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## **Geographic Concentration of Venture Capital Investors, Corporate Monitoring, and Firm Performance**

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### **Abstract**

This paper examines how the coordination of venture capital (VC) investors in their syndication, as measured by their geographic concentration, affects their choice of ex ante contractual terms and firm performance. We find that geographically concentrated VC investors use less intensive staged financing and convertible securities in their investment, experience more successive syndication in a follow-on round, and are less likely to send their representatives to firm boards. Moreover, their firms experience a higher likelihood of successful exits, lower IPO underpricing, and higher IPO valuation. These results are robust to using the introduction of new direct airline routes as an exogenous shock to geographic concentration.

**Keywords:** Venture capital, Geographic concentration, Coordination, Monitoring, Staged financing, Board, IPO

**JEL Classification:** G23, G24, G34

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## 1. Introduction

The role of venture capital (VC) investment in creating value for early-stage entrepreneurial firms has been explored in many studies. For example, the prior literature shows that venture capitalists play a critical role in promoting innovation and growth by actively monitoring portfolio firms (i.e., Hellmann and Puri (2000), Chemmanur et al. (2011), Baker and Gompers (2003), Puri and Zarutskie (2012), Bernstein, Giroud, and Townsend (2015)). However, despite the prevalent syndication in the majority of VC investments,<sup>1</sup> the importance of different patterns of syndication in corporate monitoring is less understood. In this study, we examine how coordination among VC investors affects their involvement in VC investment and corporate outcomes by studying the effects of geographic concentration of VC investors on their choice of ex ante contractual terms associated with VC investment (i.e., investment terms and board participation) and firm performance.

Previous studies have examined how the physical distance between VC investors and their portfolio firms affects corporate governance and firm performance. For example, Lerner (1995) shows that geographically proximate VC investors are more likely to sit on the boards of their portfolio firms, and Bernstein, Giroud, and Townsend (2015) find that close distances between VC investors and portfolio firms improve corporate innovation and portfolio firms' exit performance. In contrast, we focus on the geographic concentration among VC investors as a new measure of investor geography and examine how this new dimension of geography helps improve VC investors' coordination efforts in syndication and thus affects their monitoring incentives, the likelihood of a successful exit, and IPO outcomes. Given the importance of active VC involvement and highly concentrated ownership by VC investors in early-stage firm

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<sup>1</sup> According to the VentureXpert database, approximately 81.3% of 22,452 VC-backed entrepreneurial portfolio firms in the U.S. received investments from multiple VC investors during the period 1985-2015.

investment, we expect effective coordination among VC investors in syndications to have a direct, powerful impact on their incentives to monitor and on portfolio firm performance.

Syndications of VC investors are particularly important for financing early-stage entrepreneurial firms. Since the value of entrepreneurial firms is closely related to their growth options, which are characterized by high information asymmetry and uncertainty, sharing risk among VC investors and providing value-added service through VC syndication are particularly important for these firms compared to established firms.<sup>2</sup> However, the free-rider problem and divergent incentives within VC syndicates may cause coordination frictions and thus prevent VC investors from performing effective monitoring for their portfolio firms (Nanda and Rhodes-Knopf (2017)). We argue that geographic concentration of VC investors mitigates these coordination frictions among VC investors and reduces the costs of coordinated governance action, resulting in more effective coordination and monitoring.

Several factors support this argument. First, the geographic concentration of VC investors enables efficient sharing of firm-specific information among VC investors through networking and thus enhances the effectiveness of corporate monitoring (Pagano and Jappelli (1993), Hong et al. (2005), Doblas-Madrid and Minetti (2013), Doidge et al. (2015)). For example, Pagano and Jappelli (1993) argue that geographic concentration, by reducing the cost of information exchanges, increases investors' incentive to share information. Second, the geographic concentration of VC investors increases their ability to observe each other's behaviors and thus decreases their information asymmetry vis-à-vis other VC investors, which mitigates moral hazard problems (i.e., free-rider problems) in corporate governance (Grossman and Hart (1980), Holmstrom (1982), Shleifer and Vishny (1986), Cestone et al. (2007)), thereby increasing their

