

## Research Statement

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I worked with David Mowery in the first two years of my Ph.D. study, which motivated me to pursue research on innovation and patent policy. After his retirement, I explored to deepen my understanding of systems promoting innovation. What I found at the juncture of innovation and entrepreneurship was that innovation and technology commercialization have increasingly become multi-organization efforts. Entrepreneurs, incumbent firms, and investors cooperate through market mechanism, but the inter-organization partnership often suffers from huge transaction costs. It justifies public interventions to reduce market inefficiency including, but not limited to, information friction. The broad goal of my research agenda is to understand the impact of information asymmetry on the performances in “market for ideas” and the efforts of various players to moderate the problem.

In my job market paper, I study how information friction affects the types of innovation commercialized through partnership. Many startups rarely own complementary assets necessary for commercialization and, thus, collaborate with incumbent firms to market their ideas. However, radical breakthrough innovation is often harder to communicate than incremental counterpart. If startups cannot credibly convey the prospect of novel ideas, radical technologies may be underfunded despite the remarkable impact on social welfare and the growth of individual firms. The empirical context analyzed in the paper is the Orphan Drug Act (ODA). In the setting, I examine whether biotech startups are more likely to bring breakthrough drugs to market through partnership, when ODA unexpectedly decreases the cost of developing credible information of novel drugs. I develop a panel dataset of therapeutic molecules and use a new measure of novelty of innovation. With the dataset, I also find that startups in the ODA-affected areas hold innovative technologies longer to create as much value as possible before contracting with partners. The startups in the affected fields generate greater revenue streams, by commercializing novel drugs in a greater number of disease markets.

A subsequent project studies the interplay between corporate venture capitals (CVCs) and private venture capitals (VCs). In particular, we examine the heterogeneous investment strategies of corporate venture capitals (CVCs) inside and outside the parent firms’ main business fields. This research finds that CVCs behave more aggressively in the main business domains of parent companies: corporate investors finance younger companies at earlier stages with greater amounts, when they invest inside the parent firms’ main fields. More importantly, CVCs play leading roles in blazing new trails in their parent firms’ main domains, attracting promising ventures and high-quality VCs into a nascent technology field. In contrast, CVCs tend to play safe in unfamiliar industries, following investment decisions made by a group of private VCs and learning from them. The research sheds light on how corporations leverage their capabilities to form an ecosystem for a new technology as well as learn from market through CVC

activities. We will submit this paper to the Journal of International Business Studies (JIBS) this November.

Taken together, the practices of collaborative commercialization between entrepreneurial innovators and incumbent firms vary over types of technologies subject to partnership. When entrepreneurial innovation involves a radical technology, startups have incentives to advance novel technologies as much as possible before collaborating with large incumbent firms, to minimize information asymmetry. It implies that entrepreneurs promoting novel innovation need extra funding sources to finance the advanced-stage R&D. Financing intermediaries may fill the gap. I investigate how angels and private investors respond to the reduced uncertainty and the decreased information friction problem led by ODA. The study predicts that, in the ODA-affected areas, entrepreneurs promoting breakthrough innovation receive more investments from private VCs prior to partnering with pharmaceutical partners. By doing so, VCs help entrepreneurs and large commercialization partners collaborate for radical innovation. This research unveils the roles of financing intermediaries in commercializing novel innovation through “market for ideas.” This project will be the third chapter of my dissertation thesis.

Lastly, I have observed various types of government intervention in innovation and entrepreneurship. It naturally raises a question. What would be the most efficient way a public sector resolves market failure problem without distorting market incentives for innovation? It leads me to compare two approaches the United States (US) federal government uses to support entrepreneurs. On one hand, the government takes a hands-on approach to pick winners and grant prizes to selected entrepreneurs. On the other hand, it indirectly supports private VCs and let them select and finance startups with endowed budgets. I compare the types of entrepreneurs selected by two distinct public VC programs. Moreover, I investigate the innovation and commercialization performances of recipient startups backed by the Small Business Innovation Research (SBIR) program to those financed by the Small Business Investment Company (SBIC) program. Although I set the project aside now, I have a strong incentive to continue this stream of research.

Unlike many other job market candidates in management and strategy, I do not have a publication yet and clearly understand that this would be considered as my weakness. However, I believe that I should be able to publish existing pipelines throughout my junior professorship career, benefitting from the strong training in economic analysis and the in-depth understanding of institutional details affecting innovation and technology commercialization. In addition, researchers I meet in workshops and conferences value the quality and novelty of datasets I have developed for my job market research and for co-authored project. I’m playing with early-stage ideas with some of them, which I hope could advance as a full paper in the near future.