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Financing Entrepreneurship and Innovation in China

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ABSTRACT

This study reports on the current state-of-affairs in the funding of entrepreneurship and innovations in China and provides a broad survey of academic findings on the subject. We also discuss the implications of these findings for public policies governing the Chinese financial system, particularly regulations governing the initial public offering (IPO) process. We also identify and discuss promising areas for future research.

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Introduction

Innovation and entrepreneurship rank highly on the strategic agenda of most countries today. As global competition intensifies, most national policymakers now recognize the central importance of technological advancements to long-term economic growth and societal prosperity (Abramovitz, 1956; Solow, 1957). Research shows younger firms contribute disproportionally to job creation.[1] Young firms are also more likely to experiment with disruptive technologies and business models that lead to positive knowledge spillovers (Bloom *et al.*, 2013; Kogan *et al.*, 2017). The cultivation and development of dynamic young firms is especially important to emerging economies, where new entrants with transformative business models can take advantage of the rapidly changing landscape in mobile-commerce and web-based technologies.[2]

[1] Economic Co-operation and Development (OECD, 2016) statistics show that across the 21 economies studied, firms five years old or younger account for only 21% of total employment but are responsible for 47% of the job creation.

[2] Mobile phone adoption is disproportionally important to emerging economies. Between 2014 and 2020, an additional 1.1 billion individuals will acquire a mobile phone for the first time. At current rates of adoption, China and India will soon each have more internet users than the entire population of the United States and Western Europe combined. (Source: the OECD Science, Technology and Innovation Outlook 2016 Highlights)

No country is playing a greater role in the redrawing of the global innovation map than China. The 2018 edition of the Global Innovation Index (GII) ranks China as 17th among 126 countries by total innovation score – the highest score received by any country not in the high-income category.[3] In the past three years (2015–2017), total venture capital and private equity (VCPE) funds invested in China-based start-ups reached US$403.6 billion, making China second only to the United States as a destination for the deployment of VCPE funds.[4] In March 2018, China's Ministry of Science and Technology issued a report listing 164 Chinese "unicorns" (privately-owned firms worth more than US$1 billion each), with a combined estimated worth in excess of US$628 billion.[5] For comparison, recent figures show 132 US-based unicorns as of the end of 2017, valued at around US$700 billion. By any of these measures, China is already a central hub of global innovation, particularly in high-tech industries. Yet while much of this innovation is taking place through entrepreneurial ventures, little is known about how these initiatives are being financed, and to what extent financial constraints are still binding on Chinese entrepreneurs.

In this study, we provide an overview of the current state-of-affairs in the financing of private innovations in China. While country-level innovation can take many forms, our focus is on the funding of business

[3] The GII composite score is a broad-based measure of country-level innovation, computed using 79 indicators that span both innovation related input and outputs. This annual report is jointly produced by Cornell University, INSEAD, and the World Intellectual Property Organization (WIPO) (Cornell University, INSEAD, and WIPO, 2018). The upper-echelons of the GII ranks are dominated by high-income countries (as measured by per capital GDP). Among the top 30 countries ranked by total GII score, China alone is an upper-middle income country. Only two other upper-middle income countries (Malaysia and Bulgaria) ranked in the top 40. For a detailed discussion of the conceptual framework behind the GII, see Casanova *et al.* (2018).

[4] The distinction between venture capital (VC) and private equity (PE) activities is blurred in China. We therefore refer to both together as VCPE investing. In Section 3 we present more details on total VCPE investments.

[5] *The 2017 China Unicorn Enterprise Development Report*, jointly released March 20, 2018, by the Torch High Technology Industry Development Center of the Ministry of Science and Technology and the Greatwall Strategy Consultants in Beijing. For a complete list of these companies, see http://westdollar.com/sbdm/finance/news/1345,20180323847480686.html.

