

# **In Search of Corporate Growth and Scaleup: What Strategies Drive Unicorns and Hyper-Growing Companies?**

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## **Abstract**

Based on the findings of Lee et al.(2020) and Lee & Oh(2021), this paper aims to fill the gap in our knowledge regarding the relationship between strategic choices and corporate growth by utilizing a novel dataset of ‘Unicorn’ and ‘Hyper-growing’ companies. Two previous studies provide coherent findings that the relationship between firms’ strategies and their performance should be explored under a more comprehensive framework with consideration of both internal and external factors. Therefore, in this study, we apply a single conceptual framework to two different datasets, which considers the strategy factors as independent variables, and the industry(market) and the firm age as moderating variables. For our dependent variables, valuations for unicorn companies and revenue CAGR for hyper-growing companies are used after categorizing them into three uniform groups. The strategy variables include ‘Generic (Cost-leadership, Differentiation, focus) strategies’, ‘Growth(Organic, M&A) strategies’, ‘Leading(Pioneer, Fast-follower) strategies’, ‘Target market(B2B, B2C, B2G, C2C) strategies’, ‘Global(Global, Local) strategies’, ‘Digital(Online, Offline) strategies.’ For industry(market) factors, it consists of historical growth rate for industries and economic, demographic, and regulatory aspects of states and countries. To overcome the differences in their units, they are also uniformly categorized into multiple groups.

Before we conduct a regression analysis, we analyze the industry distribution of the ‘Unicorn’ and the ‘Hyper-growing’ companies with descriptive statistics at the integrated and individual levels. Next, we employ hierarchical regression models on Study A(‘Unicorn’ companies in 2019) and Study B(‘Hyper-growing’ companies in 2019) under the same comprehensive framework. We then analyze the relationship between the ‘strategy’ and the ‘performance’ factors with two different approaches: 1) an integrated regression model with both the sample of Study A and B and 2) respective regression models on Study A and B. This empirical study aims to provide a complete understanding and a reference to which strategy factors should be considered to promote firms’ scale-up and growth.

*Keywords: Strategy, Corporate Growth, Unicorn, Hyper-growing, SCP paradigm, ERIS model*

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## **1. Introduction**

Although “Scaleup” is a term commonly used in industry and policy fields, even a conceptual definition has not been achieved from the academic perspective. “Corporate Growth” in the academic aspect and “Business Growth” in the practical management field have different understandings (Achtenhagen et al., 2010). Previous research on corporate growth has not deviated from Penrose(1959)'s “Firm as a bundle of resources” and “the role of managers”. Based on

the theory and background of economics, existing research has mainly examined factors that contribute to firms’ growth and their growth patterns(Lee & Oh, 2021). Lee & Oh(2020, 2021) conducted exploratory research on unicorn companies and hyper-growing companies through the latest two studies. These studies are exploratory works in the context of the 21st century on the factors affecting hyper-growing corporate value and revenues’ CAGR. We explored and investigated qualitatively and quantitatively how ‘the entrepreneur-resource-industry/environment-strategy’ factors explain the hyper-growth in corporate value and revenue of actual companies. As a

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result, it was found that the strategy factor that contains ‘entrepreneur-resource-industry/environment’ is a key factorial variable that explains the hyper-growth of a company. Therefore, we should ask “what strategies drive corporate growth?” to ourselves for its theorizing and further research.

Since the 1980s, scholars have focused on analyzing the reasons for corporate growth by measuring firms’ growth by employment growth, revenue growth, and market share growth(Lee & Oh, 2021). While Henderson, Raynor & Ahmed(2014) and Coad et al.(2014) suggested a ‘Random-Walk Models’ as the relationship between firms’ strategies and performance does not have an explicit pattern.

However, most scholars have applied ‘found significant relationships between firms’ internal factors and their performance. In the past, firms’ internal factors, including entrepreneurs’ characteristics(Cardon et al., 2012; Barringer et al., 2005), firms strategies(Harms, 2009; Henrekson & Johansson, 2009; Wasserman, 2008), firm age(Storey & Wyncarczyk, 1996; Henrekson & Johansson, 2009; Freel & Robson, 2004), and internal network(Littunen & Tohmo, 2003) were examined.

