## Unicorn Startups' Investment Duration, Government Policy, Foreign Investors, and Exit Valuation\*

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#### Abstract

Increasing the number of unicorn startups has recently received much attention. In this study, we attempt to investigate that startups achieving an extremely high valuation could postpone their exit to raise more investment and receive more benefits. This study tested the hypotheses using data from Crunchbase, World Bank, Global Competitiveness Report, and Global Entrepreneurship Monitor. Using 140 unicorn startups that have already exited through an initial public offering (IPO) or mergers and acquisitions (M&A), we find out that unicorn startups tend to acquire higher valuation as their investment duration increases. Furthermore, we also examined the moderating effects of governmental policy and institutional distance from foreign investors in order to consider the institutional aspects of startups. The results of the moderating variables show significant supports. We expect to provide a better understanding with respect to making an exit decision of unicorn startups. Furthermore, managers and investors need to acknowledge the institutional factors of startups when they decide to fund.

Keywords: Unicorn startups, Investment duration, Foreign investors, Government policy

#### 1. Introduction

With the development of technology, the number of global startups has been increased. Among the startups, firms that achieve \$1 billion or more valuation are especially called unicorns to describe the rarity of highly successful startups(Lee, 2013). Becoming one of the unicorn startups brings notable growth with respect to a chance of access to financial capital and reputation because it is clear evidence of the firm's potential competitiveness(Bartlett, 2015). The real-time list of unicorn startups shows the rapid growth of the number of unicorns(https://www.cbinsights.com/research-unicorn-companies). Moreover, more than 150 unicorn firms have already exited by 2017. Their unique characteristics which are from an extremely higher valuation compared to the common startups drive several studies(Durufle et al., 2018; Fan, 2016; Jinzhi & Carrick, 2019; Kerai, 2017).

As we can recognize by the definition of unicorn startups, a valuation is an important aspect to evaluate them. Fan(2016) suggested the necessity of disclosing private information of

unicorn firms to clarify their valuations. Other researchers study public policies regarding funding to nurture high-valued startups(Durufle et al., 2018). Although previous research has focused on the growth of startups, there is a lack of research on the exit valuation of unicorn firms. Since vital information of startups is commonly not disclosed until the exit stage, exit valuation indicates a startup's final value at an initial public offering(IPO) or a mergers and acquisitions(M&A). As Bartlett(2015) emphasized the role of liquidation preference on a startup valuation, the funding duration until an exit event is an important factor to both venture capital firms(VCFs) and startups. In addition, since unicorns receive a large amount of capital, they may have more concerns over the return of financial investment. In this context, this paper raises two research questions.

RQ1: Do unicorn startups achieve more exit valuation through accumulating resources when they have longer investment duration?

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# RQ2: Is there any contingent factor that moderates the effect of investment duration on the exit valuation?

Regarding investment duration, earlier studies have shown both positive and negative perspectives. On the one side, a shorter duration of investment is considered more helpful for investors because of the cost reduction and the safe return from their investment(Cumming & Johan, 2010; Gompers, 1995; Guo et al., 2015). This indicates that both investment duration and exit valuation are important factors for investors in their funding process since they obtain returns of investment through the repetition of exit and reinvestment(Black & Gilson, 1998). On the other hand, other research demonstrated that in the growing market, investment duration becomes longer because of taking advantages from the growth of the market and invested startups(Espenlaub et al., 2015). Moreover, VC-backed startups may experience more certificate effects along with longer investment duration(Wang et al., 2003). Based on the research that investors, particularly VCFs, increasing valuation of the startups may navigate achieving more returns in the firms' exit(Barney et al., 2001). There could be a positive relationship between investment duration and a startup's valuation(Cumming & Johan, 2010). This characteristic could drive a difference compared to common startups.

In the case of unicorn startups, this research attempts to suggest the positive relationship between investment duration and IPO valuation. This paper is to explain the investment duration of unicorn startups and firms' exit performance research using the resource-based view. This indicates that resources are the basis of a mechanism to explain the tendency of delaying exits(Barney et al., 2001). The unicorn startups may achieve superior financial support and enjoy extremely high status in the industry and the field of ventures(Griffith, 2015).

