a higher valuation.

<Table 10> Study A hierarchical regression analysis & regression analysis by sub-groups

Blue box: a significant variable in the hierarchical regression analysis
Italic: a significant variable in the regression analysis by sub-groups

	(i)Strategy	(ii)Firm Age	(iii)Industry (Market)	(iv)Full Framework	(i)Group 1	(ii)Group 2
Constant	1.17	2.17	16.56	15.63	18.99	74.388
Generic Strategy	-0.14	-2.48**	-0.58	-2.44	-0.08	14.14
Growth Strategy	-0.17	-0.74	-1.47	-0.93	0.10	-8.71
Leading Strategy	0.82	0.09	-1.43	-2.25	-0.28	-17.23
Target Market Strategy	0.65	0.28	-2.61	-1.98	0.20	-12.88
Global Strategy	0.85	2.47	-11.08*	-9.37	0.43	-35.55
Digital Strategy	-0.12	2.93*	0.53	2.61	0.18	-21.21
G(R)DP (2019)		-0.29	0.25	0.14	-0.08	3.21
Population (2019)		0.92**	-1.77	-1.01	0.16	-5.95
Industry Growth CAGR		-0.12	1.37	1.63	<i>0.18***</i>	1.46
Corporate Tax (2019)		0.16	-1.17	-1.44	-0.09	-7.13
R&D expenditure rate (2019)		-0.03	-2.06	-1.27	0.04	-9.71
Science graduates (2018)		0.10	-1.35	-0.86	0.10	-3.34
Firm Age		-3.81	0.31	-4.28	0.08	-2.44
Generic x Firm Age		1.81**		1.50*	0.03	2.57
Growth x Firm Age		0.54		0.26	<i>-0.05*</i>	-0.76
Leading x Firm Age		0.70		1.03	0.06	0.24
Target Market x Firm Age		0.34		0.57	0.02	0.08
Global x Firm Age		-0.48		0.36	-0.04	0.12
Digital x Firm Age		-2.17*		-1.84	<i>-0.11*</i>	-2.97
Generic x G(R)DP			0.60	0.63	0.02	-1.15
Growth x G(R)DP			-0.28	-0.29	-0.02	0.16
Leading x G(R)DP			-1.24	-1.21	0.02	-4.03
Target Market x G(R)DP			0.06	0.03	0.05	0.38
Global x G(R)DP			-0.90	-1.05	-0.06	-1.00
Digital x G(R)DP			-1.27	-0.98	0.01	-3.52
Generic x Population			-0.54	-0.52	-0.01	-0.40
Growth x Population			0.29	0.22	0.00	0.48
Leading x Population			1.45*	1.47*	-0.02	<i>3.62*</i>
Target Market x Population			0.33	0.22	-0.04	0.58
Global x Population			2.74***	2.53***	0.01	<i>4.72**</i>
Digital x Population			1.07	0.81	-0.04	<i>4.02*</i>
Generic x Industry			-0.18	-0.23	0.00	-0.14
Growth x Industry			-0.02	-0.01	-0.01	-0.37
Leading x Industry			0.31	0.34	-0.02	0.39
Target Market x Industry			-0.51	-0.58	<i>-0.05***</i>	-0.80
Global x Industry			-0.07	-0.06	0.00	0.68
Digital x Industry			0.22	0.22	-0.02	0.73
Generic x Corporate Tax			-0.22	-0.11	-0.01	-1.14
Growth x Corporate Tax			0.28	0.21	<i>0.03*</i>	1.35

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Leading x Corporate Tax			0.54	0.48	0.04	3.17
Target Market x Corporate Tax			0.25	0.28	0.01	1.21
Global x Corporate Tax			0.68	0.82	0.02	2.11
Digital x Corporate Tax			0.37	0.34	-0.01	2.47
Generic x R&D			0.14	0.06	0.01	-0.58
Growth x R&D			0.15	0.07	0.01	0.84
Leading x R&D			0.38	0.28	0.02	3.86
Target Market x R&D			0.53	0.41	-0.04	1.63
Global x R&D			0.03	-0.01	0.00	1.68
Digital x R&D			-0.04	-0.11	0.02	3.40
Generic x Science Graduates			0.34	0.29	0.00	-1.73
Growth x Science Graduates			0.04	0.01	-0.03	0.39
Leading x Science Graduates			-0.66	-0.76	0.02	-1.13
Target Market x Science Graduates			0.21	0.13	0.00	0.92
Global x Science Graduates			1.23	0.94	-0.07	3.36
Digital x Science Graduates			-0.31	-0.18	0.02	1.23
N	479	479	479	479	254	225
R2	0.016	0.059	0.107	0.121	0.241	0.202
Adjusted R2	0.003	0.020	0.005	0.007	0.030	-0.058
df1	6	19	49	55	55	55
df2	472	459	429	423	198	169

*p < .10, **p < .05, ***p < .01, ****p < .001

For the industry(market variables), the population variable turned out to be a significant variable with a positive direction, which implies that the higher population can increase the valuation of the unicorn companies. The interaction terms of firm age with strategy variables are significant for generic and digital variables. As the generic and digital strategy variables are also significant on their own, the interaction terms show the moderating effect of firm age for generic and digital strategies. It shows that for the companies that have higher firm age, differentiation and offline strategy contribute to increasing the valuation. For (iii)Industry(Market), which considers the interaction terms of industry(market) variables, the global strategy affects the valuation at a statistically significant level, and the population variable's interaction terms, including leading strategy and global strategy, are significant. As the global strategy has a negative coefficient, it shows that the firm's local strategy contributes to increasing the valuation. For interaction terms, they both have positive coefficients, which imply that the pioneer and digital and global strategies are beneficial for the firms which have a high level of population in the country they are based in.

Lastly, for (iv)Full Framework, which fully incorporates the firm age and the industry(market) variables as moderating variables, the results are similar to the (ii)Firm Age and (iii)Industry(Market). While there are no significant independent variables, the interaction terms show that the generic variable and the firm age is interacting at the statistically significant level as shown in the (ii)Firm Age. Furthermore, the population variable's interaction terms, including leading strategy and global

strategy, are significant as shown in the (iii)Industry(Market). The differentiation strategy contributes to the higher valuation for companies that have relatively high firm age, while the pioneer and global strategy would positively affect the companies that are based in the country with a high level of population. The R-squared of the (iv)Full Framework of Study A is 12.1%, and it is higher compared to that of the (i)Strategy, the (ii)Firm Age, and the (iii)Industry(Market).

When the sample is divided into two different groups based on their valuation, the findings are different. For Group 1, which consists of unicorn companies that are valued between \$1B and \$1.5B, the industry growth CAGR, firm age interaction terms, an industry growth interaction term, and a corporate tax interaction term are statistically significant. As the coefficient for the industry CAGR is positive, it implies that the companies that have a relatively low valuation, and potentially recently became part of the 'unicorn' club are more affected by the industry growth than the ones with the higher valuation. For the firm age interaction term, growth and digital strategies turn out to be significant for Group 1. As both terms are negative, the organic growth strategy and offline strategies would work better for the firms that are relatively older within Group 1. In addition, the industry growth variable and the target market variable show a significant interaction with a negative direction. Therefore, for the companies that are in the industry with high growth, B2B and B2G strategies would contribute to increasing the valuation than B2C and C2C strategies. The corporate tax variable also has significant interaction with the global strategy.

Group 2, which consists of the unicorn companies that are valued at more than \$1.5B, the variables that are significant are

different from Group 1. The population interaction terms are the only significant variable found in Group 2, and the terms are related to the leading strategy, the global strategy, and the digital strategy. As all of the variables have a positive direction, it suggests that the firms which are based in the countries with a high level of the population would have higher valuation if they adopt pioneer, global, and digital(online) strategies.

