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Do unicorns exist in China? A study of the Chinese technological start-up ecosystem

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Abstract

Venture capital syndication plays a pivotal role in fuelling the growth of new ventures that subsequently become unicorns, privately owned companies valued above \$1bn. China has been very successful in generating new unicorns, surpassed only by the United States. In this paper we examine the impact of the experience of venture capital companies and the strategic choice(s) of the unicorn to grow inorganically through acquisition in two areas: the amount of funding available to unicorns and the size of the syndication network. It is argued in the literature that both of these play a key role in shaping the growth of new enterprises.

We find that the experience in lead investments of the first investor of the unicorn has a positive impact in terms of both amount of funding and size of the syndication. We also find that the presence of an experienced investor has a positive effect on the syndication size but a negative effect on the total amount of funding that is raised. Finally, acquisitions have a strong effect on both the amount of funding and the size of the syndication.

Keywords: Entrepreneurship; venture capital; China; unicorns

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1. Introduction

Unicorns are privately owned companies with a valuation of \$1 billion or more. Technological change, coupled with innovative new business models, plays a significant role in shaping the growth of unicorns through lowering barriers to entry and enabling them to operate globally. As a consequence, those markets where unicorns can be found are often characterised by ‘winner takes all’ developments – in other words, the markets enjoy rapid growth and are often dominated by one company. Due to this, some unicorns are worth considerably more than \$1 billion – Uber, while it was still privately owned, was reputedly valued at around \$100 billion at the end of 2018 (Bond & Fontanella-Khan, 2018).

Uber and Airbnb are staples of the business press, generating a large number of stories as they have expanded into new markets and clashed with established businesses or regulators. Notwithstanding the negative disruptive impact of unicorns, their socio-economic benefits – primarily the creation of jobs and wealth – have ensured that they have attracted considerable interest in recent years. Simon & Bogdanowicz (2016), for example, investigate 30 unicorns and make a series of policy related observations regarding their growth and development. The Economist highlighted the benefits of co-location of start-ups, some of which become unicorns, within San Francisco (The Economist, 2015) but also how the fortunes of unicorns can quickly change (The Economist, 2019).

When it comes to unicorns, China has been very successful in terms of its total population of unicorns and the creation of new ones. According to latest reports, 37 new companies became unicorns in China in 2018 (CBInsights, 2018). According to a PWC report in which the CEO of 101 Chinese unicorns were interviewed, the recent surge in China’s unicorn population is supported by an increasingly stronger financial sector with more than 80% of the respondents expecting a new round of financing within the year. The Chinese financial sector is increasingly characterised by depth and scope with some of the key players

being Sequoia, Tencent, IDG, Matrix, Warburg Pincus, Qiming, Morningside and Baidu. In addition, Alibaba, a former unicorn, is also a significant investor in the Chinese technological sector. The venture capital sector in China reached \$70.5bn in 2018 experiencing an annual growth rate of 52.7% (China Daily, 2019). The Chinese government has been very active in encouraging this growth by providing incentives to the thirty-one provinces in China to establish venture-capital companies to support entrepreneurial activity (Ahlstrom, Bruton & Chan, 2000). However, the relationship between the public and private sector in the Chinese venture capital industry is not always easy. As the state-owned companies are required to provide a series of worker benefits that their private counterparts are not, there are tensions with those that lead state-owned companies and the private sector (Ahlstrom, Bruton & Chan (2000) citing Steinfield (1997)). Moreover, the legal, economic, taxation environment varies significantly among the Chinese provinces, and as a result the position for or against private equity investors also differs (Wank, 1996).

This paper investigates the growth of unicorns. Rather than focus on the United States or Europe, we instead investigate the growth of unicorns within China. In recent years China has emerged as a leading player within the global ICT and e-commerce markets – Huawei is the largest provider of telecommunications equipment globally, while Alibaba is an innovative player within e-commerce markets. Both of these companies are well-known, as are their rivals such as ZTE and JD.com, and thus overshadow the other companies that exist within China's ICT sector as well as what is happening in other parts of the economy. While the growth of these companies is often linked to the large size of the Chinese domestic market, relatively little attention has been directed to towards understanding how the financing of new ventures contributes to their growth. Jinzhi & Carrick (2019), which is one of the few academic papers examining Chinese unicorns, adopt an approach considerably wider than focusing on finance. This paper seeks to address this oversight.

With this in mind, the rest of this paper is divided into four main sections. In Section 2 we provide a brief overview of the theory behind venture capital funding and syndication and its effect on entrepreneurial growth and the Chinese context of the venture capital industry. In Section 3 we describe the sample and sample collection methodology along with the research strategy and methods adopted. The findings are presented in Section 4, with conclusions drawn in Section 5.