Furthermore, as the high growth firms create jobs and contribute to local communities and regions, scholarly attention has also focused on the interaction between firms and their environment. For venture companies, Grilli et al.(2019) provide a typology that the institutional determinants of venture companies can be divided into the formal and informal institutional environment on the firms’ performance. Formal institutions include government quality (e.g. rule of law, government effectiveness), legal environment (e.g. investor protection law), and financial market development (e.g. stock market capitalization, M&A market), while the informal institutions consider cultural attitudes like uncertainty avoidance and corruption perception(Grilli et al., 2019; Li & Zahra, 2012). A similar approach was taken by Krasniqi & Desai(2016) based on ‘Institutional hierarchy approach’ by examining the interactions between formal and informal institution variables. Motoyama(2014) examines whether the theory of ‘knowledge spillover’ can be applied to understand

firms’ growth. He provides that a rate of science and engineering graduate students within the region is a more significant variable than venture capital investment and patents.

## II. Theoretical Background

### 2.1 Driving Factors of ‘Unicorns’ and ‘Hyper-growing’ companies

While previous literature has provided ample findings on determining the driving factors, most scholars did not consider both internal and external factors simultaneously, which provide a limited understanding of the interaction between the variables. However, 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 1> and <Table 2>, 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.

<Table 1> Independent variables and significant independent variables

	Entrepreneur	Resources	Industry	Strategy	Significant IDVs in conceptual frameworks
Unicorns	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	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)

For unicorn companies, Lee et al.(2020) shows 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 which 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

significant moderating effect on the relationship between the strategy variables and revenue CAGR.

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.

<Table 2> 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	Not significant	Not significant	Not significant	(i), (ii), (vi): negative(-), 'cost-leadership' strategy	[Hyper-growing]: positive(+), 'differentiation' strategy	Population ('19)(+) GRDP ('19)(-) R&D expenditure(+)
Growth Strategy	(v): negative(-), 'organic' strategy	Not significant	Not significant	Not significant	[Group 1]: positive(+), 'M&A' strategy	Population ('19)(+) R&D expenditure (+)
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	Firm age(-)
Target Market Strategy	Not significant	Not significant	Not significant	(v): positive(+), 'B2B' strategy	Not significant	Corporate Tax Index(-)
Global Strategy	(v): positive(+), 'global' strategy	(v): positive(+), 'global' strategy	(i), (ii), (iii), (iv): negative(-), 'local' strategy	Not significant	[Adult]: negative(-), 'local' strategy	Firm age(+)
Digital Strategy	Not significant	Not significant	Not significant	Not significant	[Hyper-growing]: negative(-), 'offline' strategy	Not significant

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

### III. Hypotheses Development

#### 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’ listed on CB Insight and ‘hyper-growing’ companies listed on Inc 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 test our hypotheses under a single conceptual framework as shown in <Picture 1>.

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

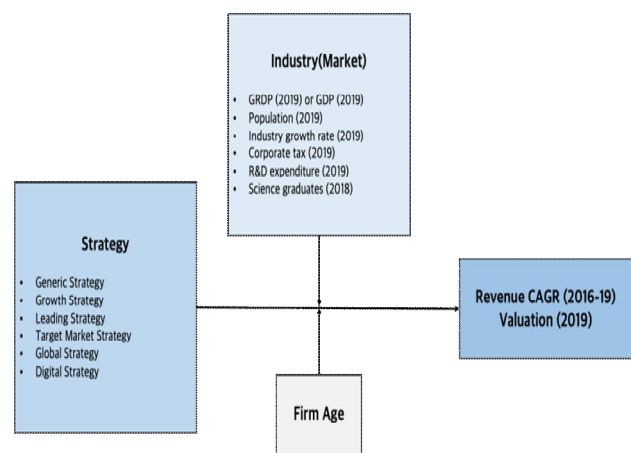
The framework is then applied to test hypotheses using 1) an integrated regression model with both the sample of Study A (‘Unicorn’ companies in 2019) and Study B (‘Hyper-growing’ companies in 2019), and 2) respective regression models on Study A and B.

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, B2C, B2G, C2C) 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.

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.

Given our conceptual framework and variables, we derive the following hypotheses:

- H1. Cost leadership strategy positively affects corporate growth.**
- H2. Organic strategy positively affects corporate growth.**
- H3. Pioneer strategy positively affects corporate growth.**
- H4. B2B strategy positively affects corporate growth.**
- H5. Global strategy positively affects corporate growth.**
- H6. Online strategy positively affects corporate growth.**
- H7. Industry(market) has a moderating effect between strategy and corporate growth.**
- H8. Firm age has a moderating effect between strategy and corporate growth.**