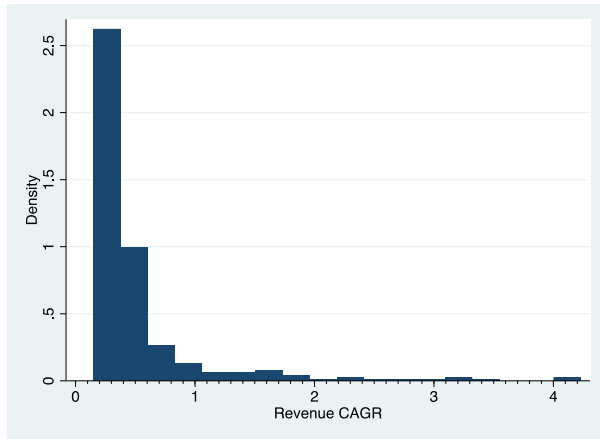
5.2 Study B : The Pace of Growth

<Table 11> exhibits a summary of dependent and independent variables of Study B. The number of hyper-growing companies in Study B is 333, which is extracted from the list of ‘Inc. the

5,000 Fastest-Growing Private Companies in America’. The selected companies reached 15% of the compound annual growth rate in the previous 3 years with more than USD 100 million revenue in 2019. The average revenue CAGR of 333 hyper-growing companies is 50.0% and the median CAGR is 31.0%. As shown in <Figure 3>, the hyper-growing companies’ distribution is right-skewed, and the skewness is 3.53. The average firm age of the hyper-growing companies by their revenue CAGR(%) in Study B is 21.40 years and the median firm age is 17.00 years. They are relatively older than the sample of Study A.

<Table 11> Descriptive Statistics of Study B : The Pace of Growth

<Study B: Hyper-growing companies>								
	Revenue CAGR (%)	Firm age	GRDP (\$B, 2019)	Population (Thousands, 2019)	Industry CAGR	Corporate Tax Index (2019)	R&D expenditure/GRDP	Science Graduates
Count	333	333	333	333	333	333	333	333
Mean	0.50	21.40	956.97	15501.51	14.77	5.01	118.54	14.78
Median	0.31	17.00	563.95	10617.42	14.82	4.90	116.83	13.87
Std. Dev.	0.58	18.83	850.57	11895.71	8.61	0.85	76.91	4.97
Skewness	3.63	3.35	1.21	0.96	0.68	0.23	0.60	2.05
Kurtosis	15.57	15.46	0.16	-0.38	2.08	4.57	2.64	9.18
Range	4.08	152.00	2745.22	38627.56	24.15	7.16	289.93	29.65
Minimum	0.15	1.00	46.81	884.66	4.86	2.63	16.93	5.50
Maximum	4.23	153.00	2792.03	39512.22	29.01	9.79	306.87	35.15
		Group 1				Group 2		
Range	15.0~40.0%				> 40.0%			
N	208				125			
Firm age (average)	24.92 years				15.54 years			
Firm age (median)	20.00 years				11.00 years			
Revenue CAGR (% , average)	24.34%				92.69%			
Revenue CAGR (% , median)	22.87%				58.87%			
Revenue '19 (\$M, average)	\$422.50M				\$549.10M			
Revenue '19 (\$M, median)	\$195.50M				\$161.00M			
Industry (mode)	Internet software & services(n=44)				Internet software & services(n=32)			
State (mode)	California(n=27)				California(n=17)			



<Figure 3> Histogram of Study B (Hyper-growing Companies)

When divided the sample of Study B into two groups (Group 1: 15.0~40.0%; Group 2:>40.0%), Group 2, which has a higher revenue CAGR, has a lower firm age average and median. While the Study A sub-groups shared similar average and median firm age values, the Study B sub-groups show a

different trend. Furthermore, the average revenue (\$M, 2019) is higher in Group 2 than Group 1, while the median revenue (\$M, 2019) is higher in Group 1. The ‘Internet software & services’ industry is the industry that has the highest frequency in both groups, while they are also concentrated in ‘California.’

<Table 12> shows the hierarchical regression analysis and sub-groups regression analysis on Study B.

For (i)Strategy, the global strategy is significant and has a negative coefficient, meaning that the local strategy would positively affect the revenue CAGR. A similar finding is given in (ii)Firm Age, which also shows the global strategy with its statistically significant coefficient. The leading strategy is also significant in the (ii)Firm Age of Study B and the direction is positive, implying that the pioneer strategy would increase the revenue CAGR. For the (ii)Firm Age’s interaction terms, the leading strategy and the firm age have significant interaction. It shows that the pioneer strategy would work better if the firm is relatively younger.

<Table 12> Study B hierarchical regression analysis & regression analysis by sub-groups

Blue box: a significant variable in the hierarchical regression analysis
Italic: a significant variable in the regression analysis by sub-groups

	(i)Strategy	(ii)Firm Age	(iii)Industry (Market)	(iv)Full Framework	(i)Group 1	(ii)Group 2
Constant	41.57	78.50	154.44	293.42	50.49	350.481
Generic Strategy	-4.80	-16.25	-1.79	-21.77	-1.09	-27.78
Growth Strategy	2.69	10.94	-15.23	-12.95	-2.85	2.30
Leading Strategy	6.16	55.12***	-21.09	41.75	9.13	-25.16
Target Market Strategy	5.64	2.33	-42.70	-55.49*	-7.06	-112.48
Global Strategy	-12.70*	-44.33**	4.36	-23.85	-10.89	162.56
Digital Strategy	4.73	10.45	-23.66	-35.49	3.04	-23.24
G(R)DP (2019)		6.12	-24.27	-18.17	-13.30**	-72.53
Population (2019)		-2.46	-6.63	-13.43	12.23**	-14.86
Industry Growth CAGR		0.90	-1.28	-2.50	-4.77**	8.18
Corporate Tax (2019)		2.38	-28.78**	-30.39**	0.12	-28.85
R&D expenditure rate (2019)		1.23	8.27	7.43	1.89	80.82
Science graduates (2018)		1.13	13.18	13.49	-3.11	-41.84
Firm Age		-30.91	-32.92****	-58.91**	-2.27	2.47
Generic x Firm Age		6.97		9.17	-1.52	10.36
Growth x Firm Age		-3.49		0.16	-1.06	7.06
Leading x Firm Age		-24.89***		-26.18**	-1.09	-38.18
Target Market x Firm Age		0.21		5.88	1.89	-5.41
Global x Firm Age		15.25		10.12	5.27**	-21.68
Digital x Firm Age		-7.52		3.16	-2.24	-29.26
Generic x G(R)DP			-17.99*	-20.25*	3.98**	-33.76
Growth x G(R)DP			-5.39	-6.15	0.81	-6.28
Leading x G(R)DP			24.47	24.08	-1.79	54.67
Target Market x G(R)DP			22.54**	22.86**	0.83	41.15
Global x G(R)DP			12.35	17.71	-4.11	7.60
Digital x G(R)DP			22.87	20.28	7.62***	63.01
Generic x Population			17.98**	20.19**	-3.37*	33.20
Growth x Population			8.80	9.24	-0.13	13.98
Leading x Population			-21.76	-22.03	0.75	-40.30
Target Market x Population			-11.63	-11.50	-1.10	-13.01
Global x Population			-14.02	-18.18	3.49	-25.32
Digital x Population			-18.48	-15.54	-6.73***	-46.64
Generic x Industry			-0.09	0.13	0.28	0.90

Growth x Industry			0.87	0.38	0.00	2.73
Leading x Industry			2.31	1.09	-0.03	-8.67
Target Market x Industry			0.73	1.11	1.57**	2.38
Global x Industry			0.76	0.30	0.79	-3.15
Digital x Industry			-6.05	-4.57	-0.10	-19.90
Generic x Corporate Tax			0.10	0.66	0.83	0.20
Growth x Corporate Tax			1.42	1.45	0.48	-3.59
Leading x Corporate Tax			2.14	0.32	-0.39	-2.92
Target Market x Corporate Tax			10.73**	11.02**	-0.69	13.68
Global x Corporate Tax			-2.05	-0.83	-0.68	-9.36
Digital x Corporate Tax			8.07	8.53*	-0.18	26.65*
Generic x R&D			6.31	6.48	-1.30*	11.69
Growth x R&D			3.13	3.49	0.29	-0.77
Leading x R&D			-6.99	-7.82	-0.30	-21.47
Target Market x R&D			-9.44**	-9.25**	0.27	-31.54**
Global x R&D			-3.29	-4.15	1.44	-8.14
Digital x R&D			0.47	1.09	-1.04	-15.29
Generic x Science Graduates			-5.82	-5.74	0.74	-9.82
Growth x Science Graduates			-2.01	-2.41	0.29	-7.10
Leading x Science Graduates			7.74	7.73	-0.24	41.36**
Target Market x Science Graduates			0.77	0.41	0.28	23.54
Global x Science Graduates			-0.61	1.08	-1.13	-9.96
Digital x Science Graduates			-0.23	-0.05	1.27	9.24
N	333	333	333	333	208	125
R2	0.022	0.189	0.261	0.281	0.307	0.448
Adjusted R2	0.004	0.140	0.133	0.138	0.056	0.007
df1	6	19	49	55	55	55
df2	326	313	283	277	152	69