Although the firm level approach is meaningful for unicorn startups, it has a limitation to explain the mechanism underlying the effects of investment duration. We posit that institutional factors should be included to understand environmental effects upon those firms. Recently, startups from outside of the United States(US) countries have entered into the unicorn list. As such, the institutional factors of each country where the investors and the unicorn firms are from would affect the relationship between the investment duration and exit valuation. Therefore, to conduct a more specific analysis of the effect of countries' institutional aspects, this paper will examine the moderating role of government policy and foreign investors in venture activities.

Government policy is an important environmental factor for startups to survive and to grow up. If a unicorn startup has a better institutional background, it could drive the firm to stay private for achieving more resources(Gilbert et al., 2004). Furthermore, since unicorn startups commonly raise their funding from foreign investors, institutional distance with foreign investors is also an important factor to make a decision with respect to the timing of an exit. If the startups have further and lower institutional distance from their foreign investors, it could not guarantee that a longer duration is positively related to higher exit valuation because of uncertainty(Espenlaub et al., 2015).

The result shows marginal support for the hypothesis that the longer investment duration is related to more exit valuation. Moreover, moderators have significant interaction effects on the exit valuation. We expect some contributions through this research. First, this study investigates the new tendency of unicorn startups that they delay an exit. This trend may or may not influence the increment of exit valuation of them. This is important not only to VCFs but also to the firms that need to make a decision about the timing of exit. Second, longer investment duration of unicorn startups with better government policies raise exit valuation. The result could give an implication for government and institutions to apply more supportive policies in order to nurture unicorn startups.

#### II. Theory and hypotheses

# 2.1 Resource-based view and institutional theory

Investment duration means a period between the beginning of the investment and an exit of a firm. Researchers have viewed an effect of the duration upon firm performance in opposite perspectives. Gompers(1995) suggested that for a firm having higher expected market-to-book ratios, investment duration would be shorter. Another study suggested that the shorter duration of investment is presented if startups gain large investments (Cumming & Johan, 2010). VCFs attempt to verify the quality of the startups that they decided to invest through exit events, such as going public or M&A(Koo et al., 2019). In addition, the value-adding role of VCFs may be reduced as the funding period gets longer. Therefore, they prefer to exit the high-qualified investee firms in a shorter financial duration through tightly managing the investee firms to reduce potential losses. In this perspective, the shorter duration may provide the better outcome to the VCFs.

On the other hand, other research demonstrated that in the growing market, when investment duration becomes longer, investors would achieve benefits from the growth of the market and startups(Espenlaub et al., 2015). Investors, particularly VCFs, the increased value of venture firms to achieve more returns through their portfolio firms' exit(Cumming & Johan, 2010). This indicates that both investment duration and the exit valuation are important factors for investors in their funding process since they obtain returns of investment through a cycle of exit and reinvestment(Black & Gilson, 1998).

To clarify the different directions of the effect of investment duration, this paper suggests that we need to consider contingencies. With respect to the unicorn startups' tendency of delaying exit, our research attempts to explain using the The resource-based view resource-based view. has а well-established theoretical ground to explain the competitive advantage that firms need to survive in the market(Barney, 1991). Considering the role of VCFs, if the firms attain more benefits as they are funded for a long period of time(Barney et al., 2001). Unicorn startups already achieve high status among venture firms. They may not need to signal their potential to investors using short investment duration. As staying private, the unicorn startups could enjoy their high status to attract more resources from the VCFs. The resources attained from the investors could navigate more competitive advantages to increase their valuation.

