

Networking as a Barrier to Entry and the Competitive Supply of Venture Capital

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Abstract

We examine whether networks among incumbent venture capital firms help restrict entry into local VC markets in the U.S., thus improving VCs' bargaining power over entrepreneurs. We show that VC markets with more extensive networking among the incumbent players experience less entry. The effect is sizeable economically and appears robust to plausible endogeneity concerns. Entry is accommodated if the entrant has established relationships with a target-market incumbent in its own home market. In turn, incumbents react strategically to an increased threat of entry, in the sense that they freeze out any incumbent that builds a relationship with a potential entrant. Finally, companies seeking venture capital raise money on worse terms in more densely networked markets while increased entry is associated with higher valuations.

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Executive Summary

Entrepreneurship and innovation are commonly considered key determinants of an economy's capacity for wealth creation, job growth, and competitiveness. Venture capitalists serve a vital economic function by identifying, funding, and nurturing promising entrepreneurs, though whether they provide capital and services on competitive terms is much debated. In this paper, we examine whether U.S. venture capital firms engage in practices designed to increase their bargaining power over entrepreneurs, by restricting entry into local VC markets, such as Silicon Valley in California or Route 128 in Massachusetts. Our results are consistent with the hypothesis that incumbents engage in strategic behavior that reduces entry and benefit from doing so through paying lower prices for their investments.

What does it take to enter a local VC market? There are no obvious natural or regulatory barriers to entry; VCs are free to open offices in any location they choose. But to do deals in what is, after all, a relatively opaque and above all private market, they

need to be visible to local entrepreneurs who, moreover, must consider them a credible funding source worth approaching. If entrants wish to be proactive about sourcing deal flow, they need access to information about promising ideas, trends, and people, preferably ahead of other VCs. And once they have found start-ups to back, they need local knowledge and connections to provide them with “value-added services”, such as help identifying managerial talent, suppliers, or customers.

Having to establish visibility, credibility, access to information, and local knowledge from scratch puts entrants at an obvious cost and time disadvantage relative to incumbents, but this ignores an additional important advantage to incumbency, namely network externalities. VCs routinely cooperate by referring deals and people to each other, helping to put funding together through investment syndicates, providing introductions to suppliers or customers, and sharing their resources in other ways. Indeed, they may sometimes do so specifically to raise the cost of entry. For instance, by referring promising deals they cannot fund themselves to their friends, incumbent VCs may be able to reduce the time entrepreneurs spend searching for funding, with the result that entrants are less likely to see the deal flow (Inderst and Mueller (2004)). Or they may refuse to join an entrant’s syndicate, making it harder for the entrant to assemble funding for any deal that requires syndication, perhaps due to its size or risk profile.

If life as a VC is easier for those who are already members of the club, perhaps the most cost-effective way to enter a VC market is to gain an incumbent’s cooperation – in the form of access to the incumbent’s information, expertise, or contacts – with a view to eventually gaining admission to the club. This raises two questions: What incentives does an incumbent have to cooperate with an entrant? And how will other incumbents react?

The most obvious inducement an entrant can offer in return for cooperation in the target market is access to its home market. Thus, entry may involve an element of reciprocity. That benefits the cooperating incumbent but must be balanced against any negative reaction from the other incumbents. More formally, consider a group of incumbent VCs, each of which maximizes its profit while considering the effect of its actions on the behavior of the others. Individually, each VC chooses whether or not to cooperate with an entrant trying to break into the market. If an incumbent chooses to cooperate, it expects to be punished by the other incumbents. The resulting Nash equilibrium is a function of the expected severity of punishment. The harsher is expected punishment, the more likely it is that incumbents will refrain from helping entrants. An incumbent's dominant strategy then depends on the gain from dealing with an entrant (such as reciprocal access to the entrant's home market), the expected punishment (such as refusal to cooperate with the deviating VC for one or more periods), and (because coordinating punishment becomes harder the more incumbents there are) the number of incumbents.