*p < .10, **p < .05, ***p < .01, ****p < .001

In (iii)Industry(Market), the industry(market) variables are considered, and the corporate tax and the firm age independent variables are significant, while the strategy variables are not shown to be significant. As both coefficients have negative directions, lower firm age and higher corporate tax would positively affect the higher valuation. Furthermore, the interaction terms for GRDP are significant for the generic and the target market strategies, while the interaction term of the generic strategy and the population variable is also significant. The corporate tax index variable with the target market strategy and the R&D expenditure rate variable with the target market strategy is significant. Therefore, for the regions with higher GRDP, the cost-leadership strategy and B2G or B2B would positively affect the higher revenue CAGR. On the other hand, the differentiation strategy would contribute to increasing the revenue CAGR if the company is based in a region with a relatively higher population. For the regions with a higher R&D expenditure rate, the B2C or C2C strategies would be more effective for increasing the revenue CAGR, while the B2G or B2B strategies would be appropriate for the regions with a lower corporate tax rate.

For (iv)Full Framework, which includes both the firm age and the industry(market) variables as moderating variables, it shows that the target market strategy, the corporate tax index, and the

firm age are significant. As the target market variable has a negative coefficient, the B2G or B2B strategies would contribute to increasing the revenue CAGR. The findings of (iv)Full Framework for the industry(market) independent variables are similar to that of the (iii)Firm Age. Lower corporate tax index and lower firm age would increase the revenue CAGR of Study B. The interaction terms' significance and directions of the (iv)Full Framework are also identical to those of the (iii)Firm Age. The generic strategy-GRDP, the target market strategy-GRDP, the generic strategy-population, the target market strategy-corporate tax index, and the target market strategy-R&D expenditure rate are significant interaction terms.

In addition, when the sample is divided into two groups, significant variables, and the interaction terms are different between Group 1 and Group 2. For Group 1, the GRDP variable, the population variable, and the industry CAGR variable are shown to be significant, while the strategy variables are not significant. Therefore, the companies that have a lower revenue CAGR, lower GRDP, and higher industry growth rate would contribute to increasing the revenue CAGR. On the other hand, Group 2 does not have any significant variables for both the strategy and the industry(market) independent variables.

For interaction terms, Group 1 has interaction terms for the GRDP variable, the population variable, the industry growth variable, and the R&D expenditure rate variable. For the GRDP

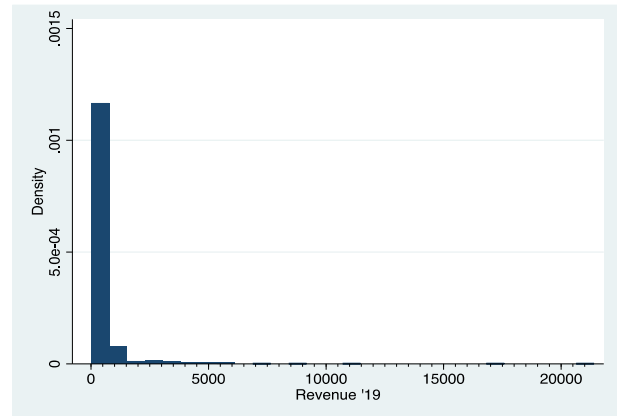
variable, the generic strategy and the digital strategy are significant with positive directions, implying that differentiation and online strategies would positively contribute to increasing the revenue CAGR in the regions with a relatively high level of GRDP. The population variable has significant interaction with the digital strategy. It shows that if the company is based in a region with a lower level of population, online strategy is more likely to increase the revenue CAGR. The industry CAGR variable and the target market strategy have significant interaction with a positive direction. Therefore, the B2C or C2C strategies would positively affect the revenue CAGR for the companies that are in growing industries. Lastly, for the regions with a relatively low rate of R&D expenditure, the differentiation strategy would have a positive impact on increasing the revenue CAGR. The R-squared of (iv)Full Framework is 28.1% and it is the highest among the four regression analysis.

On the other hand, Group 2 has a limited range of interaction terms. The corporate tax index and the digital strategy have a positive and significant interaction, showing that the online strategy would contribute to achieving a higher revenue CAGR if the company is based in the region with a relatively lower corporate tax rate. The R&D expenditure rate variable has significant interaction with the target market strategy. If the company is based in the state with a high level of R&D expenditure rate, B2B or B2G strategies would be more effective in increasing the revenue CAGR. In the states with a higher rate of STEM graduates, the pioneer strategies would have a positive impact on increasing the Group 2 companies' revenue CAGR.

5.3 Study C : The Effectiveness of Growth

The purpose of examining Study C is to analyze the pattern of

both 'unicorn' and 'hyper-growing' companies' datasets in a single study. By setting the companies' revenue (\$M, 2019) as the regression analysis dependent variable, it allows the integration of the two datasets. The total number of companies within Study C is 786 (excluding 26 unicorn companies without the corresponding data), and their average revenue(2019) is \$454.51M. The average value of the revenue(2019) is \$443.09M for Study A (unicorn companies) and \$443.09M for Study B (hyper-growing companies). The median value of the revenue (2019) is \$150.0M and lower than the average, implying its right-skewed distribution as shown in <Figure 4>.



<Figure 4> Histogram of Study C (Unicorn+Hyper-growing Companies)

The average firm age of Study C is 14.23 years while the median is 10.00 years. The average(14.77%) and the median (14.82%) of the industry growth in Study C are similar to Study A and Study B. Study C is divided into two groups based on the median of revenue in 2019(Group 1: \$1.00M-\$150.0M; Group 2:>\$150.0M). The average and the median of the firm age in Group 1 are lower than in Group 2.

<Table 13> Descriptive Statistics of Study C : The Effectiveness of Growth

<Study C: Merged(Unicorn+Hyper-growing Companies)>			
	Revenue(\$M, '19)	Firm age	Industry CAGR
Count	786	786	786
Mean	454.51	14.23	14.83
Median	150.00	10.00	14.82
Std. Dev.	1318.09	14.74	7.47
Skewness	9.53	4.19	0.82
Kurtosis	123.86	28.75	2.74
Range	21399.00	152.00	24.15
Minimum	1.00	1.00	4.86
Maximum	21400.00	153.00	29.01
	Group 1		Group 2
Range	\$1.00M-\$150.0M		> \$150.0M

N	394	392
Firm age(average)	11.09 years	17.37 years
Firm age(median)	8.00 years	12.00 years
Revenue '19(\$M, average)	\$81.4M	\$829.5M
Revenue '19(\$M, median)	\$100.0M	\$339.5
Industry(mode)	Internet software & services(n=68)	Internet software & services(n=71)

For (i)Strategy of Study C, the leading strategy and the digital strategy are significant, while both variables have different directions. The leading strategy has a positive coefficient and the digital strategy has a negative coefficient, implying that the pioneer and offline strategies would positively affect the revenue values. Other strategy variables, including the generic, the growth, the target market, and digital strategies are not significant in (i)Strategy. The (ii)Firm Age shows a similar finding as the leading strategy is also significant with a positive direction, while the global strategy is no longer significant in the (ii)Firm Age with the consideration of the industry(market) independent variables and the firm age interaction terms. For the industry(market) independent variables, the GRDP(2019) and the population(2019) variables are significant. As the G(R)DP (2019) variable has a negative direction and the population(2019) variable has a positive direction, the lower G(R)DP and the higher population levels would positively affect the dependent variable.