2. Literature review

China has experienced a far-reaching socio-economic transformation since 1980 with the private sector gaining a more prominent role as a driver of economic growth (Dharwadkar, George, & Brandes, 2000; Yu Ya & Li, 2008). Today, Chinese entrepreneurs and SME companies are a considerable driving force of growth (Huang, 2008). This change was achieved through the development of China's institutional foundations which provided the necessary infrastructure to facilitate and control socio-economic change (Child, Lu, & Tsai, 2007). The development of a solid financial institutional regime is necessary to effectively direct the generated wealth towards investments that are important for entrepreneurial activity, and China has made considerable progress in this respect in recent years (Ahlstrom, Bruton, & Yeh, 2007). However, due to the heterogeneous risk profile of new ventures, strategic outlook and growth potential, the entrepreneurial ecosystem of China presents great opportunities for private equity investors and venture capital companies, which emerged as a response to the exceptional return on investment within the country (Bruton & Ahlstrom, 2003).

The venture capital industry is crucial for entrepreneurial activity (Hellmann, 2002). Due to a lack of historical information related to entrepreneurial activity and the uncertainty that is endemic to new ventures, traditional financial institutions cannot always identify such opportunities (Gorman & Sahlman, 1989; Lerner, 2000). This inability is addressed by the

venture capital sector through a process called 'screening' (Casamatta & Haritchabalet, 2007). Through screening venture capital companies take advantage of the existing information asymmetry, either internally or through an extensive network of partners, and identify innovative companies with significant growth potential in which to invest (Zhao & Aram, 1995).

Moreover, venture capital companies also perform due diligence that explores the legitimacy of new ventures. In China due diligence is crucial. Although the institutional development has been rapid and continues to evolve, there is still room for further development and improvement. As a result, due diligence replaces the institutional void by undertaking a thorough investigation of the new venture (Ahlstrom et al., 2007; Zhao & Aram, 1995). This legitimacy building activity is fundamental for both the venture capital company that performs it and for the company that is investigated ability to attract funding and thus grow.

Those new ventures backed by venture capital firms experience increased profitability and survivability rates (Colombo & Grilli, 2005). Although financial support is important, the relationship between a new venture and venture capital companies is not limited to this (Avnimelech & Teubal, 2006). Through 'coaching', which is the second main activity of venture capital companies, they can provide further support in the form of privileged access to a wide network of similar companies that have previously been invested in by the venture capital company as well as to other legal and financial institutions. Through the systematic exchange of information risk is significantly reduced, thereby increasing the return on investment potential (Perez, 1986; Sorenson & Stuart, 2001).

However, to further reduce the systematic investment risk, venture capital companies form strategic alliances called 'syndications' (Hellmann, 2002; Jääskeläinen, 2012; Sorenson & Stuart, 2001). Syndications take place during a funding round that aims to raise money for a new venture. Syndications are valuable knowledge sharing networks and venture capital

companies benefit considerably from the knowledge and experience of other companies of the sector. As a result, syndication encourages investment and thus fuels the growth of new ventures (Tian, 2012). Privileged information sharing benefits both the screening and coaching processes, increasing the reach of the new venture's network, improving its profitability and growth (Brander, Amit, & Antweiler, 2002). Such networks tend to be highly localised to facilitate information sharing. In China, where due diligence is crucial, spatial proximity among venture capital companies and new ventures is important (Pan, Zhao, & Wójcik, 2016). Spatial proximity is important in China because of the significance of 'guanxi' in forming and shaping relationships. According to Zhao & Aram (1995) guanxi is the bond between two people based on the exchange of favour rather than sentiment. Guanxi, as a form of traditional legitimacy, is an important force that sustains and maintains network(s). As a result, the location of a new venture vis-à-vis the venture capital investors is crucial because it supports screening, coaching, due diligence and creation of links among venture capital companies to form funding syndications.

In this paper we focus on understanding how the experience of venture capital companies act as a catalyst that generates and sustains a syndication. We explore the effect of the experience of the first investor(s) who is responsible for screening and performing due diligence on the investment. Second, we explore the impact of (very) experienced members of the syndication on later stages of the growth of the company in terms of both the total amount of financial resources provided to the new venture and the size of the syndication. Finally, we study the impact of the strategic choice of new ventures to grow through acquisitions or organically on their ability to raise financial resources and the corresponding size of the syndication, along with the effect of the location of new ventures in Beijing.

3. Sample Selection and Methodology

3.1 Sample selection

Our sample consists of 113 Chinese unicorns. The initial starting point for creating the sample was CB Insight's annual list of unicorns (CBInsights, 2018). However, the list was triangulated against other publicly available lists such as the Financial Times and Forbes. Due to issues relating to the valuation of unicorns and the lack of publicly available data to replicate and verify these valuations (Gornall & Strebulaev, 2018), we refrain from referring to the population of the unicorns in this study as their total population in China. The data were collected through Crunchbase pro, an online database which collects comprehensive data related to privately owned company. This data is considered as credible and in many cases has been used to circumvent data manipulation methods on behalf of companies (Lucas & Feng, 2017). The criteria we employed to include a company in our sample were twofold: 1) the company needed to be privately owned during the study period; and, 2) at any point of its history the company exceeded a valuation (exogenously provided) of \$1bn.