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<sup>2</sup> See, for example, Lerner (1994), Sorensen and Stuart (2001), Cestone, Lerner, and White (2006), Casamatta and Haritchabalet (2007), and Chemmanur and Tian (2011) for a detailed discussion of the importance of VC syndication in financing of early-stage entrepreneurial firms.

monitoring incentives. To the extent that high costs of monitoring entrepreneurial firms' intangible assets exacerbate free-rider problems (Gompers (1995)), we expect the geographic concentration of VC investors to help improve the observability of their monitoring efforts and thus mitigate free-rider problems in monitoring.

These arguments suggest several testable predications. First, the lower coordination costs associated with close geographic concentration allows geographically proximate VC investors to effectively monitor portfolio firms, thus reducing their incentives to extensively rely on ex ante costly contractual terms to help protect them against downside risk. The previous literature shows that various contractual arrangements, such as staged financing (number of financing rounds and duration between successive financing rounds), convertible securities, and board participation, help VC investors alleviate agency problems in early-stage firms. For example, the staging of capital investment can mitigate agency problems in portfolio firms and reduce the risk to VC investors by generating option-like payoffs to entrepreneurs (e.g., Sahlman (1990), Admati and Pfleiderer (1994), Gompers (1995), Tian (2011)). By refusing to provide follow-on funding or abandon the project if the entrepreneur fails to meet stage targets, VC investors can constrain the entrepreneur's behavior, thereby reducing incentive conflict problems. However, VC staging is costly due to frequent negotiation and high contracting costs. Given that monitoring of portfolio firms is also costly for VC investors, VC investors may have strong incentives to minimize total costs associated with stage financing and direct monitoring, leading to substitution between VC investors' monitoring effectiveness and the use of staged financing. Supporting this view, Gompers (1995) finds that firms with severe agency problems characterized by cross-industry, high levels of asset intangibility, high market-to-book ratios, and intensive R&D activities experience staging more frequently. Tian (2011) also finds that VC

financing for portfolio firms that are located far away from VC investors are characterized by higher intensity of staging, shorter durations between successive rounds, and smaller investing amounts in each round. To the extent that monitoring of remote firms is difficult and costly, the results suggest that VC investors facing difficulties in monitoring portfolio firms are more likely to design contracts that provide greater protections against misappropriation by portfolio firm managers. Thus, we predict that geographically concentrated VC investors focus less on staged financing due to their superior abilities to monitor.

Previous studies also highlight the use of convertible securities to protect investors against downside risk and provide entrepreneurs with strong incentives to exert greater effort (Bergemann and Hege (1998), Casamatta (2003), Cornelli and Yosha (2003), Kaplan and Stromberg (2003; 2004), Schmidt (2003), Repullo and Suarez (2004), Hellmann (2006), Dess (2005)). To the extent that geographically dispersed VC investors face greater information asymmetry and larger free-rider problems in corporate governance than geographically proximate VC investors, the former may have stronger incentives to obtain downside-protecting contractual cash flow rights such as convertible securities. Therefore, we hypothesize that geographically dispersed VC investors use a large amount of convertible securities in their investments to constrain entrepreneurs' behavior.

To address the difficulty of effective monitoring, geographically dispersed VC investors may also have strong incentives to exert influence on managerial decisions through board participation. As a vigilant protector of shareholder's interests, boards are expected to play an important role in monitoring the performance of managers (Fama (1980), Hermalin and Weisbach (1998)) and serve as a crucial internal governance mechanism to control for managerial agency problems. In particular, since private firms whose stocks are not listed on

exchanges face little pressure from external governance forces such as stock market monitoring and the market for corporate control, internal governance mechanisms such as boards of directors are expected to play a particularly important role in disciplining the managers of these firms (Fama (1980), Fama and Jensen (1983)). Because geographically dispersed VC investors face high costs for taking coordinated governance actions, which reduces their monitoring capabilities, they are expected to take more seats on the boards of portfolio firms.<sup>3</sup> We examine this issue using both firm- and VC investor-level analyses.