However, to obtain more resources may not sufficiently explain why longer investment duration could be beneficial for such unicorn startups. It is necessary to be aware of the contingencies surrounding the firms differently. This paper suggests two institutional factors based on institutional theory(DiMaggio & Powell, 1983). Institutional factors influence the growth strategies of firms and decision-making(Bruton et al., 2009; Peng & Heath, 1996). For unicorn startups, they are more likely to have international VCFs because of their size and well-knownness. Thus, in addition to the firm-specific factors, institutional aspects also need to be considered. This paper mainly concentrates on government policy and public institutions of foreign investors that may have more direct effects on the firms.

#### 2.2 Exit valuation

Since the number of private startups reaching a high valuation is growing, the more attention on the valuation has existed among researchers. Venture firms are evaluated with warrants and options on each round of their fundraising round. This is called the pre-money valuation that indicates the price paid per share and the number of shares outstanding during the funding period(Gompers & Lerner, 2000). When investors decide funding, the post-money valuation increases. In other words, the valuation of a startup is calculated through an evaluation before or after the investment event occurs, and it would be an important factor providing numerical estimate status of the startups which do not make a visible profit yet. This means that if the startup firms achieve more valuations in an exit than their total VC funding, it would indicate the success of a startup(Cumming et al., 2016).

Moreover, most research regarding a valuation about how to gain investment more. Gompers(1995) stated that various aspects could affect investment decisions including the commercial environment. Gompers & Lerner(2000) emphasized the substantial effect of venture capital on fundraising. They also investigated the better decision of the exit timing conducted by experienced venture capitalists. Another study focuses on the role of trademarks in increasing the valuation of startups which gives an advantage for startups to protect their brands and add more investment(Block et al., 2014).

Generally, the valuation of each startup is not officially disclosed to the public until the exit stage(Bertoni & Groh, 2014). However, among startups, unicorn startups are not the same as common startup firms. Since the barrier of becoming unicorn startups is the valuation, and they achieve extremely large funding amounts, their valuations are disclosed before exits. As the unicorn startups unveil valuations and their information, the phenomenon that the unicorn startups tend to remain in the private sector arises. Brown & Wiles(2015) stated that large amounts of funding of unicorn startups encourage them to remain private so that they can establish more investment or higher valuations. Thus, it brings a question about the relationship between investment duration and exit valuation.

# 2.3 Investment duration and exit valuation

Based on the assumption that IPO and M&A are successful exits for startups and VCFs, investment duration from the first funding round to any type of an exit point commonly takes from 2 to 8 years(Gompers, 1995; Gompers & Lerner, 2000). However, for unicorn companies, a different tendency has been observed. Even though there are large amounts of money funded by investors, some unicorn startups tend to postpone the exit.

As mentioned above, we attempt to explain the trend with respect to a longer duration of staying private using the resource-based view(Barney, 1991). Unicorn startups want to remain private and to gain more investment using their increased reputation. As Cumming & Johan(2010) stated with respect to the growing market, the unicorns may have a longer period of exit to gain more financial resources while they stay private.

The startups practice the professional governance of their firms and establish more reputations through the cycle of funding round(Gompers & Lerner, 2000). If the duration of investment becomes longer, the investors have benefits to take more time for adding value to increase the exit valuation of their portfolio startups for more future profits. Investment duration becomes longer because of investors achieving advantages from the growth of the market and investee startups(Cumming & Johan, 2010). Moreover, longer investment from the VCFs is also associated with superior performance after an exit through IPO(Megginson & Weiss, 1991)

In addition, highly valued startups could prefer not to proceed exits because they think that there are more chances to improve their valuation and reputation by postponing exits(Brown & Wiles, 2015). Since our research mainly deals with unicorn startups that accomplish entering into the world's highest valuation group in the market, we draw Hypothesis 1 as following.

Hypothesis 1: For unicorn startups, investment duration positively affects exit valuation.