The Chinese unicorns of our sample were established between 1998 and 2017. As a result, the companies vary significantly in terms of their age. On average, the Chinese unicorns are 7.31 years old which is consistent with the anecdotal evidence of their western counterparts (De Massis, Frattini, & Quillico, 2016). The oldest unicorn (21 years old) in the sample is YH Global, a logistics company based in Shenzhen, followed by JD Finance, a company operating in the financial sector that is 19 years old. This illustrates that Chinese unicorns do not vary only in terms of age but also in terms of both the sector that they operate in and their location. In terms of sector, the most represented one is that of e-commerce: 20 out of 113 unicorns operate in this sector which is not surprising given its strong growth potential, especially in the vast and emerging Chinese market. Companies such as Alibaba, an online marketplace with growth potential comparable to Amazon, or Meituan Diaping, both located in Beijing have a

valuation close to \$100bn and are, in turn, big investors in the Chinese innovation ecosystem (Crunchbasepro, 2018). The distribution of Chinese unicorns among the industrial sectors is shown in Figure 1.

[Insert Figure 1 about here]

In terms of geographical distribution, the Chinese unicorns are not evenly distributed between cities. This is to be expected given the close control that Chinese investors have on the new ventures. Close proximity significantly facilitates due diligence and coaching. The most populous Chinese city is Beijing, which hosts almost half the population of Chinese unicorns (53 out of 113). Beijing being the administrative centre of China and an important financial hub is expected to provide a fertile ground for Chinese unicorns to emerge. The second most populous region is Shanghai (24 unicorns), Shanghai (13), Zhejiang (11), and Liaoning and Hong Kong (3). The list is completed with Shandong, Jiangsu, Hubei, Heilongjiang, Hebei, Fujian (1) and finally a company, Xiapoeng Motors, for which we do not have information regarding to its bases. The regional distribution of Chinese unicorns is shown in Figure 2.

[Insert Figure 2 about here]

In terms of the number of rounds used to attract funding, Chinese companies were, on average, funded through three rounds. However, there are some notable exceptions. For instance, Alibaba went through 15 funding rounds and managed to attract \$8.9bn in funding. In addition, Didi Chuxing, through 14 rounds, attracted a total of \$19.7bn in funding. Conversely, 15 companies became unicorns through a single funding round that attracted, on average, more than \$620m. The funding round number frequency of Chinese unicorns is shown in Figure 3. Descriptive statistics for our sample are shown in Table 1.

[Insert Figure 3 about here]

[Insert Table 1 about here]

3.2 Methodology

As the size of the syndication affects the total amount of funding available to the unicorn and vice versa, we have divided our analysis into three parts. The first part is a correlation analysis of the factors to identify co-linearity due to the endogenous and mutual reinforcing effect between funding amount (total equity funding) and syndication size (NI). We explore how the total amount of funding provided to the unicorn is affected by:

- the number of investors (NI);
- the age of the company (Age);
- the number of rounds (Rounds);
- the region the unicorn (Reg); and,
- the experience of the most experienced private equity investor and the first investor of the unicorn.

More particularly, we are interested in three different aspects of experience for the most experienced and first investor. This is achieved by including in the analysis the following: the total number of investments (INVEXP1 and FINVEXP1); the total number of lead investments (INVEXP2 and FINVEXP2); and, the total number of exits (INVEXP3 and FINVEXP3).

Finally, we evaluate the impact of inorganic growth through the purchase of other companies and the effect it has on attracting funding for the unicorn. To this end, OLS regression is employed. All the variables are positive (continuous or discrete) numbers. As a result, to minimise the impact of big outliers, we log transformed all variables apart from the regional variable REG that is a factorial variable. OLS regression is employed to explore the impact of these factors on the funding that is available.

The second part focuses on the impact of the experience of the investors on the size of the syndication of private equity investors of Chinese unicorns. Within the investment process syndication helps to minimise systematic risk (Hellmann, 2002). The dependent variable

number of investors (NI) is an integer and as a result we use Poisson regression (Sedgwick, 2014). Through Poisson regression analysis we estimate the impact of: a the experience of the first investor, and the most experienced investor in terms of total investments (INVEXP1 and FINVEXP1 respectively), the number of lead investments (INVEXP2 and FINVEXP2), and number of exits (INVEXP3 and FINVEXP3), the total amount of funding to explore if there is a reciprocal relationship with the syndication size, the number of acquisitions to estimate the impact of the strategy to grow inorganically to the size of syndication and finally we include the region as a binary, factorial variable to examine whether the location of the unicorn in China has a significant impact to the syndication. The results of our analysis and discussion are presented in the following section.