Second, we expect that the geographic concentration of VC investors improves coordination outcomes in follow-on financing rounds and portfolio firm exit performance due to improved coordination among geographically proximate VC investors. A different composition of VC investors in follow-on round syndication may imply a significant free-rider problem in the previous round and additional coordination costs for newly joined investors (Chemmanur and Tian (2011)). Therefore, continuous participation of existing geographically proximate VC investors in follow-on round syndication can be important evidence of greater coordination among VC investors. Similarly, to the extent that VC investors' coordination improves portfolio firm performance through superior monitoring and value-added service, we also predict that geographically proximate VC investors' portfolio firms are more likely to successfully exit through IPOs or acquisitions.

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<sup>3</sup> There is little evidence of board monitoring by VC investors in VC-backed firms due to the dearth of data. The only exceptions are Lerner (1995), who finds that geographic proximity between VC investors and portfolio firms leads VC investors to take more board seats in their portfolio firms, and Bengtsson and Sensoy (2011), who show that highly experienced VC investors are more likely to join the boards of portfolio firms. Baker and Gompers (2003) and Hochberg (2012) further document that VC-backed firms have more outside directors on their boards than non-VC-backed firms at the time of an IPO.

Finally, we expect the concentration of VC investors to reduce IPO underpricing through more effective monitoring and a reduced information gap with respect to true firm value.<sup>4</sup> Effective monitoring by geographically proximate VC investors also suggests that their portfolio firms' valuation around IPOs are higher than those of geographically dispersed VC investors.

Using a large sample of VC-backed U.S. entrepreneurial firms covered by Thomson Reuters' VentureXpert database for the period 1995-2015 and measuring the geographic concentration of VC investors with VC (lead VC) fund-specific location information, we find results that are strongly consistent with the predictions above. Specifically, controlling for the physical distance between VC investors and portfolio firms, funding characteristics, and industry (three-digit SIC codes), year, initial investment year, firm and lead VC state fixed effects, we find that the geographic dispersion of VC investors increases the extent of staged financing (measured by a greater number of financing rounds and a shorter time interval between successive rounds) and the amounts of convertible securities used in VC investment. A 1% increase in the equally weighted distance among VC investors is associated with an increase in the number of financing rounds of 1.4%, a decrease in the duration between successive financing rounds of 1.8%, and an increase in the amount of convertible securities used in VC investment of 3.6%. These results indicate that distant VC investors, who must incur high costs in monitoring their portfolio firms due to their location disadvantages, have strong incentives to design ex ante contractual terms to mitigate agency conflicts of managers in portfolio firms.

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<sup>4</sup> Large initial returns (i.e., underpricing) in IPO markets have been extensively studied in the VC literature (e.g., Rock (1986), Allen and Faulhaber (1989), Welch (1989), Loughran and Ritter (2002), Bajo and Raimondo (2016)). Recent empirical works have shed further light on the relation between IPO underpricing and the role of VC investors. For example, Chemmanur et al. (2016) and Tian (2011) show that VC syndicate-backed portfolio firms are more likely to have lower IPO underpricing and receive higher market valuation because VC syndicates are better able to reduce information asymmetry between portfolio firms and outside investors. Butler and Goktan (2008) further find that VC-backed firms located close to the lead VC experience lower IPO underpricing.

Moreover, we find that the proportion of VC directors on the portfolio firm's board around an IPO year is negatively associated with the geographic concentration of VC investors,<sup>5</sup> suggesting that VC investors take a more active position on the board when geographic dispersion exacerbates coordination problems and increases the need for oversight. This result is again consistent with our prediction that lack of effective coordination among VC investors encourages geographically dispersed VC investors to use alternative mechanisms to protect themselves. Using individual VC investor-level data, we also find that VC investors located far from other investors are more likely to send their representatives to boards of their portfolio firms. We further find that these results for VC investors' board participation, both in firm- and investor-level analyses, are significant only when the distance between the firms and their VC investors is higher, suggesting that the demand for remote VC investors' board participation becomes crucial when active monitoring by VC investors who are geographically proximal to the firm is missing.