<Picture 1> Conceptual Framework

#### 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 <Table 5>. 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, Study A and Study B 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 3> 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	<b>Unicorn:</b> Gross Domestic Product, GDP <b>Hyper-growth:</b> Gross regional domestic product, GRDP	Bureau of Economic Analysis, U.S. Department of Commerce, World Bank
Population	<b>Unicorn:</b> Population by country (2019) <b>Hyper-growth:</b> 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	<b>Unicorn:</b> Corporate tax rates (2019): inverse categorization <b>Hyper-growth:</b> ‘Corporate tax index’ ‘0 = worst’, ‘10 = best’ (2019)	Tax Foundation
R&D Expenditure Rate	<b>Unicorn:</b> Country-level R&D expenditure/GDP (2018) <b>Hyper-growth:</b> State-level R&D expenditure/GRDP (2019)	National Center for Science and Engineering Statistics, UNESCO
Science Graduates	<b>Unicorn:</b> share of all tertiary graduates in manufacturing, engineering, and construction over all tertiary graduates (by country, 2018) <b>Hyper-growth:</b> 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)	

<Table 4> Categorizations

Performance							
Valuation (\$B)							
Unicorn Companies	Group	1	2	3	Total		
	Range	\$1.0-\$1.4	\$1.41-\$4.0	> \$4.0			
	N	234	171	74	479		
Revenue CAGR (%)							
Hyper-growing companies	Group	1	2	3	Total		
	Range	15 ~ 39.9%	40 ~ 99.9%	> 99.9%			
	N	208	94	31	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
<b>Hyper-growing</b> 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
<b>Industry Growth Rate(%)</b>							
<b>Unicom &amp; Hyper-growing</b>	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
<b>Corporate Tax (2019)</b>							
<b>Unicom</b> 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
<b>Hyper-growing</b> 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
<b>R&amp;D Expenditure Rate (2019)</b>							
<b>Unicom</b> 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
<b>Hyper-growing</b> 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
<b>Science Graduates (2018)</b>							
<b>Unicom</b> 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
<b>Hyper-growing</b> 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

## IV. Results

### 4.1 Descriptive Statistics

Based on our unique dataset of both Study A(‘unicom’ companies) and Study B(‘hyper-growing’ companies), <Table 6> and <Table 7> provide descriptive statistics by strategy variables and industry classifications.

As shown in <Table 6>, a majority of Study A and Study

B 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 heterogenous 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 (Study A: ‘Global(63.7%)’; Study B: ‘Local(65.5%)’ strategy.’

<Table 5> Descriptive statistics of strategy variables

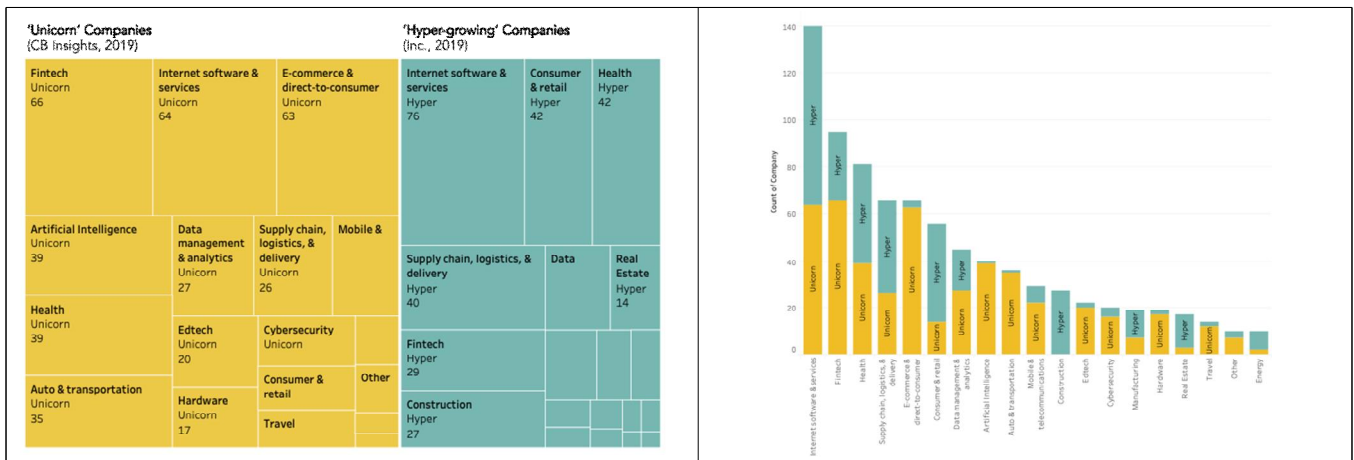
Strategy		Merged		Study A: Unicom		Study B: Hyper-growing	
		Frequency	%	Frequency	%	Frequency	%
Generic Strategy	Cost-leadership	149	18.3%	96	20.04%	53	15.9%
	Focus	335	41.3%	184	38.41%	151	45.3%
	Differentiation	328	40.4%	199	41.54%	129	38.7%
	Total	812	100.0%	479	100.00%	333	100.0%
Growth Strategy	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 6> shows that both Study A and Study B 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’, Study B (hyper-growing companies) have a higher

percentage. On the other hand, Study A (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 6> 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%