3. Results and discussion

The first part of our analysis is focused on the correlations among the variables – see Tables 2a and 2b. We use correlation analysis to identify influencing factors and to test for collinearity. From the results it shows that the latter is not the case. From Tables 2a and 2b we can see that the total amount of funding attracted by Chinese unicorns is highly and significantly corelated with the number of funding rounds. However, it is not clear whether the effect is direct, meaning that investors spread the risk of investment among various rounds, or if the contribution is indirect. Table 1 shows that a considerable number of Chinese unicorns reached their \$1bn or higher valuation after only a single round.

[Insert Table 2a about here]

[Insert Table 2b about here]

Another factor that is highly and significantly corelated with the total amount of funding is syndication size (NI). This relationship echoes the literature (Ferrary, 2010; Joshua Lerner, 1994; Tian, 2012). Venture capital investors reduce systematic investment risk through

syndication by sharing knowledge for screening and due diligence purposes. As a result, they are accordingly willing to increase the amount that they pledge.

Finally, all types of experience (number of investments [INVEXP1 to INVEXP3 and FINVEXP1 to FINVEXP3]) are positively correlated with the amount of funding but not are statistically significant. What seems to be significantly correlated with the amount of funding is the number of acquisitions, which provides initial evidence that the strategy of growing inorganically through acquisitions in the Chinese market is rewarded through increased funding and (eventually) unicorn status.

On the other hand, the syndication size (NI) is also highly correlated with the number of investment rounds – this corroborates the argument that the effect of the funding rounds on Chinese unicorns may not be direct (that is, more funding rounds result in more funding being available) but instead through the reinforcement of the investment syndication. On the other hand, the syndication size appears to be highly and significantly correlated with the number of acquisitions. Moreover, syndication is strongly and significantly positively correlated with the experience of the most experienced investor across all three types of experience – total investments (INVEXP1), number of lead investments (INVEXP2) and number of exits (INVEXP3) and the corresponding experience types of the first investor (FINVEXP1, FINVEXP2 and FINVEXP3). This provides compelling evidence that investors chose to syndicate with more experienced members of the sector to benefit from positive knowledge externalities in the form of screening, due diligence and coaching.

The location of both the private equity investor and the company play a role in the funding process of a new venture. We examine the effect of the location of the unicorn on both its ability to attract more funding and the size of the syndication. In particular, because half of the Chinese unicorn population resides at Beijing, we aim to explore the direction of the impact of this phenomenon. The variable Reg is a binary, factorial variable that takes the value 1 if the

unicorn is located at Beijing and the value 0 if not. We performed two one-way ANOVA analyses. The results are presented at Table 3a and 3b respectively.

[Insert Table 3a about here]

[Insert Table 3b about here]

Studying the difference in the total amount of funding between Beijing and the rest of China, we find that it is not decisive for Chinese unicorns to be located in Beijing – there is no statistically significant difference between the average amount of funding in both areas (Beijing versus rest of China). However, syndication among venture capital companies is significantly facilitated for those Chinese unicorns that are located in Beijing. One reason for this might be that the population of venture capital companies in Beijing is higher compared to other regions of China (Pan et al., 2016). Moreover, venture capital companies tend to favour geographically closer companies to facilitate monitoring and coaching (Ahlstrom et al., 2007; Bruton & Ahlstrom, 2003). However, it may also be the case that Beijing based companies are favoured because venture capital companies in Beijing form syndications more easily.

[Insert Table 4 about here]

To further our analysis, we performed an OLS regression to explore how Chinese unicorns gain financial resources. In particular, we explored the main factors: time (in terms of number of funding rounds), the experience of the venture capital companies and how the strategy of inorganic growth through acquisitions acts as a positive signal to attract further funding. Firstly, there is a strong positive and significant relationship between the amount of funding secured by a Chinese unicorn and the size of the investor syndication (NI). This result is in line with the current literature that argues that through syndication investors can lower the systematic risk and as a result will be willing to invest more in a new venture (Jääskeläinen, 2012; Joshua Lerner, 1994).

As demonstrated by Figure 3, a significant number of Chinese companies achieved their unicorns status through only a single round of funding – when compared to the venture capital investment process of western countries that typically occurs through multiple funding rounds, this is very unusual (Hellmann, 2002). Table 4 shows that there no statistically significant relationship between the number of funding rounds and the total amount of funding generated by the Chinese Unicorns, corroborating the descriptive statistics of Table 1, which showed that many Chinese unicorns reached that status through just one funding round. There is, however, some evidence that shows that the growth strategy via acquisition is strongly supported by investors who provide the necessary funding to the new venture to enable them to grow this way instead of organically. This strategy is common to unicorns with a ‘all-or-nothing’ type of business model that necessitates rapid market growth through either swiftly forcing competitors out of the market or entering new market segments through acquisition(s) (Lee, 2013).