#### 2.4 Government policy

In addition to the firm level of analysis regarding the exit valuation, the institutional factors need to be considered to understand more about the relationship between investment duration and exit valuation. Institutional theory suggests an effect of institutions on individuals' and organizations' activities(Dacin et al., 2002). Institutions are commonly categorized into three fields based on their characteristics, regulative, normative, and cognitive(North, 1990). They influence the capability or strategy of firms in formal or informal ways(Hitt et al., 2004; Hoskisson et al., 2000; Peng, 2003). The regulative feature is presented as formal institutions, and formal institutions are important because of transaction costs for obtaining essential information(Li & Zahra, 2012; North, 1990). For VCFs, in their conditions of limited information about firms, the institutional environment could be an essential consideration when they decide the startups to invest. Thus, changing policies by formal institutions could also change the venture capitalists' activities(Li & Zahra, 2012).

The representative of a formal institution would be government policies. Entrepreneurship and firm activities are considerably affected by government policies(Minniti, 2008). Depending on government policies, the competitiveness of their countries' startups could be increased or declined(Porter, 1991). Overall, institutions that are supportive towards ventures may catalyze a vital entrepreneurial ecosystem even though the government does not directly play a role as an actor in the startup firms' competitiveness(Porter, 1991). Institutional development is important not only for startups but also for investors.

Since the unicorn startups are from different countries, we posit that the institutional factors may have a moderating effect on their decision of exit timing and exit valuation. With regard to the effect of investment duration, we consider an institutional aspect of countries as a moderating effect on the relationship. Cumming(2007) emphasizes that government policies, such as tax policies, are particularly important to develop economies of venture capitalists. Government policies which support the startups' activities positively influence on firms not to hesitate because of factors from outside, such as VCFs, market instability, or competitors. With highly supportive public policies regarding startups, the startups could operate their business as their intention, even if there is the investors' monitoring or intervention. Governmental support related to policies could reduce the anxiety of investors to sustain investment and could be beneficial for the confidence or the competitiveness of startups.

Unicorn startups have already achieved financial resources. However, if government policies do not support venture firms' activities, funding from VCFs may not be sustainable. Since unicorn startups operate their business in a large scale, governmental support is necessary for them to enjoy benefits from delaying an exit. This would allow unicorn startups to pursue more valuations to accomplish more investment and valuations. Thus, Hypothesis 2 suggests the moderating effect of the level of government policy on the relationship between investment duration and exit valuation.

Hypothesis 2: For unicorn startups, the higher level of government policies that are supportive to startups strengthens the relationship between investment duration and exit valuation.

#### 2.5 Foreign investors

According to Espenlaub et al.(2015)'s research regarding the relationship between the level of formal institutions and startups or VC activities, they argued the negative impact of insufficient institutions because of environmental uncertainty. Another research also indicated that a county's institutional instability could drive the faster exit for the startups that are backed by cross-border investors since policy uncertainty is recognized as a potential risk to the investors who want to return their investment without high risk(Li et al., 2014; Moore et al., 2015).

This tendency is possible to be applied to the case of unicorn companies because they have higher chances to receive funding from international VCFs. Moreover, the uncertainty could be reinforced, if institutional distance between the investors' and investees' countries is further(Carmignani, 2003). With further institutional distances, VCFs experience higher uncertainty, and in the context of risk avoidance, they tend to foster gaining financial returns from the startups though exits(Fatehi-Sedeh & Safizadeh, 1989). In other words, since there is an information asymmetry in institutional aspects between domestic and foreign VCFs, with foreign VCFs may attempt to return their profits of the investment earlier.

However, once the startups become one of the unicorn firms, they face a different situation. Market demand for their products or services is sufficiently verified with a large amount of funding. This means that they gain the power of changing the market institutions and that they could lead the market. McMullen & Shepherd(2006) state that firms commonly view a changing market environment as a source of opportunities for their business. Cross-border venture firms could also bring additional opportunities for M&A, which is one type of exit(Bertoni & Groh, 2014). In this context, for the unicorn startups, reputation and valuation that they can achieve through longer investment duration may be reduced because of an uncertainty-avoidance tendency of foreign investors.