<Picture 2> Frequency of industry classifications by company type (Unicorn vs. Hyper-growing companies) (2019)

## 4.2 Regression analysis

Based on our framework <Picture 1>, we conduct hierarchical regression models for Study A and B. To examine the relationship between strategy and performance and the moderating effects of firm age and industry(market) environment, we used four different models. Our regression models include (i)strategy), (ii)firm age, (iii)industry(market), and (iv)full model. It also encompasses interaction terms to measure the moderating effects of moderating variables. To

provide a comprehensive understanding, we employed 1) an integrated regression model with both Study A and B, and 2) respective regression models on each Study A and B with a single framework <Picture 1>.

### 4.2.1. Study A & B

With a dataset of both Study A and Study B, <Table 7> displays coefficients and significance level of each independent variable and interaction terms.

4.2.2 Study A vs. Study B

Under the same framework, <Table 8> shows significance

levels and directions of the independent variables and interaction terms for each Study A and Study B.

<Table 7> Hierarchical Regression Models of Study A & B

	(i)strategy	(ii)firm age	(iii)industry(Market)	(iv)full model
Constant	1.49	1.98	1.81	3.10
Generic Strategy	-0.01	-0.08	-0.09	-0.30
Growth Strategy	-0.07***	-0.08	-0.08	-0.19
Leading Strategy	0.04	0.13	0.08	0.01
Target Market Strategy	0.07*	-0.01	-0.02	-0.20
Global Strategy	0.09*	-0.06	-0.54	-0.93**
Digital Strategy	0.00	-0.18	0.53	0.52
Firm Age		-0.46**	-0.19****	-0.71****
Gross Domestic Product		0.03	0.10	0.10
Population		0.02	-0.18	-0.23
Industry growth rate		0.00	0.09	0.07
Corporate tax		0.04*	-0.11	-0.19
R&D expenditure		-0.01	-0.01	-0.04
Science graduates		0.02	0.15	0.17
Generic x Firm Age		0.04		0.09
Pioneer x Firm Age		0.02		0.04
Online x Firm Age		-0.04		0.01
B2B x Firm Age		0.03		0.07
M&A x Firm Age		0.07		0.15*
Global x Firm Age		0.07		0.00
Generic x GDP			0.00	0.01
Growth x GDP			-0.08*	-0.08*
Leading x GDP			-0.01	-0.01
Target Market x GDP			0.05	0.05
Global x GDP			-0.03	-0.03
Digital x GDP			-0.06	-0.05
Generic x Population			0.00	0.00
Growth x Population			0.06*	0.07*
Leading x Population			0.00	-0.01
Target Market x Population			0.03	0.04
Global x Population			0.13*	0.14*
Digital x Population			-0.05	-0.06
Generic x Industry			0.01	0.02
Growth x Industry			-0.01	-0.01
Leading x Industry			0.05	0.06
Target Market x Industry			-0.05	-0.04
Global x Industry			-0.03	-0.04
Digital x Industry			-0.02	-0.01
Generic x Corporate Tax			0.00	0.02
Growth x Corporate Tax			0.01	0.02
Leading x Corporate Tax			0.04	0.05
Target Market x Corporate Tax			0.04	0.05
Global x Corporate Tax			0.07*	0.10**
Digital x Corporate Tax			-0.04	-0.04
Generic x R&D			0.05	0.06
Growth x R&D			0.05	0.05
Leading x R&D			-0.03	-0.02
Target Market x R&D			-0.08*	-0.08*
Global x R&D			-0.02	-0.01
Digital x R&D			0.04	0.04
Generic x Science Graduates			-0.05	-0.05
Growth x Science Graduates			-0.01	-0.02
Leading x Science Graduates			-0.04	-0.04
Target Market x Science Graduates			0.01	0.01
Global x Science Graduates			0.06	0.07
Digital x Science Graduates			-0.05	-0.04
N	812	812	812	812
R2	0.030	0.066	0.117	0.126
Adjusted R2	0.010	0.044	0.063	0.062
df1	6	19	49	55
df2	805	792	762	756