Finally, Table 4 shows that the support of an experienced venture capital company during the first steps of a new venture is very important for the overall ability of the unicorn to attract funding in the long term. The screening of new ventures is challenging for venture capital companies due to the lack of available information (Casamatta & Haritchabalet, 2007). As a result, attracting the interest and the support of an experienced venture capital company that is also experienced in leading investments rounds can act as a ‘vote of confidence’ for other member(s) of the industry. This reduces the systematic risk faced, encouraging venture capital companies to provide additional support.

The presence of a very experienced venture capital investor has a significant negative impact on the amount of funding that the unicorn is able to attract in the long run (INVEXP1). Venture capital companies not only provide financial resources to entrepreneurs but they support them in other ways such as through providing them with access to a broad network of

other companies (legal, financial, etc.), facilitate positive externalities through knowledge sharing among companies supported by the investor and provide them with superior coaching opportunities (Hsu, 2004). Consequently, when provided with the choice, new ventures are willing to accept a ‘discount’ in order to be affiliated with a more experienced and successful venture capital investor.

Building on the discussion of the effect of the region on Chinese unicorns (Tables 3a and 3b), we explored the impact of the region (as a factorial variable) on the number of members of the venture capital syndication. We found that there is a strong relationship between the size of the syndication and the location of the unicorn. As a result, we can argue that those Chinese unicorns which are in Beijing can potentially attract a greater number of investors. Moreover, the number of investors per round is increasing. The variable does not differentiate between old and new investors, as a result we cannot argue whether the Chinese unicorn attract new funders or retain old ones. To explore this, the unit of analysis needs to shift from the company to the funding round.

Finally, an interesting finding is that there is no evidence of a dynamic, mutual and self-reinforcing relationship between the total amount of funding and the size of the syndication. Table 5 shows that the size of the syndication is not affected by the total amount of funding received by the unicorn, which is not the case vis-à-vis the total amount of funding that depends on the size of the syndication. As the total amount of funding is generated through multiple rounds, a better understanding of the reasons could emerge from analysing the funding round. Furthermore, regarding the impact of experience of investors, almost all relevant variables have a statistically significant result. However, that impact is not always in the same direction.

Beginning with the total number of investments of the most experienced investor in the unicorns, it appears to have a positive effect on the size of the total syndication. The access to the network, positive externalities and superior screening and coaching renders joining forces

with an experienced investor beneficial for other members of the syndication. However, the number of leading investments has the opposite effect to the total number of investors in a Chinese unicorn. It is not clear from either theoretical or empirical evidence why this is not the case; one plausible explanation is that the superior access to resources and knowledge of a very experienced venture capital company reduces the systematic risk sufficiently without the need to diversify the risk through syndication. Finally, the number of exits by the most experienced investors has also a positive effect on the number of investors in a Chinese unicorn. Knowledge regarding pathways of liquidation of an investment are always appealing to other investors (Lu, Tan, & Huang, 2013).

On the other hand, the experience of the first investor in the unicorn in terms of the total number of investments has a small but negative impact on the total number of investors in the Chinese unicorn. Once again, a similar argument as with the impact of the experience of the most experienced investor in terms of total number of investments can be repeated – the experience of the investor can be regarded as a substitute for venture capital syndication. What does, however, have a positive impact on size is the experience of the first investor in terms of its lead investments. This acts as a strong signal of the investment's positive prospects, attracting more investors and legitimising the unicorn. Who exits from the investment during its early history is not actively considered by investors during later stages with the result that the experience of the first investor in terms of their experience does not have a statistically significant effect (though it is positive). Finally, the strategy of Chinese unicorns to grow inorganically through acquisitions has a strong impact on the number of investors that the unicorn attracts and consequently its ability to enjoy more success in terms of funding its growth rapidly through acquiring other business.

4. Conclusion

The Chinese economy has experienced a far-reaching institutional transformation (Child et al., 2007) reflecting the gradual opening up of its economy to the world. As a result, Chinese entrepreneurship, now displays remarkable growth in terms of number of companies and their socio-economic impact (Yang & Li, 2008). Integral to this achievement is the strong presence of a large number of Chinese unicorns in the global list of privately owned companies valued above \$1bn (CBInsights, 2018). There are three factors that have contributed to the growth of unicorns globally. Firstly, low interest rates have pushed private investors towards alternative investment opportunities with larger return on investment potential. Secondly, technological advances have allowed companies to offer novel value propositions by creating new markets or disrupting existing ones. Thirdly, the new business models permitted by these technologies have allowed companies to operate relatively easily on a global scale providing arguably unprecedented opportunities for growth. As the reduction in entry barriers has reduced the ability of companies to sustain their competitive advantage(s), leading them instead to concentrate on becoming bigger. To achieve this, they require significant resources in a relatively short period of time to implement their chosen strategies (which is typically one of rapid growth involving acquisitions).