Wu & Chen(2014) suggested that the level of institutional uncertainty in the domestic market would influence an increment of investment from outside of countries. However, when the level of institutions of their countries is higher than that of portfolio companies' countries, foreign investors could perceive the institutional uncertainty seriously. Institutional uncertainty enforces the exit timing of startups to be shorter when foreign venture capital firms possess a greater proportion of the investment of the startups(Espenlaub et al., 2015). Even though unicorn startups tend to delay exit for increasing their valuations, better institutions of foreign investors may be helpful to raise exit valuation. Hypothesis 3 is driven in this context. Figure 1 shows the whole model of this study.

Hypothesis 3: For unicorn startups, the higher level of foreign investors' institutions compared to startups strengthens the relationship between investment duration and exit valuation.



<Figure 1> Research model

#### III. Method

#### 3.1 Data

In this research, we used 140 exited unicorn data from CB Insight which are updated daily as a basis of our study. As Table 1 shows, the unicorn startups are mainly from the US. However, the number of firms from outside the US, such as China, has become increased. Table 1 also shows the total exit valuation of each country. In addition, We selected two types of

exit, and an IPO and M&A, to obtain clearly defined exit type and gathered the foundation date and the exit date of each startup. All other data about the startups and investors, for example, nations, funding rounds, and the number of investors in each round are collected from Crunchbase.

The nations' formal institution data is provided by two sources, the Global Competitiveness Report(GCR) and the Global Entrepreneurship Monitor(GEM)(Schwab, 2016). The public institution score data uses the Global Competitiveness Index(GCI) from World Economic Forum conducted survey in 2016. Based on the data, we merge them to 2112 data about investors and their nations collected from Crunchbase. From GEM, we gain the level of government policy by calculating the sum of the expert rating of government policies for each country, regarding supporting entrepreneurial activities policies and tax policies which give more advantages for ventures.

#### 3.2 Variables

#### 3.2.1 Dependent variable

The dependent variable is exit valuation of unicorn startups that represents the unicorn startups' final valuation when they exit venture status. Since unicorn startups are grounded in different countries, the currency of exit valuation is different. We converted the currencies of firms' exit valuation to dollars. The exit valuation is To clarify our research, we focus on the unicorn startups which are already exited firms through an IPO or M&A. We conduct an analysis how investment duration, starting from the first round of funding and ending with an exit, influences the final exit valuations of the startups, especially unicorns which are more valuable than most common venture firms and are capable of deciding their exit strategies, interacting with their investors(Bartlett, 2015).

#### 3.2.2 Independent variables

Investment duration in our research means the length of time from the first investment to exit. To measure the duration, we count the number of months between the start date and exit date of each firm. We tested the normal distribution with this variable using kolmogorov-smirnov test. The result shows insignificant p-value which is 0.200(p<0.05).

We applied two moderator variables. The first moderating variable was the level of government policies supporting startups. The data is collected from GEM web page for gathering the latest version of data. We made data through selecting the two categories which indicate government policies, which are Support and Relevance, Taxes and Bureaucracy, and additional ratings they have(Hechavarría & Ingram, 2019). The other variable made to test the moderating effect was a foreign investor effect which indicates the sum of institutional distance between unicorn startups and foreign investors' countries(Chen et al., 2018; Wu & Chen, 2014). We found the average of institutional distances between the target startup's country and countries of investors using data from GCR. The institutional value is specified by public institution and is calculated from a mean of Property rights, Ethics and corruption, Undue influence, Public-sector performance, Security, and Private institutions of each country.

#### 3.2.3 Control variables

We controlled 5 variables related to country factors and firm factors that have possibilities to confuse our test. As country factors, Internal market dynamics and Commercial - Legal infrastructure levels are controlled using GEM data. They are selected because of their possible influences on entrepreneurial activities and the average time to exit(Espenlaub et al., 2015; Li, 2008). Firm factors, Firm age, Exited year, and Foreign investor proportion, are controlled to prevent their direct effects on the valuation. Exited year is added as a dummy variable based on the year that Lee(2013) introduced the term 'unicorn' to control the category effect. We set 1 when a firm exited after 2014 and otherwise set 0. In addition, Exit type is also controlled because valuation could be a difference depending on the type of an exit through IPO or M&A(Bayar & Chemmanur, 2011). Table 2 describes how we measure each variable in detail.

