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Is the lack of "Unicorns" in Japan good news or bad news?

-Injecting a historical institutional perspective into debates about Japan's startup ecosystem -

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Japan's startup ecosystem is gaining new levels of attention as startup firms are increasingly born from elite Japanese universities, attract top Japanese talent, and collaborate with large incumbent Japanese companies. However, the lack "unicorns" – private companies whose valuations exceed 1 billion USD – has been a common cause of concern. Mercari, a C2C e-commerce service, became Japan's sole unicorn in 2016, joined in 2017 by Preferred Networks, an industrial robotics AI company. However, with Mercari's 60 billion yen IPO in June 2018, the largest on Japan's small cap Tokyo Stock Exchange "Mothers" Market, there is now only one Japanese unicorn—or just a handful, depending on the source. In contrast, there are 117 in the United States (a majority in Silicon Valley alone), 73 in China, 15 in the United Kingdom, and 11 in India, according to CB Insights.

Is the lack of unicorns in Japan evidence of an anemic startup ecosystem? Or are there are other forces at play? This opinion paper contends that when taken in a historical perspective, Japan's lack of unicorns demonstrates the very success of a critical institutional shift in Japan's startup ecosystem that improved the situation remarkably since the late 1990s. As such, the current situation should be considered at an evolutionary stage where unicorns can now emerge in Japan if venture capitalists begin to take diverse strategies in investing –especially after the large IPO of Mercari.

Japan's Startup Ecosystem and "Unicorns"

"Unicorns," venture capital backed startups with private market valuations of 1 billion USD or more, are often used as a measure of a country or region's startup ecosystem dynamism and health. Large numbers of unicorns suggest that lots of startups are receiving large amounts of venture capital, and are able to grow rapidly. Since venture capitalists only get returns ("exits") from M&A or Initial Public Offerings (IPOs) of their portfolio companies, highly valuated startups fetch high prices when they are purchased or go public, providing them with windfall returns. With the expectation of windfall returns, venture capitalists look for startups that can be expected to grow exponentially, disrupting existing markets and introducing new technologies that create paradigmatic shifts to various business areas. Such is the often-idealized view of a robust startup ecosystem.

In the US, a 2015 analysis found that for companies founded after 1974, VC-backed firms accounted for 42% of the number of companies founded, 63% of the total market capitalization, 38% of employment, and 85% of R&D[1]. VC-backed companies Apple, Amazon, Google, and Facebook were among the top market capitalized companies, as well as the top cash holders, revealing not only investor sentiment, but also real cash value generated. This is seen as the high end of excellent returns from a robust startup ecosystem.

When considering Japan's startup ecosystem, most analyses begin by noting the small size of Japan's VC industry compared to the US, Silicon Valley, and possibly the EU and China.

Figure 1 Venture Capital Investment Amounts (billions USD)

	2010	2015
Japan	1.29	1.11
US Total	23.52	59.70
Silicon Valley	9.39	27.76
EU	4.26	5.91
Germany	0.97	0.87
France	0.80	0.84
UK	0.79	0.62
Israel	0.41	0.65
South Korea	0.96	1.78

(Note) UK's data is as of 2014.
(Source) Venture Enterprise Center, GVCA, BVCA, AFIC, IVC Research Center, KVCA

The disparity is real. However, the size gap is less extreme when compared to other G7 countries.

In particular, the lack of unicorns in Japan—only limited to Preferred Networks according to CB Insights—are often seen as cause for concern. However, should this be the dominant narrative? This opinion paper disagrees.

The Silicon Valley Model

Beyond a place, Silicon Valley represents a model, a specific set of complementary institutions that mutually enhance each other. The Silicon Valley institutional model is a core case in comparative institutional analysis, a framework for cross-national or regional comparison of underlying institutions that support political economies[2]. The Silicon Valley model produced multiple waves of new principles of competition that accelerated commoditization elsewhere, such as modular architecture, cross-national production networks, and platforms[3]. Platforms, in which third parties could utilize the resources provided by the platform player, which enhanced both the value of the third parties as well as the platform provider, but conferred greater benefits to the platform provider, emerged as a critical driver of global competition since the 2000s[4].

The six institutions of underlying the Silicon Valley model can be distilled into: (A) finance, (B) human capital, (C) industry-university-government interactions, (D) industrial organization, (E) entrepreneurship culture, and (F) business infrastructure[5]. See table below for the specific institutions: (1) finance centered around venture capital, (2) diverse and mobile human capital, (3) multifaceted and multidirectional industry-university-government ties, (4) industrial organization comprised of both large firms and startups, with large firms engaged in "open" innovation, (5) the celebration of entrepreneurship with monitoring and evaluation of failures, and (6) business infrastructure supportive of the startup ecosystem.