In this paper we study the effect of the experience of investors on the process of attracting financial resources and evaluate the impact of the strategy of growing through acquisitions on the funding process. Our findings show that the experience of the investors influences both the potential of the unicorn to attract funding and to the ability of investors to syndicate and reduce the systematic risk associated with the investment. However, different aspects of that experience have different effects. Moreover, the effect is different on each stage of the unicorn's lifecycle. In the first stage the experience of the first investor in terms of total number of lead investments has a positive impact on the ability of the unicorn to attract funding.

Furthermore, it has a positive impact on the number of companies deciding to syndicate and consequently further increase the amount of financial resources that are available. Through this systematic risk is reduced by the experience of the first investor in terms of superior screening and due diligence, which, in turn, provides legitimacy to the new venture and attracts further interest on behalf of investors.

The presence of a very experienced investor during the lifetime of the unicorn has the opposite effect. Due to increased access to resources other than financial ones and superior coaching opportunities, there is a potential discount in the amount of financial resources provided to the unicorn. Finally, the location of the company in Beijing facilitates syndication among venture capital companies and thus benefits the unicorn indirectly through being provided with the opportunity to be supported more promptly than is the case for a company located further away. The increased population of venture capital companies in Beijing may also have a positive effect on the syndication process.

Finally, the strategy of growing through acquisition instead of organically has a significant payoff for Chinese unicorns by attracting a larger number of venture capital companies to the syndicate. This, in turn, increases the amount of financial resources available and can increase the speed of the unicorn's growth.

There are limitations associated with our analysis. Opting for the company to be the unit of analysis does not provide a sufficiently granular understanding of both the funding and growth integral to becoming a unicorn. Switching to the funding round as the unit of analysis suggests one area of further research, but so does combining financial with qualitative data so that the dynamics of the relationship between investors. Secondly, as we have only hinted at the sectoral and geographical differences that occur, further research in these two areas is required. This would seek to ascertain the degree to which being located outside of Beijing impacts on the ability of the company to attract resources to grow to become a unicorn.

Adopting a sectoral focus will explore the extent to which funding and growth opportunities differ, enabling insights into how regional economies grow vis-a-vis Beijing. Combining our approach with that of Jinzhi & Carrick (2019) would also be informative, not least because it raises a number of socio-economic factors that can be included in subsequent research into the growth of unicorns.

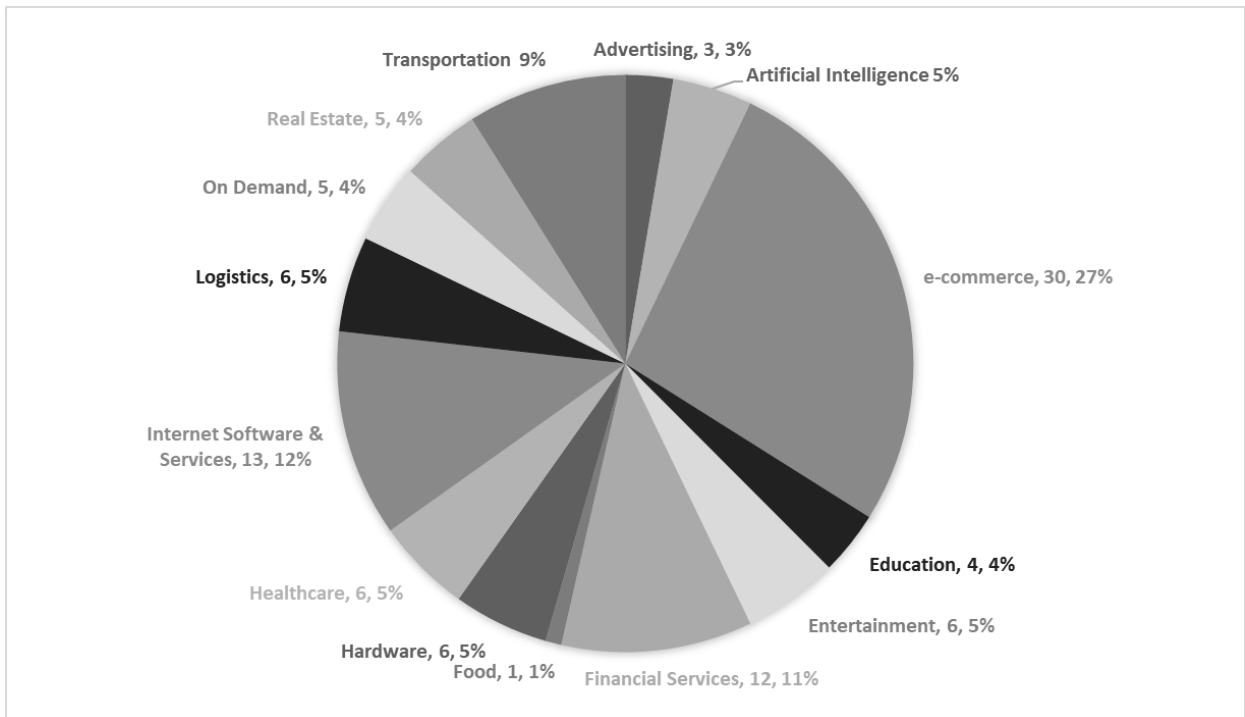
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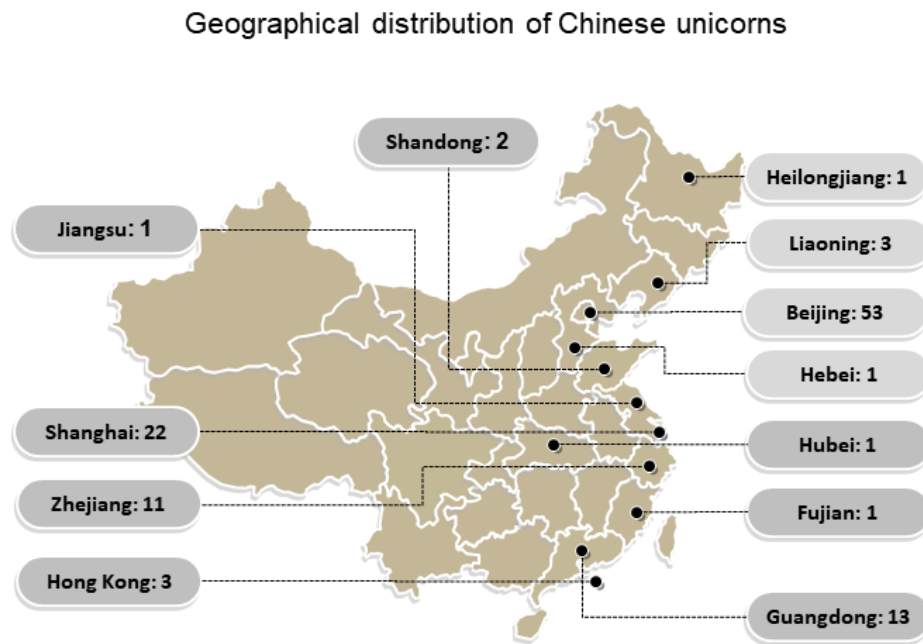
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Figure 1: Distribution of unicorns by sector