#### **IV. Results**

Table 3 presents the means, standard deviations, and correlations between the key variables. It shows no correlation between the variables with too high to suspect serious multi-collinearity(>0.8).

We tested on 140 unicorn startups' exit cases using multiple regression models. Hypotheses are applied to model 2, 3, and 4, and model 5 is a full model containing all variables that we concerned.

Table 4 shows the results from an analysis of our hypotheses. All models excepting the model including control variables had significant F-values, and adjusted R-square value increases throughout entering variables(p<0.01). In model 1, firm age and year dummy variables show significance at relationships with exit valuation. With model 2, we test independent variables including institutional distance compared to foreign investors and government policy. Investment duration shows a positive influence on exit valuation( $\beta$ =0.162, p<0.1). Thus, we find marginal support for Hypothesis 1 through an analysis with model 2.

Hypothesis 2 that we expected to find a positive moderating effect of government policy for startups on the relationship between investment duration and exit valuation, is strongly supported in model  $3(\beta=2.438, p<0.01)$ . This result indicates that if unicorn startups have longer investment duration to an exit, they may achieve higher exit valuation with the higher level of government policy in countries where they operate their business.

For Hypothesis 3, we tested the foreign investor effect which

was calculated the institutional distance between foreign investors' countries and startups' countries. The foreign investor effect also shows changing the relationship between investment duration and exit valuation to a negative effect. This positive effect means that if foreign investors are from countries with positively further institutional distance, the relationship between investment duration and exit valuation is likely to be strengthened. Since the positive and increasing foreign effect means that a foreign investor's country has better institutional environments, this implies that the unicorn startups which have more investors from relatively institutionally better country show a higher tendency to make higher exit valuation with longer investment duration. The result of the model 4 shows support for Hypothesis  $3(\beta=0.460, p<0.05)$ .

<table 1=""> Country origins of unicorn startups</table>							
Country	# of startups	Percentage	Total exit valuation (\$B)				
Australia	1	0.7	1.05				
Brazil	1	0.7	1.20				
Canada	2	1.4	2.35				
China	15	10.7	233.06				
Germany	4	2.9	21.83				
Denmark	1	0.7	1.14				
France	1	0.7	1.71				
UK	6	4.3	13.47				
Ireland	1	0.7	7.09				
Israel	1	0.7	5.31				
Netherland	2	1.4	2.65				
Russia	2	1.4	4.03				
Taiwan	1	0.7	1.10				
USA	102	72.9	372.77				
Total	140	100.0	668.76				

Variables	Description	Measure	Source
Exit Valuation	Unicorn startups' final valuation when they exit venture status	The exit valuation is converted to dollars	Crunchbase
Investment Duration	The length of time from the first investment to exit	The number of months from the first investment date to the date of an exit	Crunchbase
Foreign investors' institutional distance	The total institutional gap between unicorn startups and foreign investors	$\sum$ (investor countries' public institutions value - a unicorn startup's public institutions value) / the total number of foreign investors	World forum
Government Policies	The level of government policies supporting startups	An average of support and relevance index, taxes and bureaucracy index, and government entrepreneurship programs index.	GEM
Firm_Age	The age of a unicorn startup at the time of an exit	The number of months from foundation date to the date of an exit	Manually collected
Infrastructure	The presence of commercial or legal and assessment services that support or promote SMEs	Commercial - legal infrastructure index	GEM
Exit_type_dummy	The type of an exit, IPO or M&A	Set 1 to an IPO and 0 to M&A	Crunchbase
Year_dummy	The year of the term 'unicorn' being introduced	Set 1 when a firm exited after 2014 and otherwise set 0	Manually collected
Foreign_proportion	The proportion of foreign investors	The rate of foreign investors compared to domestic investors	Crunchbase