Table 1 : Characteristics of the Silicon Valley Ecosystem, Sorted into Core Institutions

A) Finance
- Finance and governance of startups by venture capital
- High financial returns for successful entrepreneurs and startups' early employees

B) Human Capital
- High level and diverse human resources for all stages of startups
- High labor mobility

C) Industry-University-Government Interactions
- Top class universities
- Diverse and multifaceted industry-university ties
- Supportive role of government in setting basic research trajectories

D) Industrial Organization
- Dual ecosystem of large firms and small, fast-growth startups
- Highly competitive industries, balancing between "open innovation" and secret protection
- Extensive government role in shaping technological trajectories and basic science

E) Entrepreneurship Culture
- Acceptance of failures (monitoring and evaluation of failures)

F) Business Infrastructure
- Business infrastructure (law firms, accounting firms, mentors, etc.) Legal platform

(Source) Adapted from Dasher, Harada et al. 2015

Japan's Startup Ecosystem in Historical Institutional Perspective

The institutional configuration of Japan in the postwar era was largely detrimental to the development of institutions of the Silicon Valley model: (1) its bank-centered financial system left little room for venture capital; (2) life-time employment "locked up" high quality human capital; (3) numerous regulations constrained university-industry-government ties; (4) large firms engaged in in-house R&D without relying on external entities; (5) entrepreneurs were not considered traditional elite; and (6) the business system and legal environment were not friendly towards supporting startups.

Japan's startup ecosystem has come a long way since the mid-1990s. Numerous regulatory shifts and business environment changes provided new opportunities as Japan's political economy evolved. Many of the structural impediments to Japan's startup ecosystem that were directly attributable to Japan's postwar high growth era economic model had shifted considerably by 2010: (1) new small cap markets were created and the VC industry developed, (2) labor fluidity increased while the prestige of large companies declined, (3) regulatory shifts enabled universities to be more active in industry ties, (4) firms increasingly began embracing "open" innovation and collaboration with startups, (5) entrepreneurs are more celebrated than the previous decade, and (6) the business environment such as the legal structure and other firms such as law firms, accounting firms, and government programs are actively supporting the startup ecosystem.

Table 2 Silicon Valley Ecosystem Characteristics Compared to Japan's Impediments in the 1990s, Changes by 2016

Silicon Valley Startup Ecosystem Characteristic	Japan in the mid-1990s: impediments	Japan in 2016: changes that facilitate startup ecosystem
Financial System: Venture capital	Bank-centered, traditional financial markets	New small cap financial markets, growing VC industry, rise of independent VCs
Labor Market: fluid, diverse, highly skilled	Long term employment with seniority ties creating illiquid labor markets. Best and brightest locked into large firms for entire career	Increasing labor mobility, especially in IT sector and with foreign firms. Lower prestige and opportunity with large firms
Industry-University-Government Ties	Numerous formal regulatory constraints on universities, lack of brain circulation	Active efforts by universities, private venture capital, and government to spin out successful startups with university technology
"Open" innovation with large firms and small firm symbiosis	Closed innovation with large firms in-house R&D and uninterested in business with startups	Firms more interested in open innovation, participation in VC funds, business with startups

Social system encouraging entrepreneurship	Entrepreneurship seen as low prestige vis-à-vis large firms and government, financially risky	Rising attractiveness of entrepreneurship as large firms enter competitive crises, increases cases of successful startups
Professional services ecosystem	Small size of professional ecosystem	Law firms and accounting firms setting up startup-focused practice areas to foster and benefit from growing startup ecosystem

Evolution of the Japanese Economic Model

A longer analysis of these changes can be found in a longer paper at the URL address below[6]. Suffice it here to say that a large number of the complementary institutions, identified by Aoki (2001) as core elements of the Japanese economic model, have shifted to new values[7]. Change was difficult and gradual since each of the institutions depended on one another, and piecemeal adoption did not bring about satisfactory performance. However, almost three decades since the bubble burst in 1990, the evolution of Japan's economic model has proceeded to a degree that is often underappreciated[8].