With consideration of the industry(market) variable as a moderating variable, the generic strategy, and the digital strategy are both significant with negative directions in

(iii)Industry(Market). The cost-leadership strategy and the offline strategies would have a positive impact on increasing the revenue. Furthermore, the R&D expenditure rate variable is shown to be significant although other industry(market) variables are not significant in the (iii)Industry(Market). As the R&D expenditure has a negative coefficient, it suggests that the companies that are based in the regions with lower R&D expenditure rates would achieve higher revenue. For the interaction terms in the (iii)Industry(Market), the population variable has significant interactions with the leading strategy and the global strategy. As both interaction terms have significant directions, the pioneer and the global strategies would contribute to increasing the revenue if the population is at a relatively higher level. The interaction between the corporate tax and the digital strategy is also significant, implying that the digital strategy would be more effective in increasing the revenue if a company is based in a region with a relatively lower level of the corporate tax rate. Furthermore, the differentiation strategy would positively affect the revenue if the STEM graduates' rate is relatively high in the region.

<Table 14> Study C hierarchical regression analysis & regression analysis by sub-groups

Blue box: a significant variable in the hierarchical regression analysis
Italic: a significant variable in the regression analysis by sub-groups

	(i)Strategy	(ii)Firm Age	(iii)Industry (Market)	(iv)Full Framework	(i)Group 1	(ii)Group 2
Constant	581.54	12.97	3376.46	2215.10	242.83	4005.400
Generic Strategy	-83.25	-24.78	-880.97*	-827.22	<i>71.88**</i>	-1355.21
Growth Strategy	31.95	-101.37	549.50	540.76	11.71	<i>1303.50*</i>
Leading Strategy	211.91**	470.59*	-463.87	-145.28	-57.21	-1193.60
Target Market Strategy	5.56	230.04	-358.96	-66.17	<i>-73.53***</i>	-275.42
Global Strategy	47.52	481.27*	446.24	964.81	<i>-89.41*</i>	1555.02
Digital Strategy	-193.60**	-114.18	-1532.55**	-1666.44**	<i>-82.53*</i>	<i>-3331.46**</i>
G(R)DP (2019)		-141.95*	61.37	55.83	3.23	155.94
Population (2019)		122.92*	-275.53	-237.15	-23.40	-621.06
Industry Growth CAGR		5.81	292.26	303.45	-1.92	533.83
Corporate Tax (2019)		-34.10	-128.00	-60.76	-18.36	-231.00
R&D expenditure rate (2019)		-6.08	-505.78*	-468.21	-8.30	-564.29
Science graduates (2018)		-27.59	-346.99	-361.96	3.99	-360.57
Firm Age		477.34	-20.29	426.68	-5.37	177.34
Generic x Firm Age		-36.36		-22.82	-8.15	-27.45
Growth x Firm Age		84.38		17.12	-3.77	118.56
Leading x Firm Age		-156.68		-109.37	11.30	-314.90
Target Market x Firm Age		-138.31		-123.72	11.60	-118.89
Global x Firm Age		-234.30		-215.02	13.04	-451.87

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Digital x Firm Age		-41.93		63.22	8.61	249.34
Generic x G(R)DP			30.01	26.47	-2.95	10.14
Growth x G(R)DP			22.11	24.43	-5.43	64.28
Leading x G(R)DP			-282.98	-289.33	-15.55*	-343.18
Target Market x G(R)DP			-24.14	-23.71	4.20	-54.36
Global x G(R)DP			-188.93	-178.62	0.24	-311.30
Digital x G(R)DP			-88.58	-96.08	7.72	-241.48
Generic x Population			2.79	3.70	-0.30	81.86
Growth x Population			-53.51	-54.73	6.18*	-120.66
Leading x Population			452.90***	449.08***	17.90**	663.58**
Target Market x Population			26.57	16.83	1.23	59.55
Global x Population			321.56**	296.88**	9.62	423.11
Digital x Population			188.48	201.76	-6.15	533.08*
Generic x Industry			-62.49	-62.08	-2.00	-158.66
Growth x Industry			3.07	3.47	-0.44	9.94
Leading x Industry			38.75	30.78	-1.58	100.59
Target Market x Industry			-46.97	-48.83	-0.42	-87.31
Global x Industry			-79.67	-82.60	1.99	-36.19
Digital x Industry			-32.79	-31.22	8.91**	-50.36
Generic x Corporate Tax			47.10	40.01	-4.61	100.48
Growth x Corporate Tax			-74.32	-79.17**	1.82	-189.63**
Leading x Corporate Tax			60.81	42.97	10.69**	154.92
Target Market x Corporate Tax			5.77	-7.72	4.19	39.04
Global x Corporate Tax			13.49	-16.26	4.42	-16.73
Digital x Corporate Tax			163.97*	181.40**	1.55	376.32**
Generic x R&D			99.71	102.16	-2.91	153.37
Growth x R&D			-21.65	-26.10	0.10	-109.04
Leading x R&D			3.14	-6.82	9.92*	-5.45
Target Market x R&D			118.00	110.15	3.12	176.16
Global x R&D			-118.84	-134.03	-0.65	-151.83
Digital x R&D			134.14	134.42	3.70	180.98
Generic x Science Graduates			134.27*	136.96*	-5.79	232.13*
Growth x Science Graduates			-38.26	-35.64	-3.43	-144.78
Leading x Science Graduates			-57.16	-57.38	-5.58	52.70
Target Market x Science Graduates			47.43	51.41	3.29	26.91
Global x Science Graduates			-40.51	-38.38	2.99	-30.06
Digital x Science Graduates			58.93	44.91	9.31	46.49
N	786	786	786	786	394	392
R2	0.013	0.025	0.075	0.079	0.298	0.136
Adjusted R2	0.005	0.001	0.014	0.010	0.184	-0.006
df1	6	19	49	55	55	55
df2	779	766	736	730	338	336

*p < .10, **p < .05, ***p < .01, ****p < .001

For (iv)Full Framework, the findings are similar to the (iii)Industry(Market), especially for the interaction terms. The digital strategy is significant with a negative direction in the (iv)Full Framework, suggesting that the offline strategy would contribute to increasing the revenue. However, other strategy variables and the industry(market) variables are not shown to be significant. The interaction terms are significant for the population(2019) variable, the corporate tax index variable, and the STEM graduate variable. As the population variable has positive interactions with the leading strategy and the global strategy, similar to the interaction terms in (iii)Industry(Market), the pioneer and the global strategies would be more effective in the regions with a higher level of population. For the corporate tax index variable, the global strategy variable and the growth

strategy variable are significant. The growth strategy interaction term with the corporate tax index is negative, implying that the organic growth strategy would better serve for increasing the revenue in regions with lower levels of the corporate tax rate. As the interaction term between the global strategy and the corporate tax index is positive, the global strategy would have a greater synergy in creating a higher revenue if the company is based in regions with a lower level of the corporate tax rate. Lastly, the interaction term between the STEM graduates' rate variable and the generic strategy is significant with a positive direction and shows a similar finding as to the (iii)Industry(Market). The differentiation strategy would positively contribute to increasing the revenue in the regions with higher rates of science graduates.

When the sample of Study C is divided into two sub-groups, the significant variables differ by the sub-group. For Group 1, which is composed of companies with lower than \$150.1 of annual revenue in 2019, the generic strategy, the target market strategy, the global strategy, and the digital strategy are significant. On the other hand, Group 2 has the growth strategy and the digital strategy as significant strategy variables. It shows that the differentiation strategy, the B2G or B2B strategy, the local strategy, and the offline strategy would be effective for Group 1, while only the organic growth strategy and the offline strategy are significantly affecting the firm's revenue growth in the Group 2.