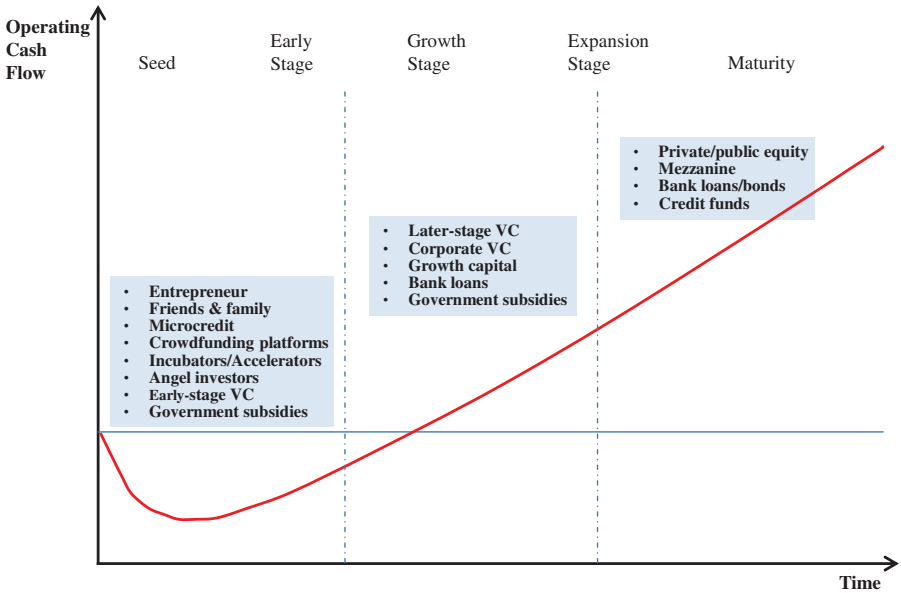

Figure 1.1: Funding sources for companies over their life cycle.

Source: Adapted from Casanova *et al.* (2018)

Chinese initiatives addressing companies' funding needs

- Innofund – financing for R&D of small to medium technology enterprises (SMTEs)
- VCPE – venture capital and private equity funding
- CVC – corporate investment, either directly, as a strategic partner; or indirectly, through a venture affiliate (e.g., Tencent and Alibaba)
- GVC – government-led PEVC funds
- SOE – direct investment by state-owned entities
- NEEQ – listing on the national equities exchange and quotations

start-ups and entrepreneurial ventures. The funding needs of a start-up business will vary over its entrepreneurial life cycle. For example, Figure 1.1 provides a graphic representation of the different funding sources commonly available to a business enterprise at each stage of its life cycle. Using this figure as an organizing framework, we survey, and offer an evaluative commentary on, the funding sources that are available to a Chinese firm during each stage of its life cycle: early/seed stage; medium/growth stage; and late/expansion stage.

Our study has four specific objectives: (a) to present an economic framework for evaluating the central challenges associated with the financing of entrepreneurial ventures in China, (b) to evaluate the

relative size and importance of the channels through which private initiatives for innovation in China are currently being funded, (c) to survey the academic evidence on potential financing constraints currently facing private initiatives in innovation, and (d) to discuss public policy implications that may arise from these findings, as well as to outline the type of future research that may best inform Chinese policy makers.

We begin in Section 2 with a review of the central economic themes in entrepreneurial finance. This analysis identifies three key forces that shape the economics of venture investing: (a) the non-rival nature of the output, (b) the high uncertainty and payoff skewness associated with the process, and (c) the large potential for agency conflicts between entrepreneur and financier, arising from information asymmetry and moral hazard issues. These three forces are at the root of the most vexing challenges in financing for innovation. Indeed, many features of the modern-day VCPE industry, as well government policies on patent protection, subsidies, and tax incentives, can be understood as efforts to mitigate the negative externalities associated with these economic problems.

We proceed in Section 3 with a review of the channels through which external funding now reach entrepreneurs in China. We show that VCPE funding has increased exponentially in recent years. Most of this funding is domestic, but a sizeable amount comes from overseas. Furthermore, government entities and state-owned enterprises (SOEs) are also significant direct investors in many start-ups. Our evidence suggests that "mid-stage" financing, covering the expansion and growth stages of a firm's life cycle (see Figure 1.1), may not be a major problem for Chinese entrepreneurs. On the other hand, compared to start-ups in the United States, early-stage (seed) funding may still be more difficult to secure in China. More importantly, our analyses led us to focus sharply on "late-stage" financing, and the exit strategies available to Chinese entrepreneurs. In particularly, we identify a number of problems with China's antiquated initial public offering (IPO) regulations. In our view, these regulations now loom as a significant obstacle to entrepreneurship and innovation in China.