The most populous sector is ecommerce with 30 unicorns, followed by Internet & Software services and Financial services with 13 unicorns respectively, Transportation (10), Logistics, Healthcare and Entertainment (6), Real Estate, Artificial Intelligence and On-demand (5), Education (4), Advertising (3) and just one food unicorn.

Figure 2: Regional distribution of Chinese unicorns



Regional distribution of Chinese Unicorns alphabetically: 1. Beijing (53), 2. Fujian (1), 3. Guangdong (13), 4. Hebei (1), 5. Heilongjiang (1), 6. Hong Kong (3), 7. Hubei (1), 8. Jiangsu (1), 9. Liaoning (3), 10. Shandong (2), Shanghai (23).

Figure 3: Frequency distribution of Chinese unicorns per total number of funding rounds until exit or December 2017

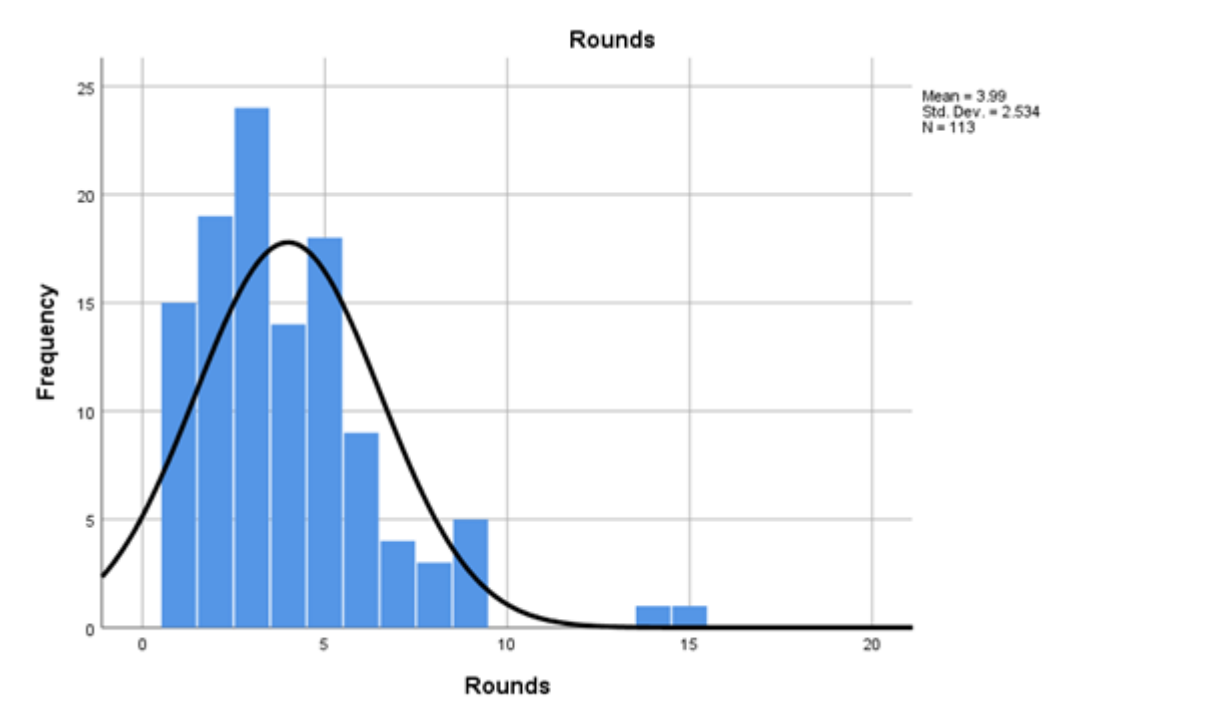


Figure 3: The frequency distribution of Chinese unicorns per total number of funding rounds up until their exit or December 2017.

Table 1: Descriptive statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	113	0	21	7.31	4.476
Valuation	112	1.000000000000 0000	60.00000000000 00000	4.42892857142 8574	9.69499456226 8693
Rounds	113	1	15	3.99	2.534
Total Equity funding	113	30000000.0000 000000000000	19700000000.0 0000000000000 0	1289993216.81 4159400000000	2616206205.66 5523500000000
NI	112	1	38	10.97	8.470
NI/round	113	1	15	2.00	1.832
INVEXP1	111	2	1552	535.68	564.830
INVVXP2	111	0	556	183.85	204.568
INVEXP3	111	0	272	91.38	102.875
FINVEXP1	112	1	1552	273.77	414.558
FINVEXP2	112	0	556	86.19	148.672
FINVEXP3	112	0	272	41.70	75.643
No of acquisitions	111	0	13	.39	1.434
Valid N (listwise)	108				

Table 1: Descriptive statistics of the sample's variables: Age, Valuation, number of rounds (rounds), Number of Investors (NI), Number of Investors per round (NI/Round), the total investments of the most experienced investor (INVEXP1), the total number of lead investments of the most experienced investor (INVEXP2) and the total number of exits of the most experienced investor, the total number of investments (FINVEXP1) the total number of lead investments (FINVEXP2) and the total number of exits (FINVEXP3) of the first investor.