In terms of interaction terms, Group 1 has significant interaction terms for the GRDP(2019) variable, the population variable, the industry growth variable, the corporate tax variable, and the R&D expenditure rate variable. The GRDP variable shows significant interaction with the leading strategy. As the direction is negative, it implies that the fast-follower strategy would contribute to increasing the revenue if a company is based in regions with a high level of GRDP. For the population interaction terms, the growth and the leading strategies are both significant and positive, suggesting that the M&A strategy and the pioneer strategies would contribute to increasing the revenue if a company is based in regions with a high level of population. The digital strategy and the industry CAGR have a significant interaction, while the corporate tax and the leading strategy have significant interaction. These findings suggest that the company would achieve a higher revenue if the online strategy is selected for companies that are in growing industries and if the pioneer strategy is chosen for companies that are based in regions with a lower level of the corporate tax rate. Lastly, the positive and significant interaction term between the R&D expenditure rate and the leading strategy suggests that the pioneer strategy for companies that are based in regions with a high level of R&D expenditure rate can achieve higher revenue. On the other hand, Group 2 has different sets of interaction terms from Group 1 except for the interaction term between the leading strategy and the population variable. It suggests that both Group 1 and Group 2 benefit from adopting the pioneer strategy if a company is located in regions with a high level of population. Other than this interaction term, the significant interaction terms of the Group 2 are different. The population variable has significant interaction with the digital strategy, showing that the online strategy could positively affect the revenue if a company is based in regions with a high level of population. Furthermore, Group 2 has significant interaction terms for the corporate tax index variable with the growth and the digital strategies. As the growth strategy and the corporate tax

index have a negative interaction term, the organic growth strategy would positively affect the revenue for regions with a lower corporate tax rate. For the digital strategy interaction term with the corporate tax index, the online strategy would contribute to increasing the revenue if the company is based in regions with a lower corporate tax rate. Lastly, the generic strategy and the STEM graduate variable have significant interaction with a positive direction, suggesting that the differentiation strategy would positively affect the dependent variable if a company is located in the region with a relatively higher rate of STEM graduates.

5.4 Drivers and Factors of Growth: The Growth of Enterprise Value(Study A) vs. The Pace of Growth(Study B) vs. The Effectiveness of Growth(Study C)

Through comparing the findings of three Study A, B, and C, it reveals that different independent variables are significant for each Study. For (i)Strategy, which examines the direct relationship between strategy and performance, the global strategy is significant for Study B while the leading strategy and the digital strategy are significant for Study C. As the coefficient is negative for the global strategy, hyper-growing companies would achieve higher revenue CAGR if a company adopted a local strategy. For Study C, which considers revenue (\$M, 2019) as its dependent variable, the pioneer strategy and the offline strategy would contribute to increasing the revenue size. Study A did not have any significant variables for the (i)Strategy.

For (ii)Firm Age, which considers industry(market) independent variables and firm age interaction terms, the significant variables are different for each Study. For the strategy variables, a cost-leadership strategy and a digital strategy are significant for Study A, while both leading and global strategies are significant for Study B and Study C. As Study B and Study C have different directions for the global strategy, the local strategy would contribute to increasing the revenue growth for Study B and the global strategy would affect the revenue size for Study C. For the leading strategy, both Study B and C would increase their dependent variable if they adopt the pioneer strategy. For industry(market) variables, a population(2019) variable showed its significance for both Study A and C with positive directions, suggesting that locating in regions with relatively high populations would contribute to increasing the valuation for Study A and the revenue size for Study C. Furthermore, a GRDP variable is significant for Study C with a negative direction. Therefore, locating in the region with a lower GDP or

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GRDP could positively affect both unicorn and hyper-growing companies' revenue size.

In terms of firm age interaction terms, the generic strategy and the digital strategy are significant for Study A and the leading strategy is significant for Study B. Study C did not have any significant firm interaction terms. For unicorn companies in Study A, the generic strategy and the offline strategies would contribute to increasing the valuation as the firm age increases. For hyper-growing companies in Study B, the fast-follower strategy would positively affect their revenue CAGR if the firm age is higher.

(iii)Industry(Market) shows that each Study has different significant variables for industry(market) interaction terms. For

Study A, the local strategy would lead to higher valuations of unicorn companies while the cost-leadership strategy and the offline strategy have the potentials of contributing to higher revenue for Study C. For industry(market) variables, the R&D expenditure rate is significant for Study C with a positive coefficient, while the corporate tax index and the firm age are significant for Study B with negative coefficients. Therefore, for hyper-growing companies, locating in the regions with the high corporate tax rate would rather increase the companies' revenue growth, while the lower firm age can positively affect their revenue growth. For Study C, locating in the region with a low R&D expenditure rate can contribute to increasing the revenue size.

<Table 15> Study A, B, and C hierarchical regression analysis

Blue box: a significant variable in the hierarchical regression analysis
Underlined in a blue box: a significant variable both in the hierarchical regression analysis and the regression analysis by sub-groups
Underlined and *Italic*: a significant variable in the regression analysis by sub-groups

	(i)Strategy			(ii)Firm age			(iii)Industry (Market)			(iv)Full Framework		
	Study A	Study B	Study C	Study A	Study B	Study C	Study A	Study B	Study C	Study A	Study B	Study C
Constant	1.17	41.57	581.54	2.17	78.50	12.97	16.56	154.44	3376.46	15.63	293.42	2215.10
Generic Strategy	-0.14	-4.80	-83.25	-2.48**	-16.25	-24.78	-0.58	-1.79	-880.97*	-2.44	-21.77	<u>-827.22</u>
Growth Strategy	-0.17	2.69	31.95	-0.74	10.94	-101.37	-1.47	-15.23	549.50	-0.93	-12.95	<u>540.76</u>
Leading Strategy	0.82	6.16	211.91**	0.09	55.12***	470.59*	-1.43	-21.09	-463.87	-2.25	41.75	-145.28
Target Market Strategy	0.65	5.64	5.56	0.28	2.33	230.04	-2.61	-42.70	-358.96	-1.98	-55.49*	<u>-66.17</u>
Global Strategy	0.85	-12.70*	47.52	2.47	-44.33**	481.27*	-11.08*	4.36	446.24	-9.37	-23.85	<u>964.81</u>
Digital Strategy	-0.12	4.73	-193.60**	2.93*	10.45	-114.18	0.53	-23.66	-1532.55*	2.61	-35.49	<u>-1666.4**</u>
G(R)DP (2019)				-0.29	6.12	-141.95*	0.25	-24.27	61.37	0.14	<u>-18.17</u>	55.83
Population (2019)				0.92**	-2.46	122.92*	-1.77	-6.63	-275.53	-1.01	<u>-13.43</u>	-237.15
Industry Growth CAGR				-0.12	0.90	5.81	1.37	-1.28	292.26	<u>1.63</u>	<u>-2.50</u>	303.45
Corporate Tax (2019)				0.16	2.38	-34.10	-1.17	-28.78**	-128.00	-1.44	-30.39**	-60.76
R&D expenditure rate (2019)				-0.03	1.23	-6.08	-2.06	8.27	-505.78*	-1.27	7.43	-468.21
Science graduates (2018)				0.10	1.13	-27.59	-1.35	13.18	-346.99	-0.86	13.49	-361.96
Firm Age				-3.81	-30.91	477.34	0.31	-32.92***	-20.29	-4.28	-58.91**	426.68
Generic x Firm Age				1.81**	6.97	-36.36				1.50*	9.17	-22.82
Growth x Firm Age				0.54	-3.49	84.38				<u>0.26</u>	0.16	17.12
Leading x Firm Age				0.70	-24.89***	-156.68				1.03	-26.18**	-109.37
Target Market x Firm Age				0.34	0.21	-138.31				0.57	5.88	-123.72
Global x Firm Age				-0.48	15.25	-234.30				0.36	<u>10.12</u>	-215.02
Digital x Firm Age				-2.17*	-7.52	-41.93				<u>-1.84</u>	3.16	63.22
Generic x G(R)DP							0.60	-17.99*	30.01	0.63	<u>-20.25*</u>	26.47
Growth x G(R)DP							-0.28	-5.39	22.11	-0.29	-6.15	24.43
Leading x G(R)DP							-1.24	24.47	-282.98	-1.21	24.08	-289.33
Target Market x G(R)DP							0.06	22.54**	-24.14	0.03	22.86**	<u>-23.71</u>
Global x G(R)DP							-0.90	12.35	-188.93	-1.05	17.71	-178.62
Digital x G(R)DP							-1.27	22.87	-88.58	-0.98	<u>20.28</u>	-96.08
Generic x Population							-0.54	17.98**	2.79	-0.52	20.19**	3.70
Growth x Population							0.29	8.80	-53.51	0.22	9.24	<u>-54.73</u>
Leading x Population							1.45*	-21.76	452.90***	1.47*	-22.03	449.08***
Target Market x Population							0.33	-11.63	26.57	0.22	-11.50	16.83
Global x Population							2.74***	-14.02	321.56**	2.53***	-18.18	296.88**
Digital x Population							1.07	-18.48	188.48	<u>0.81</u>	<u>-15.54</u>	<u>201.76</u>
Generic x Industry							-0.18	-0.09	-62.49	-0.23	0.13	-62.08
Growth x Industry							-0.02	0.87	3.07	-0.01	0.38	3.47
Leading x Industry							0.31	2.31	38.75	0.34	1.09	30.78
Target Market x Industry							-0.51	0.73	-46.97	<u>-0.58</u>	<u>1.11</u>	-48.83
Global x Industry							-0.07	0.76	-79.67	-0.06	0.30	-82.60
Digital x Industry							0.22	-6.05	-32.79	0.22	-4.57	<u>-31.22</u>
Generic x Corporate Tax							-0.22	0.10	47.10	-0.11	0.66	40.01

