

# Statement of Research

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My research lies in the area of empirical corporate finance. In particular, I am interested in entrepreneurial finance, innovation, and industrial organization.

In the first portion of my research agenda, I strive to understand the relationship between financial markets and real economic output in terms of entrepreneurship, innovation, and development. The last three decades have featured rapid growth in the start-up ecosystem with implications on entrepreneurial decision making. Three distinct features stand out.

First, innovation has experienced a structural shift toward smaller companies, and in particular, start-up companies, since the 1980s. Schumpeter highlights the importance of entrepreneurship as the primary driver of innovation and economic change, labeling it “the pivot on which everything turns.” Second, traditional roles provided by venture capitalists – funding, mentorship, value-add – are now performed by a variety of other investors, such as angels and the crowd. The increased availability of investment capital, coupled with lower fixed costs, have fostered the creation of more than 1,000 new companies a year. Third, the rents from entrepreneurial success have changed dramatically as well. In the post-Internet era, both entrepreneurs and investors consider acquisition by a large company as the most likely exit, with acquisitions outnumbering IPOs seven to one. Acquisitions are viewed as a way in which large companies outsource R&D risk and acquire innovation.

In my job market paper, “**Catering Innovation: Entrepreneurship and the Acquisition Market,**” I document these trends in the financial landscape of start-ups and show that the market structure of potential acquirers affects entrepreneurial decision making in terms of both entry and innovation. Specifically, I find that entrepreneurs groom their companies for acquisition by catering innovation to potential acquirers. The magnitudes suggest catering accounts for 5-16% of innovation.

The challenge in analyzing this topic is two fold – data and identification. On the data front, I disambiguated and match entrepreneur data from CrunchBase to both employment

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data from LinkedIn and the entire universe of patent data. To my knowledge, this is the first dataset of inventors ex-ante linked to entrepreneurs and their innovation post start-up founding. On the identification front, using plausibly exogenous variation in the citation history of inventors, I construct a formal proxy variable and employ the Heckman selection model to directly assess 1) the propensity of inventors to become entrepreneurs and 2) their subsequent innovation, conditional on entry.

In the same setting, I (along with Professor Adair Morse) am working on a second paper using my constructed dataset. **“Keeping Score: The Economic Valuation of Early Stage Start-Ups”** examines the common “scorecard” method used by angel investors and micro VCs to assess early stage start-up valuations. How much of the valuation generated by this method is a science versus an art? To this extent, we study the economic factors that underlay the scorecard factors: team, market size, product, marketing, and need for additional investment. We then examine how predictive each category is in determining startup success in terms of follow-on investments and exit.

In the second portion of my research agenda, I strive more broadly to connect the industrial organization and the corporate finance literature. Previous studies in finance have investigated the impact of mergers on stock performance for the acquirer, target, and non-merging competitors. Similarly, the industrial organization literature has studied mergers utilizing various theoretical and empirical frameworks for the past four decades, culminating in the use of a theoretical framework that trades off synergies and market power. One project that I am working on with Professor Ben Handel, Lucy Hu, and Professor Ulrike Malmendier, **“Market Power in Merger Announcement Returns,”** incorporates these various approaches into one framework.

In this paper, we provide evidence that a significant portion of the returns to merger announcements is explained by changes in market power resulting from the merger. Using a large sample of completed mergers from 1980 to 2012, we compute two different measures of market power changes: the expected and actual change in concentration. We find an announcement effect of 2.3% for mergers that experience considerable expected market power changes but that the effect decreases over time. However, actual changes in concentration fail to have any effect on short-run abnormal returns. The results imply that investors are not fully updating the impact of market power changes in mergers and acquisitions.

## **Future Research**

Broadly, I aspire to continue focusing my research efforts on studying the relationship between financial markets and the innovation economy for start-ups. With advances in technology, an abundance of new data can be utilized to answer questions that were previously unanswerable empirically. I feel that my job market paper represents a natural starting point for pursuing topics in this area. I offer examples of planned future research:

I intend to examine the role of corporate venture capital using my constructed dataset of entrepreneurial inventors. In the last four years, more than 450 corporate venture funds have started. Google’s venture capital arm has made over 120 deals worth approximately 2.8 billion dollars. Furthermore, corporate venture capital allows large companies to operate on a smaller scale; conduct research on new technologies; and, potentially, explore prospective acquisition targets.

It seems possible, then, that start-ups may increase the catering of innovation in the presence of corporate venture funding. However, this is not necessarily the case. Manso (2010) shows that the optimal incentive contract that motivates exploration is one that exhibits tolerance to failure. In this setting, corporate ventures have an additional safety net – separate revenue-generating businesses– that can help offset corporate venture-capital losses compared to traditional venture capital. Thus, there is a tradeoff between catering proximal innovation to increase synergies and motivating innovation through exploration of new approaches.

Ultimately, I intend to make welfare statements about the impact of innovation. How do we analyze the impact of patents? While countless measures in the patent literature exist, are they actually predictive of market value? To this extent, I have started analyzing product commercialization data from CrunchBase. I plan to study how patent innovation relates to outcomes such as product market disruption or the introduction of new product markets. Focusing on other measures of innovative change allows for a better understanding of what Schumpeter described as “creative disruption,” and provide clarity regarding policy implications to spur economic growth.