#### <Table 2> Descriptions of variables

<Table 3> Descriptive statistics

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9
1. Exit Valuation	4.77	16.75	1								
2. Investment Duration	70.74	37.24	0.142	1							
3. Foreign investors' institutional distance	0.12	0.47	0.098	0.133	1						
4. Government Policies	5.11	0.48	0.106	-0.012	0.010	1					
5. Firm_Age	8.69	4.10	-0.100	0.398**	0.033	0.017	1				
6. Infrastructure	3.19	0.25	-0.211*	-0.060	-0.343**	-0.452**	-0.093	1			
7. Exit_type_dummy	0.61	0.49	0.272**	0.211*	-0.003	0.144	0.000	-0.218**	1		
8. Year_dummy	0.56	0.50	0.153	-0.024	-0.111	0.005	0.067	0.047	-0.069	1	
9. Foreign_proportion	0.27	0.33	0.091	-0.013	0.268**	0.373**	0.186*	-0.614**	0.073	0.025	1

+ p < 0.10, \* p < 0.05, \*\* p < 0.01

Variables -		DV In(Exit valuation)						
		Model 1	Model 2	Model 3	Model 4			
	Firm Are	-0.126	-0.193*	-0.206*	-0.194*			
	Firm_Age	[0.02]	[0.02]	[0.02]	[0.02]			
	Infrastructura	-0.195+	-0.167	-0.145	-0.137			
	I in asi ucture	[0.36]	[0.37]	[0.38]	[0.36]			
Control	Evit turo dummu	0.245**	0.215*	0.232**	0.202*			
variables	Exit_type_ddininy	[0.14]	[0.15]	[0.14]	[0.14]			
	Voor dummu	0.188*	0.199*	0.196*	0.189*			
	fear_duniny	[0.14]	[0.14]	[0.13]	[0.13]			
	Foreign propertion	-0.028	-0.011	-0.011	-0.009			
	Foreign_proportion	[0.26]	[0.26]	[0.26]	[0.26]			
	Covernment Policica		0.007	-0.396*	-0.026			
	Government Policies		[0.16]	[0.28]	[0.16]			
Independent	Fereign investore' institutional distance		0.051	0.014	-0.284*			
variables	Foreign investors institutional distance		[0.00]	[0.16]	[0.24]			
	Investment Duration		0.162+	-2.227**	0.051			
	Investment Duration		[0.00]	[0.02]	[0.00]			
	Investment Duration x Government			2.438**				
Moderating	Policies			[0.00]				
effects	Investment Duration x Foreign investors'				0.460**			
	institutional distance				[0.00]			
Constant		2.719*	2.226	5.222	2.340			
		[1.21]	[1.72]	[1.97]	[1.69]			
R-square		0.147	0.171	0.224	0.238			
Adjusted R-square		0.115	0.121	0.170	0.181			
F		4.602**	3.387**	4.173**	4.511**			
Ν		140	140	140	140			

<table< th=""><th>4&gt;</th><th>Results</th><th>of</th><th>the</th><th>OLS</th><th>regression</th></table<>	4>	Results	of	the	OLS	regression
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+ p < 0.10, \* p < 0.05, \*\* p < 0.01Standardized coefficients reported in brackets

### V. Discussion

This paper is to find out how investment duration affects an exit valuation of unicorn startups. Based on the unicorn startups' unique features that are \$1 billion or more valuations and high reputations, we have expected a different result compared to the common ventures. We draw the hypothesis that unicorn startups that have longer investment duration from the first round of funding to an exit stage are more likely to achieve more exit valuation based on an assumption that they could accumulate the reputation and valuation throughout a long period. In addition to the relationship between investment duration and exit valuation, moderate variables regarding formal we suggested two institutions. The first moderate variable, that is government policies supporting startups, clearly presents the formal institutions, and the second moderator was considered the difference of countries' institutions between unicorn startups and foreign investors.

Through the analyses, we obtain the result that all hypotheses are supported. The result means that the greater government policies and the foreign investor effect depending on their country origins reinforce the relationship that longer investment duration influences larger exit valuation. Therefore, it indicates that the effect of longer investment duration could be affected by the institutional factors surrounding unicorns. This is because there are many other factors that affect unicorn startups' valuation, such as governmental supportive policies or the effects of foreign investors from different origins.