Growth x Corporate Tax							0.28	1.42	-74.32	0.21	1.45	-79.17**
Leading x Corporate Tax							0.54	2.14	60.81	0.48	0.32	42.97
Target Market x Corporate Tax							0.25	10.73**	5.77	0.28	11.02**	-7.72
Global x Corporate Tax							0.68	-2.05	13.49	0.82	-0.83	-16.26
Digital x Corporate Tax							0.37	8.07	163.97*	0.34	8.53*	181.40**
Generic x R&D							0.14	6.31	99.71	0.06	6.48	102.16
Growth x R&D							0.15	3.13	-21.65	0.07	3.49	-26.10
Leading x R&D							0.38	-6.99	3.14	0.28	-7.82	-6.82
Target Market x R&D							0.53	-9.44**	118.00	0.41	-9.25**	110.15
Global x R&D							0.03	-3.29	-118.84	-0.01	-4.15	-134.03
Digital x R&D							-0.04	0.47	134.14	-0.11	1.09	134.42
Generic x Science Graduates							0.34	-5.82	134.27*	0.29	-5.74	136.96*
Growth x Science Graduates							0.04	-2.01	-38.26	0.01	-2.41	-35.64
Leading x Science Graduates							-0.66	7.74	-57.16	-0.76	7.73	-57.38
Target Market x Science Graduates							0.21	0.77	47.43	0.13	0.41	51.41
Global x Science Graduates							1.23	-0.61	-40.51	0.94	1.08	-38.38
Digital x Science Graduates							-0.31	-0.23	58.93	-0.18	-0.05	44.91
N	479	333	786	479	333	786	479	333	786	479	333	786
R2	0.016	0.022	0.013	0.059	0.189	0.025	0.107	0.261	0.075	0.121	0.281	0.079
Adjusted R2	0.003	0.004	0.005	0.020	0.140	0.001	0.005	0.133	0.014	0.007	0.138	0.010
df1	6	6	6	19	19	19	49	49	49	55	55	55
df2	472	326	779	459	313	766	429	283	736	423	277	730

*p < .10, **p < .05, ***p < .01, ****p < .001

For GRDP interaction terms, only Study B has significant interaction terms for the generic strategy and the target market strategy. The interaction terms are significant with a negative and a positive direction respectively, suggesting that the cost-leadership and the B2C or C2C strategy would contribute to increasing the revenue growth if a hyper-growing company is based in regions with a high level of GRDP.

For population interaction terms, Study A and Study C share the same significant interaction terms with the same directions for the leading strategy and with the global strategy. It shows that as for firms that are located in regions with a high level of population, their valuation and their revenue size could increase if they adopt the pioneer and the global strategies. Study B also has a significant population interaction term for the generic strategy, which implies that the differentiation strategy would contribute to increasing the revenue growth if the population level is relatively high in the region.

For corporate tax index variables, the target market strategy and the digital strategy are significant for Study B and Study C, respectively. Therefore, for hyper-growing firms, the B2C or C2C strategies would positively affect the revenue growth if the corporate tax rate is low in the region. Under the same condition of having a low corporate tax rate, both unicorn and hyper-growing companies can benefit from adopting the online strategy.

For R&D expenditure rate interaction terms, only Study B showed its significance for the target market with a negative direction. It implies that the B2G or B2B strategy would positively affect the revenue growth if the R&D expenditure rate is high in the region. For Study A and Study C, there are no

significant interaction terms for R&D expenditure rate.

Lastly, for STEM graduate rate interaction terms, Study C has its significant interaction with the generic strategy with a positive direction, while Study A and B do not have significant interaction terms for the STEM graduate rate variable. The differentiation strategy would contribute to increasing both unicorn companies' and hyper-growing companies' revenue size if a company is based in the region of a higher rate for STEM graduates.

For (iv)Full Framework, which considers both the firm age and the industry(market) variables as moderating variables, it exhibits a similar pattern as the (ii)Firm Age and the (iii)Industry(Market) for interaction terms in particular. For strategy variables, the target market strategy and the digital strategy are significant for Study B and C, respectively, while Study A does not have any significant strategy independent variable. The B2G or B2B strategy would contribute to increasing the revenue growth of Study B while the offline strategy positively affects the revenue size for Study C. For the industry(market) variables, the corporate tax variable and the firm age variable are significant like the pattern shown in the (iii)Industry(Market).

The strategy variables having significant interactions with the firm age are the generic strategy for Study A and the leading strategy for Study B, which is a similar pattern from the (iii)Industry(Market). The differentiation strategy for Study A and the fast-follower strategy for Study B would positively affect the valuation and the revenue growth for each Study if a company has a relatively high firm age. Like in the (iii)Industry(Market), strategy variables of Study C do not have any significant interactions with the firm age moderating variable.

Regarding the industry(market) variables' interactions with strategies, the significant variables of the (iv)Full Framework are similar to those of the (iii)Firm Age.

In terms of the GRDP interaction terms, Study B has shown significant interactions between the GRDP variable and three strategy variables, while the sub-groups of Study B and Study C have variables with high significance. To summarize, for hyper-growing companies (Study B), which are located in regions with a high level of GRDP, they could increase their revenue CAGR if they adopt the cost-leadership and the B2C or C2C strategies. Depending on the level of the revenue growth, the interaction terms of GRDP have different implications for Study B. Only Group 1 of Study B, which has a lower level of revenue CAGR (below 40% of revenue CAGR), has significant GRDP interaction terms with the generic and the digital strategies. For Study C, the target market strategy is only significant for the Group 1 of Study C, which has a lower revenue size (\$1.0M-\$150.0M) compared to Group 2.

For the population interaction terms, the leading strategy and the global strategy are significant for both Study B and Study C. Study A has a significant variable for the generic strategy. These significant interaction terms in the three Studies are the same as the pattern exhibited in the (iii)Industry(Market). In addition, the sub-groups of each study have different significance for each interaction term. For Study A, only Group 2 has significant interactions of the population variable with the generic strategy, the global strategy, and the digital strategy. For Study B, only Group 1 has a significant interaction between the population variable and the digital strategy. For Study C, the growth strategy is significant for Group 1, while Group 2 has a significant interaction for the digital strategy. Both Group 1 and Group 2 of Study C have significant interactions between the leading strategy and the population variable. These findings show that the digital strategy is having significant interaction with the population for highly valued unicorn companies, hyper-growing companies with relatively low revenue growth rate, and unicorn and hyper-growing companies with a larger revenue size. For Group 2 of Study A and Study C, which have a high valuation and revenue(2019), the online strategy would positively affect the dependent variables if a firm is based in regions with a high level of population. On the other hand, Group 1 of Study B would increase its revenue growth if a hyper-growing company, which is based in regions with a high level of population, adopts the offline strategy.