Section 4 further explores the problems engendered by China's IPO regulations. In contrast to the registration-and-disclosure system that

exists in most countries, the IPO process in China is strictly regulated. Candidate firms are required to meet strict pre-specified profitability and revenue thresholds. Firms meeting these standards typically face a further waiting period, as the China securities regulatory commission (CSRC) reviews, and adjudicates on, every applicant. This process is arduous, the outcome is far from certain, and there is mounting evidence that the ultimate decision is not determined solely on economic merit.[6] Perhaps most importantly, the total number of firms allowed to IPO in a given time period (the IPO "quota") is tightly controlled by government policy, often leading to large backlogs of firms awaiting review, particularly after an IPO "suspension" period.[7]

Based on our survey of the academic evidence, as well as further empirical analyses conducted in this study, we identify a list of economic problems and consequences that are directly attributable to China's current IPO regulations:

1. Long wait times and substantial outcome uncertainty for candidate firms seeking access to domestic equity markets.

2. A bias against high-growth technology firms, which typically have lower profits, less developed businesses, and more intangible assets.

3. Substantial underpricing of IPOs, resulting in exceptionally large initial-day returns that dwarf those seen in more developed markets.

4. An exodus of high-quality, particularly high-technology, candidate firms to foreign equity markets.

[6]Studies that suggest political connections play a role in China's IPO allocation decisions include Fan *et al.* (2007), Francis *et al.* (2009), Piotroski and Zhang (2014), Li and Zhou (2015), and Lee *et al.* (2019).

[7]Between 2004 and 2016, the CSRC suspended all IPO activities on five occasions. These suspensions lasted between six and 15 months each. The specific timing of these IPO suspensions and reboots can be found on a CSRC authorized website, http://stock.cnstock.com/stock/smk_gszbs/201701/4013651.htm. These suspensions typically lead to large review backlogs. For example, as of the end of October 2016, companies meeting China's pre-specified listing standards and awaiting CSRC processing numbered 806. For reference, the number of firms that approved for listing in the first 10 months of 2016 averaged 7.7 per month.

5. Costly reverse merger (RM) transactions in which highly-qualified, but less politically-connected private firms pay more than US$400 million each, on average, for a listed shell company.

6. Virtually no delisting or retirement of failed companies from public equity markets (in fact, these failed businesses continue to propagate by levering their listing status to acquire new lines of business, thus maintaining control and circumventing the IPO process).

7. Large cross-sectional price distortions among publicly listed firms (including systemic risk associated with IPO regulations, and an enormous Size premium for the smallest listed firms, which trade more on their expected shell value than on corporate profits).

8. Listing delays in the IPO process that lead directly to a reduction in firms' innovation activity, as measured by patent quantity and quality (such effects begin during the delay period and endure for many years after listing).

9. Potentially inflated market prices for all publicly listed firms, as well as higher levels of speculative trading by domestic investors.

In Section 5, we summarize our findings, discuss policy implications, and explore potential venues for future research. We conclude that China's current IPO regulations represent a serious impediment to two important near-term goals espoused by the Chinese government: (a) to bring more high-technology firms back to mainland stock markets, and (b) to be included at a meaningful weight in international stock indices, particularly the MSCI Emerging Market Index.

Considering the problems identified above, we recommend a move toward a registration-and-disclosure system for Chinese IPOs, like those employed by most other countries. In such systems, investors monitor firm quality and market forces adjudicate firm value. Firms that receive enough support from the investment community will attain IPO status. The role of regulators is to ensure adherence to established ordinances, which are largely disclosure-centric.

We acknowledge the need to protect retail investors and minority shareholder. But this protection need not come by limiting the access of startup firms to public equity markets. Instead, the protection can be in the form of more stringent enforcement of insider trading laws, increased corporate transparency and quality of disclosure, and changes in the judicial system that would facilitate swift recourse through private litigation in the event of majority shareholder misconduct. None of these reforms would require regulators to adjudicate firms' investment value; a task that we believe is best left to markets.

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