Japan's Financial System Evolution: Creation of Small Cap Markets

In the late 1990s, a critical impediment to Japan fostering a vibrant startup ecosystem was the lack of opportunities for venture capitalists to exit from their investments—initial public offerings (IPOs), and mergers and acquisitions (M&A) by large companies. The situation with IPOs, in particular, was grim, with the average number of years for companies to go public spanning decades. The need for a small capitalization market for IPOs was acute.

After part of Japan's "Big Bang" financial reforms in the mid to late 1990s deregulated the creation of new stock exchanges, two competing small cap markets were created in 1999, providing a stable source of exits enabling VCs to realize returns. The story of the creation and evolution of these markets is interesting in of itself, but beyond the scope of this short overview. The small cap markets are now operated by the Tokyo Stock Exchange.

Critically, the scale of firms listed on Mothers is far smaller than that of the US NASDAQ. Moreover, the actual relative cost of listing on Mothers is far lower than other Asian markets[9].

Table 3 Amounts Raised in IPO, Small-cap Markets in Japan, US (million $)

	Average		Median	
	Japan (Mothers/JQ)	US NASDAQ	Japan (Mothers/JQ)	US NASDAQ
2015	7.6	116.0	3.5	75.0
2014	8.7	121.6	5.7	65.0

(Source) Tokyo Stock Exchange, NASDAQ

On the one hand, this hinders truly large high-growth firms from emerging, since once firms are listed at a smaller scale, they tend to become more risk averse and pursue stable rather than exponential growth. VCs aiming for stable returns on their portfolio tend to push startups to IPO, even if they are small, to realize gains.

On the other hand, since it is easier to IPO in Japan than in the US, Japanese VCs may actually face a more predictable exit strategy environment, especially given the relatively low levels of M&A in Japan[10].

To use a baseball metaphor, the Japanese VC industry tended to produce one-base hits rather than homeruns since the Mothers enabled small scale IPOs, with relatively little M&A activity in Japan.

Evaluate the Current Situation as a Vast Improvement from the Past

Japan's current small cap market situation is a vast improvement from the past. VCs are able to invest in companies and have stable expectations about profits from an IPO within a few years. While IPO sizes have been almost a tenth that of the US Nasdaq, this value should be seen in historical perspective rather than a simple comparison with Silicon Valley. Compared to the past, when VCs in Japan had little expectation of IPO or M&A as an exit, and therefore extended loans as a primary means of funding startups—as was the case until around 2000—the current situation is a major step forward.

The IPO of Mercari provides another opportunity. If startups want to pursue larger IPOs, and VCs are supportive, as was the case of Mercari, it has now been proven possible in Japan. VCs in Japan can aim for homeruns. Mercari's large IPO brought windfall profits to the VCs that invested – millions of USD became hundreds of millions. Mothers now has now demonstrated its potential for being a market that can sustain both small IPOs and large ones. VCs in Japan have an example to point to in pursuing larger IPOs rather than only smaller ones.

What does this mean for the pathway of Japan as it develops a more mature startup ecosystem? Will it follow in the footsteps of Silicon Valley, or create something new, different, and distinct?

From an institutional standpoint, it is already clear that Japan is at a potentially different path from that of Silicon Valley. Small-scale IPOs provide an option for VCs to invest in startup

that will not scale the way that purely software, or marketplaces such as Mercari are able to, and still make stable, if lower returns. For the startup ecosystem, this opens space for deep science-based startups, or those whose scalability is still unclear, such as regenerative medicine, or services that require collaboration and deep integration with large firms. Such startups cannot grow explosively, even if they could grow at a healthy rate and achieve stable, sustained returns. In Silicon Valley, small-scale exits occur through M&A, but M&A is not as popular in Japan, though numbers are increasing. Yet, the startups bought by M&A often take very different path of development than those who IPO and remain independent, since post-M&A firms usually lose significant autonomy as they are integrated to varying degrees into purchaser company operations. Therefore, it may be reasonable to expect a different set of firms in Japan to emerge as small-scale IPOs vis-à-vis Silicon Valley.

At the same time, Japan has proven that institutionally, creating unicorns is also a valid, potentially attractive model for VCs, both in Japan and for potential international investors. There is the potential for a multiple equilibria situation, in which less scalable startups have a steady pathway to IPO, while those that may scale pursue the road towards a unicorn. At the core of Japan's startup ecosystem, this ability to either IPO small or scale is a critical difference from Silicon Valley, and as the number of deep science-based startups increase, we will see whether it becomes a strength for Japan. In particular, symbiosis with traditional industrial firms may be an area that less fast growing Japanese startups can contribute to startup ecosystems worldwide.

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