Table 3a: ANOVA analysis of mean difference in terms of total amount of funding between Beijing and the rest of China

Total Equity Funding: Beijing vs Rest of China

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9223372036854776.000	1	9223372036854776.000	.672	.414
Within Groups	9223372036854776.000	111	9223372036854776.000		
Total	9223372036854776.000	112			

Table 3b: ANOVA analysis of mean difference of the size of syndication between Beijing and the rest of China.

Syndication Size: Beijing vs Rest of China

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	319.312	1	319.312	4.595	.034
Within Groups	7643.608	110	69.487		
Total	7962.920	111			

Table 4: OLS analysis of the total amount of funding attracting by Chinese unicorns

OLS: Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.429	.183		46.111	.000
	log(NI)	.448	.214	.286	2.091	.039
	ROUNDS	.020	.034	.094	.589	.557
	log(INVEXP1)	-.206	.091	-.251	-2.260	.026
	log(FINVEXP2)	.178	.070	.252	2.564	.012
	No of acquisitions	.112	.039	.300	2.857	.005

Table 5: Poisson regression

Poisson Regression: Parameter Estimates

Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test	
			Lower	Upper	Wald Chi-Square	Sig.
(Intercept)	1.472	.0842	1.307	1.637	305.567	.000
[REG=1]	-.199	.0683	-.333	-.065	8.489	.004
[REG=2]	0 ^a
ROUNDS	.208	.0166	.175	.240	155.984	.000
Total Equity funding	0	0	0	0	.111	.739
INVEXP1	.002	.0005	.001	.003	13.038	.000
INVVXP2	-.009	.0014	-.011	-.006	35.312	.000
INVEXP3	.008	.0021	.004	.012	14.497	.000
FINVEXP1	-.002	.0005	-.003	-.001	13.517	.000
FINVEXP2	.005	.0015	.002	.008	11.082	.001
FINVEXP3	.002	.0025	-.003	.007	.515	.473
No of acquisitions	-.132	.0267	-.184	-.079	24.288	.000
(Scale)	1 ^b					

Dependent Variable: NI Model: (Intercept), REG, ROUNDS, Total Equity funding, The number of investments, lead investments and exits (INVEXP1, INVVXP2, INVEXP3) of the most experienced investor, number of investments, lead investments and exits (FINVEXP1, FINVEXP2, FINVEXP3) of the first investor, No of acquisitions.