

RESEARCH PROPOSAL

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My research focuses on the role of organizational structure as a capability for the acquisition and utilization of human and financial capital in technology-focused entrepreneurial ventures. Namely, how can entrepreneurs and management teams organize themselves to optimally create and capture value from existing internal resources and resources yet to be acquired?

I draw upon theoretical perspectives from organizational economics and strategic management. I utilize both analytic formal modeling with non-cooperative game theory and traditional verbal theory where appropriate. I am influenced by the intersection of established ideas in the innovation and technology commercialization literature and emerging ideas in organization design.

My empirical work consists mostly of reduced form analysis of large datasets, but I have also done structural estimation of theoretical parameters and qualitative work. My data comes from both propriety sources—through barrages of FOIA requests and negotiations—and from public sources. Having a diverse toolkit of empirical strategies allows me to tailor my methods to the needs of the setting we are studying. While I prefer the precise identification strategies offered by modern reduced form econometrics, I recognize that many of the big questions posed by strategy require alternative strategies, and I hope to engage in more qualitative work in the future.

I study organizations in a variety of settings, such as venture capital partnerships, biotechnology R&D production teams, boards of directors of large corporations, and founding teams of software firms. My research ideas are all derived from phenomenon in the entrepreneurial community that I have personally experienced. My research on venture capital partnerships is derived from real investment negotiations I have sat in on where the representing partner expresses concern that his partners may not support the deal on the table. I worked with many firms where the rejection of an H-1B visa represents a legitimate barrier to the firm's survival. Among my entrepreneurial peers in software, I see supposed acqui-hires happen all the time, without much evidence as to whether it really represents a pure acquisition for talent. Through my own board of director service, I know that committees bring benefits of specialization and incentive alignment, but leave the full board woefully under-informed about many of the details on specific issues tackled by the committee. Since my work is inherently tied to real-life business practice, I hope that my work will have value for both practitioners of business policy and public policy makers.

DISSERTATION SUMMARY

My dissertation addresses the assembly of organizational resources by technology ventures. We study how innovative firms acquire human and financial capital and then organize those resources, and how public policy can impact that capability.

In the first essay and job market paper, which is also a Finalist for the Best Conference Paper Award of the Strategic Management Society, we study the role of information in organizational decision-

making for the financing of entrepreneurial ventures. We formally model a committee of agents who vote to allocate resources to a project with unknown outcome. The agents are endowed with costless explicit information, and they can each acquire costly tacit information to improve their decision quality. Equilibrium outcomes suggest a theoretical tension for group decision-making between the benefits of information aggregation and a cost from the participation of uninformed agents, and this tension presents a boundary condition for when a group decision is superior to an individual decision.

We test our predictions in the setting of a particular phenomenon in venture capital: private angel investments by the partners outside of their employer, which represent investments passed on by the employer. Venture capital partners, acting independently with their personal funds, make investments into younger firms with less educated and younger founding teams than their employing VC firms, but these investments perform financially similarly or better on some metrics even when controlling for investment size, stage, and industry. Geographic distance and technological inexperience by the VC increase the probability the investment is taken up by a partner and not the VC. This work contributes to an emerging stream of literature on information aggregation in organizations and the established literatures on resource allocation and incumbent spin-outs.

In the second essay, we evaluate the impact of skilled immigration on U.S. innovation by exploiting a random lottery in the H-1B visa program. Proponents argue that immigration allows firms to access technical skills and promote innovation, while opponents argue that firms substitute domestic labor for cheaper but equally or less skilled foreign labor. Using risk sets, we compare firms who applied for the same number of lottery-subject applicants but won different amounts. The results suggest that winning an H-1B immigrant does not significantly increase patent applications or grants at the firm-level; our results suggest the existing literature showing a positive correlation between the spatial distribution of H-1B immigrants and patents is misinterpreted. We find pervasive use of the program in industries where patenting is not the main value appropriation strategy.

In the third essay, co-authored with Vikas A. Aggarwal and David H. Hsu, we explore how firms organize the diversity of technological experience contained within its base of inventors when firm-level innovation output is a key performance consideration. We investigate the innovation implications of alternate firm-level approaches to organizing such diversity. Building on the knowledge-based view and organization design literatures, we examine the effects of across-team and within-team technical experience diversity on firm-level innovation output. Our framework suggests these alternate managerial choices involve trading off knowledge recombination benefits and coordination costs. Using a panel dataset of biotechnology start-ups observed from their founding date onwards, we find that across-team diversity results in greater firm-level innovation benefits as compared to within-team diversity.

FUTURE WORK

Over the next few years, I hope to apply many of the same empirical methods I have used before to test the boundary conditions of theoretical views in organization economics, organization design, and innovation. I have built and accumulated a variety of datasets across venture capital, software,

biotechnology, defense, immigration, and public firm board composition that I hope to exploit in the research of many other questions. Below, I've included some examples of other projects I am already well underway in pursuing.

In thread of research I am working on with Kevin Chen, a student of mine, we are studying the use and impact of board of director committees on board and firm performance. Committees represent a prevalent organizational structure within boards of directors, and they serve as the locus of most board activity. We utilize a novel dataset containing full committee membership, including that of non-required committees, for over 5000 public firms from 2001 to 2013. We examine the nature of committee formation, committee utilization, and director-committee allocation. We argue that the observed heterogeneity can be explained by a tradeoff between the benefits of specialization and incentive alignment and the costs of coordination. We explore the understudied challenge of coordination within the board and propose that directors who sit on multiple committees can mitigate this coordination issue.

In a more nascent project with Vikas Aggarwal, we explore the phenomenon of acqui-hires, acquisitions made for the stated primary purpose of acquiring the employees of the target firm without any interest in the physical capital, products, or of the target. At first glance, it would be substantially less expensive for the acquirer to recruit employees on the open market than to make a costly acquisition which includes both a control premium and substantial legal fees to close the transaction. We focus on the acquisition of technology startups by incumbent firms, although acqui-hires could exist in many forms. We explore various explanations, ranging from issues of knowledge (trade secrets and organization-specific tacit knowledge) and labor market frictions (search costs between labor and employers and monopsony labor market for technical talent).