For the industry growth interaction terms, there are no significant variables on the (iv)Full Framework, but several variables of sub-groups have shown their statistical significance for the target market strategy and the digital strategy. For the

Group 1 of Study A and Study B, the target market strategy and the industry growth variable have significant interaction with a negative coefficient, while the Group 2 of Study A and Study B do not have any significant interactions. It shows that the B2C or C2C strategy would contribute to increasing the valuation of unicorn companies and the revenue growth of hyper-growing companies if the company is in a growing industry. For Group 1 of Study C, the digital strategy is having significant interaction with the industry growth rate variable, suggesting that the online strategy would positively affect the revenue size of unicorn and hyper-growing companies.

For the corporate tax index interaction terms, Study B and Study C have significant interaction between the strategies and the corporate index variable, while Study A does not have one except for the sub-group interaction terms. For Study B, the target market and the digital strategy variables are significant with positive directions, suggesting that the B2C or C2C and the online strategies would increase the revenue growth of hyper-growing companies if they are located in regions with a low level of the corporate tax rate. For Study C, the growth and the digital strategies are the significant corporate tax index interaction terms, which imply that the organic growth strategy and the online strategy would positively affect the revenue size of both unicorn and hyper-growing companies. Again, this is a similar pattern to the (iii)Industry(Market). Furthermore, the sub-groups of each Study show that Group 1 of Study A has a significant and positive interaction between the growth variable and the corporate tax index, while the Group 2 of Study B has a digital strategy, which has significantly interacted with a positive direction. For Study C, the organic growth strategy and the online strategy could positively affect the revenue size of Group 2 if a company is based in regions with a low corporate tax rate. However, under the same circumstance, the pioneer strategy would positively affect the revenue size for Group 1 of Study C.

Regarding the R&D expenditure rate interaction terms, only Study B has a significant interaction between the target market and the R&D variable, which is the same pattern as the (iii)Industry(Market). The sub-group interaction terms show that Study B and Study C have significant interactions with the cost-leadership strategy (Group 1 of Study B), the B2G or B2B strategy (Group 2 of Study B), and the pioneer strategy (Group 1 of Study C).

Lastly, for the STEM graduate rate interaction terms, only Study C has a significant interaction between the generic strategy and the STEM graduate variable with a positive direction, which is a coherent finding as to the (iii)Industry(Market). But within Study C, only Group 2 is having a significant interaction for the

generic strategy, while the interaction term of Group 1 is not significant. For Study B, it shows a similar pattern that only Group 2 of Study B has a significant interaction between the pioneer strategy and the STEM graduate variable with a positive direction. It implies that companies with a larger revenue size or a high revenue growth are more likely to benefit from adopting a differentiation or a pioneer strategy if they are located in regions with a high level of STEM graduates.

VI. Conclusion and Discussion

As shown in <Table 15>, the summary of the regression analysis results of Study A, B, and C, the growth of a company can be explained from various perspectives.

Growth from the perspective of creating enterprise value(Study A: The Growth of Enterprise Value) is relatively more influenced by the company's age, which is a proxy of period and level of resource accumulation, and industry and market environmental factors rather than the choice of its strategy. Corporate growth in terms of its pace(Study B: The Pace of Growth) can relatively more explanatory when combined with industry and market environment factors that are consistent with strategic choices. Corporate growth in terms of the effectiveness of performance(Study C: The Effectiveness of Growth) can be explained through the complex interrelationship among the choice of strategy, industry and market environmental factors, and the age of the company. In particular, the degree of influence of strategy selection is higher than other attributes of the growth in terms of the effectiveness of the performance of the company. Therefore, it also implies that the strategy and the method of using the environment should be adjusted according to the detailed attributes of individual company growth or the direction of pursuing growth.

In the entrepreneurial context represented by the startup and scale-up ecosystem, corporate growth also needs to be considered in the ecosystem context as not only individual company perspective since various stakeholders participate and interact together in the ecosystem to lead a scale-up.

The concept of individual company resources is not only internally controlled from the ecosystem perspective. Entrepreneurial approaches pursuit opportunities beyond resources controlled, and it is a nature of entrepreneurship.

As our study, from the perspective of unicorns evaluated by enterprise value, the growth of a company is more importantly influenced by the characteristics of the industry and market environment than by the choice of strategy. What this implies is that the value of a company can vary greatly depending on what

ecosystem environment an individual company does business in and what industry and market it chooses. If the growth from the perspective of corporate value is relatively significantly influenced by the network effect, it can be interpreted that the growth of revenue, the typical indicator of performance, is more affected by strategic behaviors. The pace at which corporate revenue growth is relatively more emphasized on strategic choices. It is particularly important to choose a strategy that is aligned with the industry and market environment.

The results of this study also imply that different theoretical foundations are needed following the purpose of explaining the performance and growth of the company respectively. The growth of the company has relatively stronger longitudinal characteristics, rather than the performances of the firms are relatively stronger cross-sectional. The reason why I/O and RBV are not effective to explain corporate growth and scale-up in the entrepreneurial contexts, particularly despite that they are broadly accepted as major theories to explain firms' performance.

Although not quantitatively verified, in an entrepreneurial context, recent startups and ventures may discover a new phenomenon in which the concept of the Lean Startup is incorporated into the growth process and phase of a company.

After creating an MVP(Marginal Viable Product) and verifying it from early markets and investors, startups and ventures raise additional capital to develop more complete products and services. At that time, the network effect in the ecosystem context has a significant impact. Based on the raised capital, more competitive products and services are introduced to the market, resulting in rapid growth in revenue. In this case, strategic behaviors that can form a valid combination with industry and market characteristics are important. After that, they develop their business with a more advanced strategic behavior that combines all the characteristics of industry and market, and ecosystem, that is, a comprehensive and multi-dimensional strategic behavior to maximize its effectiveness. The age of a company does not affect its strategic behavior and performance. The dynamic capability theory under the premise of 'Sensing-Seizing-Reconfiguring' has structural limitations in explaining corporate growth in the entrepreneurial context because it requires a company age above a critical threshold for the premise.

Canals(2001) has introduced the following four strategic options to drive corporate growth: 1)Innovation-driven, 2)Market expansion-driven, 3)Capabilities-driven, and 4)Corporate renewal-driven. Each strategy option is also based on a different theoretical background. Corporate growth is not simple enough to be explained by a particular theory. Strategy, at its heart, is about positioning and resources-together. The art of strategy is in

toggling back and forth between the two to find a positioning that exploits resources to create an advantage that endures enough to justify the resource investment in the first place(Martin, 2015).

Therefore, scholars should try to integrate theories to explain corporate growth in terms of practitioners' points of view rather than discuss the theories only among scholars.

Along with the efforts to develop new theories through the integration of theories, scholars should try to consider the company as variously characterized organizations and entities. The legal type of business entity, ownership structure and governance of the company, stages of growth, ways of growth, and entrepreneurial orientation should be regarded while trying to explain corporate growth. Assuming that a company is not a conceptually simplified firm as a black box, but an organization and entity with various characteristics, it is not an effective way that to simplify a theory that explains corporate performance and growth.

Our study sampled companies with an enterprise value of more than \$1 billion and annual sales of more than \$100 million. These are basically companies that have been evaluated and verified above the critical level by investors and the market. And these are all corporation-type entities that can serve as role models for the growth of early-stage startups in the entrepreneurial context.

Therefore, if we can create growth milestones and roadmaps for individual startups by identifying unique characteristics and patterns from the perspective of 1)the growth of enterprise value, 2)the pace of growth, and 3)the effectiveness of growth, it may faithfully guide their effective ways of growing and scale-up.