With respect to the result, some limitations exist with this paper. First, we use the data of unicorn startups that have been already exited from the market. The number of exited unicorns is 153 in total, and many of them are from the U.S. However, startups newly entered into the unicorn list are from various countries including Europe and Asia. Thus, if future research analyzes a larger amount of data, the result will have more reliability. Second, since we include the country-level factors, a multilevel analysis may be needed to achieve a more rigorous examination. The analysis needs to have sufficient sample sizes for accurate estimation(Maas & Hox, 2005). Unfortunately, the number of unicorn startups for each country is not enough to conduct the multilevel analysis. As countries that raise unicorn startups become more diversified, the analysis could be possible in future research.

Even though there are some limitations, this paper provides

several contributions to the academic field. First, we provide a closer look at the unicorn startups that recently rising subject because of their large amount of fundraising and a tendency to stay private(Brown & Wiles, 2015). Through analyzing that phenomenon, we suggested possible factors that are investment duration, government policies, and the origin of foreign investors. By considering not only the firm level but also the country level of factors, this research provides more comprehensive analyses with an institutional approach. In addition to this, according to the result of the second hypothesis, the higher level of government policies that are supportive to startups increases the startups' exit valuation. This result could give an implication for the government to apply more supportive policies in order to nurture unicorn startups.

For managers, this research has two contributions. First, when they consider an exit of their firms, if the firms become one of unicorn startups, staying private may navigate better performance. Second, if a unicorn startup has relatively better institutional systems in its country, it could also be a signal for VCFs to invest more capital in the firm when the firm does not plan to exit in a short period of time.

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### 유니콘 기업들의 투자 유치 지속 기간, 정부 정책, 해외 투자자가 Exit 가치평가에 미치는 영향에 대한 연구<sup>·</sup>

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#### 국 문 요 약

유니콘 스타트업의 출현과 그 수의 증가는 최근 많은 주목을 받고 있는 분야이다. 본 연구에서는 유니콘과 같이 빠른 성장을 보이는 스타트업 들이 더 높은 기업가치와과 명성을 얻기 위해 exit 시기를 지연시키는 현상에 주목하였다. 유니콘 기업들이 투자 기간이 길어질수록 더 높은 기 업가치를 획득하는 경향성을 보이는 지를 알아보기 위해 기업 공개 (IPO)나 인수/합병 (M&A)를 통해 이미 Exit한 140개의 유니콘 기업 자료 를 기반으로 본 연구를 진행하였다. 더 나아가 단순히 기업 수준에서 자원 획득을 위한 영향을 검증하는 것을 넘어서 제도의 영향성을 알아보기 위해 스타트업을 육성하는 국가 정책의 정도와 해외 투자자의 조절 효과를 추가로 알아보았다. 다시말해, 본 연구에서는 유니콘 기업들은 투자 를 받은 기간과 exit 시점의 기업가치 산정 사이에 양의 상관관계가 있다는 것을 가설을 기반으로 하여, 국가 제도적 변수들의 조절 효과를 살 펴보았다. 하나의 자료 수집 원천에서 오는 편향을 제거하기 위해, Crunchbase, World Bank, Global Competitiveness Report, Global Entrepreneurship Monitor 등 다양한 출처를 통해 획득한 데이터를 이용하였으며, 결과는 가설을 부분적으로 지지하는 방향으로 도출되었고 조절효과의 영향 또한 유의미한 것으로 나타났다. 유니콘 스타트업에 대한 연구가 부족한 상황에서 본 연구는 그들의 증가에 관심을 가지고 향 후 연구에 도움이 될 수 있는 새로운 주제와 방향을 제시했다는 데 의의를 가지고 있다.

핵심주제어: 유니콘 스타트업, 투자 기간, 엑시트 밸류에이션, 정부정책지원, 해외투자자 효과

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