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



<Table 8> Hierarchical Regression Models of Study A vs. Study B

	(i)strategy		(ii)firm age		(iii)industry(Market)		(iv)full model	
	Study A	Study B	Study A	Study B	Study A	Study B	Study A	Study B
Constant	0.92	1.66	1.86	1.98	3.81	2.97	3.75	3.61
Generic Strategy	-0.03	0.00	-0.24*	-0.08	-0.64	0.19	-0.72	0.07
Growth Strategy	-0.02	-0.09**	-0.23*	-0.07	-0.34	-0.02	-0.30	-0.22
Leading Strategy	0.07	0.05	-0.33	0.50*	0.55	-0.34	0.12	0.03
Target Market Strategy	0.06	0.07	-0.14	0.09	-0.39	-0.31	-0.46	-0.35
Global Strategy	-0.07	0.08	0.55**	-0.32	-1.63*	-0.63	-1.25	-1.07*
Digital Strategy	0.13*	-0.13*	0.18	0.17	1.05	0.04	1.34	0.03
Firm Age			-0.69	-0.39	0.13*	-0.47****	-0.79	-0.73***
Gross Domestic Product			0.06	0.03	0.12	-0.19	0.12	-0.13
Population			0.04	0.00	-0.38	-0.04	-0.29	-0.12
Industry growth rate			0.00	-0.02	0.35*	-0.07	0.39**	-0.09
Corporate tax			0.01	0.03	-0.17	-0.23	-0.19	-0.27*
R&D expenditure			-0.04	0.01	-0.43	-0.01	-0.28	-0.01
Science graduates			0.08*	0.01	-0.16	0.35**	-0.07	0.36***
Generic x Firm Age			0.19*	0.04			0.17	0.06
Pioneer x Firm Age			0.12	0.04			0.08	0.09
Online x Firm Age			0.29*	-0.22*			0.28*	-0.16
B2B x Firm Age			0.18	-0.05			0.22*	0.00
M&A x Firm Age			-0.31*	0.11			-0.14	0.13
Global x Firm Age			-0.22	-0.07			-0.23	0.01
Generic x GDP					0.12	-0.24**	0.12	-0.26**
Growth x GDP					-0.12*	-0.07	-0.11	-0.08
Leading x GDP					-0.16	0.12**	-0.15	0.11
Target Market x GDP					-0.01	0.27*	-0.02	0.27*
Global x GDP					-0.05	0.34*	-0.06	0.39*
Digital x GDP					-0.04	0.09	-0.01	0.07
Generic x Population					-0.06	0.20	-0.05	0.22*
Growth x Population					0.07	0.09	0.06	0.10
Leading x Population					0.08	-0.15	0.08	-0.14
Target Market x Population					0.11	-0.13	0.10	-0.12
Global x Population					0.32***	-0.33**	0.29**	-0.36**
Digital x Population					-0.09	-0.11	-0.12	-0.09
Generic x Industry					-0.02	0.04	-0.03	0.04
Growth x Industry					-0.01	0.00	0.00	0.00
Leading x Industry					0.03	0.05	0.04	0.05
Target Market x Industry					-0.10*	-0.03	-0.10*	-0.03
Global x Industry					-0.09	0.06	-0.09	0.06
Digital x Industry					0.00	-0.04	0.00	-0.03
Generic x Corporate Tax					0.00	-0.03	0.00	-0.03
Growth x Corporate Tax					0.06	-0.02	0.05	-0.01
Leading x Corporate Tax					0.01	0.10*	0.01	0.09
Target Market x Corporate Tax					0.02	0.12**	0.02	0.13***
Global x Corporate Tax					0.13	0.06	0.15	0.09
Digital x Corporate Tax					-0.07	0.04	-0.06	0.04
Generic x R&D					0.07	0.08	0.05	0.08*
Growth x R&D					0.10*	0.01	0.08	0.02
Leading x R&D					0.07	0.00	0.06	-0.01
Target Market x R&D					0.04	-0.09*	0.02	-0.10*
Global x R&D					0.02	0.02	0.02	0.01
Digital x R&D					-0.08	0.07	-0.08	0.06**
Generic x Science Graduates					0.08	-0.10**	0.07	-0.10
Growth x Science Graduates					-0.04	-0.01	-0.04	-0.01
Leading x Science Graduates					-0.17	0.02	-0.16	0.01
Target Market x Science Graduates					0.07	-0.04	0.05	-0.04
Global x Science Graduates					0.15	0.02	0.13	0.03
Digital x Science Graduates					-0.06	-0.06	-0.06	-0.06
N	479	333	479	333	479	333	479	333
R2	0.026	0.015	0.080	0.223	0.150	0.321	0.171	0.333
Adjusted R2	0.013	-0.004	0.042	0.176	0.052	0.203	0.063	0.200
df1	6	6	19	19	49	49	55	55
df2	472	326	459	313	429	283	423	227

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

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