Although our research has such implications and contributions, it has a limitation that the longitudinal investigation is insufficient. We have pointed out that corporate growth has longitudinal characteristics rather than corporate performances are cross-sectional. The research model of this study considered strategy-industrial and market environment & characteristics-age(proxy variable of resources)', however in the previous study, entrepreneurs and resources were additionally considered(Lee et al, 2020; Lee & Oh, 2021). Nevertheless, in all three studies, the growth of a company is considered longitudinally and fails to explain the process of interaction among 'entrepreneur-resource-industry and market-strategy'.

Since the growth of a company is not linear and grows through complex interaction activities, investigating the interactions between them from a longitudinal perspective can be a very valuable reference from a practitioner's point of view.

Therefore, it is necessary to investigate corporate growth from a longitudinal perspective through follow-up research. It is also

necessary to verify the relationship with the corporate growth theory in this process.

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Appendix

<Table 16> Definitions and summary statistics of strategy variables

Variable	Definition	source	mean	median	Std. Dev.	Note
Cost leadership strategy	Having a broad scope serving multiple industry segments to gain a low-cost advantage with the sale of a “standard, or no-frills” product combined with aggressive pricing.	Porter(1985)	2.21	2	0.74	‘1=Cost Leadership’, ‘2=Focus’, ‘3=Differentiation’
Focus strategy	Concentrating on a niche or a narrow segment, which can be achieved via cost leadership or differentiation.	Porter(1985)				
Differentiation strategy	Gaining competitive advantage by offering unique and higher quality at a premium price.	Porter(1985)				
Organic strategy	An internal growth strategy with the internal generation of resources by employing and training the workforce internally.	Lockett et al. (2011)	1.69	1	0.92	‘1=Organic’, ‘2=Alliance’, ‘3=M&A’
Alliance strategy	An external growth strategy to take advantage of complementary resources and synergies between current and new businesses. It maintains organic control and its need for flexibility.	Naylor & Lewis (1997)				
M&A strategy	An external growth strategy to acquire bundles of resources and take advantage of growth opportunities through merger and acquisition.	Lockett et al. (2011)				
Fast-follower strategy	Learning quickly from those companies who enter the market first instead of being a delayed entrant that likes to enter established markets	Barczak(1995)	0.41	0	0.49	‘0=Fast-Follower’, ‘1=Pioneer’
Pioneer strategy	Being first-to-market with new products	Barczak(1995)				

<Table 17> Categorizations

Performance Valuation (\$B)								
Unicorn Companies	Group	1			2		Total	
	Range	\$1.00B-\$1.50B			> \$1.50B			
	N	254			225		479	
Revenue CAGR (%)								
Hyper-growing companies	Group	1			2		Total	
	Range	15.0-40.0%			> 40.0%			
	N	208			125		333	
Resource Firm Age (2019)								
Unicorn & Hyper-growing	Group	Youth		Adult		Senior	Total	
	Range	0~10		11~30		>30		
	N	440		313		59	812	
Industry/Market Environment GDP or GRDP (2019)								
Unicorn GDP (\$B, 2019)	Group	1	2		3	4	5	Total
	Range	\$1~1,500.0	\$1500.1~\$2,500		\$2,500.1~10,000	\$10,000.1~\$15,000	>\$20,000	
	N	42	20		67	122	228	479
Hyper-growing GRDP (\$B, 2019)	Group	1	2		3	4	5	Total
	Range	\$1~\$300.0	\$300.1~\$500.0		\$500.1~\$800.0	\$800.1~\$1,500.0	> \$1,500.0	
	N	63	64		91	42	73	333
Population (2019)								
Unicorn Population (Millions, 2019)	Group	1	2		3	4	5	Total
	Range	0~50.0	50.1~200.0		200.1~300.0	300.1~1,000.0	>1,000.0	
	N	35	61		12	228	143	479
Hyper-growing Population (Thousands, 2019)	Group	1	2		3	4	5	Total
	Range	1~6,000	6,001~9,000		9,001~120,000	120,001~220,000	> 220,000	
	N	70	67		51	72	73	333
Industry Growth Rate(%)								
Unicorn & Hyper-growing	Group	1	2		3	4	5	Total
	Range	0~7.00	7.01~13.0		13.1~15.0	15.1~20.0	>25.0	
	N	153	138		185	196	140	812

In Search of Corporate Growth and Scale-up in the Entrepreneurial Context:
What Affects the Growth of Enterprise Value, the Pace of Growth, and the Effectiveness of Growth

Corporate Tax (2019)							
Unicorn Corporate Tax Rate (2019)	Group	1	2	3	4	5	Total
	Range	> 30.0	27.1~30.0	25.6~27.0	25.0~25.5	0~25.0	
	N	15	52	231	130	51	479
Hyper-growing Corporate Tax Index (2019)	Group	1	2	3	4	5	Total
	Range	0-4.50	4.51-5.00	5.01-5.50	5.51-5.90	>5.90	
	N	85	93	43	49	63	333
R&D Expenditure Rate (2019)							
Unicorn R&D expenditure/GDP (2019)	Group	1	2	3	4	5	Total
	Range	0~100.0	100.1~200.0	200.1~250.1	250.1~300.0	>300.0	
	N	35	48	128	228	40	479
Hyper-growing R&D expenditure /GRDP (2019)	Group	1	2	3	4	5	Total
	Range	0~50.0	50.1~100.0	100.1~150.0	150.1~200.0	>200.0	
	N	84	71	53	97	28	333
Science Graduates (2018)							
Unicorn Percentage of total graduates	Group	1	2	3	4	5	Total
	Range	0~16.0	16.1~19.0	19.1~25.0	25.1~30.0	>30.0	
	N	9	230	140	63	37	479
Hyper-growing Graduates in 1,000	Group	1	2	3	4	5	Total
	Range	0~10.0	10.1~13.0	13.1~14.0	14.1~17.0	>17.0	
	N	47	57	91	53	85	333

기업가적 컨텍스트에서 기업 성장과 스케일업 연구: 기업가치의 성장, 성장의 속도, 성장의 효과성에 영향을 미치는 요인

이영달*

오소영**

국문 요약

본 연구는 주로 횡단적 측정에 의해 설명되는 기업의 성과와 달리, 종단적 측정과 성격이 더 강조되는 기업의 성장을 ‘스타트업 및 스케일업 생태계’로 대변되는 21세기 기업가적 컨텍스트에서 살펴보았다. 2019년 기준 글로벌 유니콘 기업 479개, 최근 3년간 연평균복합성장률(CAGR)이 15%를 초과하는 미국의 5천 개 비상장 기업 중 매출액 1억달러 이상인 333개의 고성장 기업을 대상으로, 이들 기업의 고성장율, 1)기업가치의 성장, 2)성장의 속도, 3)성장의 효과성 관점에서 전략의 선택, 산업 및 시장환경, 그리고 업력(자원축적의 대위 변수)과의 상호관계를 살펴보았다.

연구 결과, 기업가치의 성장은 상대적으로 산업 및 시장 특성과 영향 관계가 더 높았다. 성장의 속도는 산업 및 시장환경의 특성과 유효 조합을 이루는 전략의 선택에 따라 더 충실히 설명되었다. 그리고 기업 성장의 효과성은 전략의 선택, 산업 및 시장환경의 특성, 그리고 업력(자원축적의 대위 변수) 모두로부터 영향을 받는 특성을 지니고 있었다.

기업가치 10억 달러 이상, 연간 매출액 1억 달러 이상의 조건을 가진 주식회사 기반의 샘플을 통한 본 연구는, 특히 실무적인 관점에서 초기 스타트업이 향후 스케일업을 위한 일련의 방향을 모색 과정에 유효한 참고가 될 수 있을 것이다. 특히 기업가치, 성장 속도, 성장의 효과성 관점에서 개별 기업이 추구하는 방향성과 정합성을 이루는 성장 동인과 요인을 조합하는데 실효적 참고를 제공하고 있다.

또한 20세기 주류 이론들이 지닌 한계점을 극복하고, 21세기 기업가적 컨텍스트에 부합하는 기업 성장 이론을 개발하는 데 그 기초 참고를 제공하고 있다.

핵심주제어: 기업 성장, 스케일업, 유니콘 기업, 초고성장 기업, 기업 성장 이론

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