While many forms of cooperation are not observable, it is possible to use data on syndication relationships to proxy for how interdependent incumbents have chosen to be. VC firms that are prone to sharing their investments with other incumbents presumably also share other network resources.¹ All else equal, we expect more densely networked markets to be harder to enter, not only because of the relatively greater network externalities that incumbents (but not entrants) enjoy in such markets, but also because

¹ Reasons to syndicate include pooling capital and diversifying risk (Lerner (1994)), improved screening (Sah and Stiglitz (1986)), obtaining access to other VCs' deal flow on a reciprocal basis (Lerner (1994)), and the ability to draw on the expertise of other VCs when nurturing investments (Brander, Amit, and Antweiler (2002)).

withdrawal of network access (“suspension from the club”) may provide an effective threat of punishment against the offender.²

Our results are consistent with the hypothesis that networking among venture capitalists reduces entry. First, we find that there is less entry in VC markets in which incumbents are more tightly networked with each other, as evidenced by their past syndication patterns. The magnitude of the effect is large: Controlling for other likely determinants of market entry, a one-standard deviation increase in the extent to which incumbents are networked (using measures borrowed from economic sociology) reduces the number of entrants in the median market by around a third.

The networking patterns we observe in the data may not be exogenous; rather, they may reflect omitted variables affecting both networking and entry. For example, unobserved variation in the cost of doing business in a given industry or location could induce networking (say, to economize on information costs) and *independently* reduce entry. To correct for this potential endogeneity problem, we follow two approaches. First, we use instrumental variables motivated by non-strategic and mechanical determinants of syndication decisions. This strengthens our results. Second, we exploit the nested-panel structure of our data to identify omitted time-varying factors that are either location-specific or industry-specific. This produces results that are very similar to the IV estimates.

Our second test focuses on the probability that a potential entrant successfully enters a market. Strong networks among the incumbents in the target market reduce the

² Anecdotal evidence supports a link between entry and networking. Kuemmerle and Ellis (1999) report that when planning its ultimately successful entry into the U.S. venture capital market, the president of Japan-based JAFCO Ltd. “suspected that the densely networked U.S. VC industry would present considerable barriers to entry.”

likelihood of entry. But not every potential entrant is deterred. Controlling for geographic proximity to the target market and prior experience in the industry (which each double the likelihood of entry), we find that a potential entrant is significantly more likely to enter if it has previously established ties to incumbents through inviting them into syndicates in its own home market. Moreover, it is with these very same incumbents that the entrant does business in the target market. In the context of the entry deterrence game sketched out above, this suggests that incumbents deviate from the strategy of non-cooperation with entrants when the gain from deviating – reciprocal access to the entrant’s home market – is sufficiently tempting.

The cost of deviation is punishment, in the form of reduced syndication opportunities with fellow incumbents. We show that after doing business with a potential entrant, an incumbent’s probability of being invited into fellow incumbents’ syndicates decreases considerably and significantly for up to five years after the event. This effect is concentrated in markets with a small number of incumbents, consistent with the notion that punishment invites free-riding and so is viable only with a small number of players.

Finally, we examine the price effect of reduced entry by comparing the valuations of companies receiving VC funding in relatively more protected and relatively more open markets. Controlling as best we can for other value drivers, we find that valuations are significantly lower in more densely networked markets: A one-standard deviation increase in our networking measures is associated with an around 10% decrease in valuation, from the mean of \$25.6 million. This indicates that incumbent VCs benefit from reduced entry through paying lower prices for their investments. On the other hand, the more market share entrants can capture, the higher are the valuations paid in a market

in the following year, suggesting that entry is pro-competitive and, at least in that sense, benefits entrepreneurs.

Our contribution is threefold. First, we provide evidence that networking can have the effect of reducing entry in the VC market. We believe that our results may generalize to other industries that make heavy use of networks, such as investment banking. Second, our results help explain prior empirical evidence that better networked VCs enjoy better performance (see Hochberg, Ljungqvist, and Lu (2007)). Part of the explanation for this may be due to the lower prices VCs pay for their investments in more densely networked markets. Third, we shed light on the process of entry in the VC industry. Successful entry appears to involve “joining the club” by offering the incumbents syndication opportunities in one’s home market. This is interesting in light of Lerner’s (1994) observation that “the process through which some of the entrants joined the core of established venture organizations remains unclear.”