Turning to tests of the effects of the geographic concentration of VC investors on their continuous participation in the follow-on financing round and the likelihood of a successful exit, we find that as the distance among VC investors decreases, both the proportion of the total number of existing VC investors who participate in follow-on round syndication and the likelihood of a successful exit through IPOs or acquisitions increase.

Finally, we find that portfolio firms with geographically concentrated VC investors experience lower IPO underpricing and significantly higher valuation multiples around IPOs, suggesting that VC investors' better coordination facilitated by their physical location reduces information asymmetry with respect to IPO firms and increases monitoring effectiveness.

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<sup>5</sup> Consistent with Lerner (1995), we find that geographic proximity between VC investors and portfolio firms leads VC investors to take more board seats in portfolio firms.



Although the inclusion of several fixed effects helps alleviate endogeneity problems associated with time-invariant omitted variable biases, our results are subject to other endogeneity problems. For example, unobserved time-variant characteristics of entrepreneurs and VC investors may simultaneously affect VC investment and syndication decisions and our outcome variables. It is also possible that promising deals attract a group of VC investors who are geographically close to an initial VC investor through better information sharing. To mitigate these endogeneity problems, we use the introduction of new direct airline routes reducing travel times between VC investor locations as an exogenous shock to geographic concentration (Giroud (2012), Bernstein, Giroud, and Townsend (2015)). Using a difference-in-differences estimation, we find that the treatment decreases the number of financing rounds and the use of convertible securities by 1.2% and 4.4%, respectively, and increases the duration between the two financing rounds by 27.8%, suggesting that our previous findings for the effects of VC investors' geographic dispersion on the choice of contractual terms are large and causal. We also find that the treatment increases the proportion of the total number of existing VC investors who participate in follow-on round syndication and the probability of a successful exit by 3.2% and 9.8% (marginal effect), respectively, suggesting a causal relation between VC investors' geographic concentration and better coordination outcomes. These results are driven primarily by reductions in travel time between lead VC investors and other VC investors. To the extent that lead VC investors play a crucial role in syndication and VC involvement, this result further suggests that the underlying channel for our results is closely related to VC investors' monitoring and coordination. The estimation results for airline shocks also remain significant when we use a propensity score matching approach and exclude the treatment for short-distance VC investor pairs.

Our study contributes to the literature in at least two important ways. First, by providing some of the first evidence on geographic concentration of VC investors in corporate governance of portfolio firms, our study expands previous research on the role of geography in VC investment. Previous studies exploring the role of geography in VC investment focus exclusively on geographic proximity between VC investors and portfolio firms and find evidence of local bias in VC investment (e.g., Sorenson and Stuart (2001), Cumming and Dai (2010)), higher representation of board membership in portfolio firms by geographically proximate VC investors (Lerner (1995)), effects of VC investors' location on contract designs (Bengtsson and Ravid (2009)), and lower IPO underpricing of portfolio firms with geographically proximate VC investors (Butler and Goktan (2008)). More recently, Bernstein, Giroud, and Townsend (2015) show that entrepreneurs' innovation and exit performance are closely related to the geographic proximity between entrepreneurs and VC investors. Our study differs from these studies by focusing on the coordination and monitoring roles of geographically concentrated VC investors and provides new evidence on how their coordination affects corporate governance and firm performance.

Second, our paper contributes to the VC literature by examining how coordination among geographically proximate VC investors affects their incentives to choose certain ex ante contractual terms in VC investment. We focus on several aspects of ex ante contractual features in VC investment, such as staging, security choice, and board representation, and show how the difficulties in corporate monitoring incentivize VC investors to choose contractual mechanisms that are designed to protect them against the downside risks of early-stage entrepreneurial firms.

The remainder of this paper is organized as follows. Section 2 discusses the sample, variable definitions, and summary statistics. Section 3 presents the results for the impacts of the

geographic concentration of VC investors on staged financing, the use of convertible securities, and board representation. In Section 4, we examine the effects of the geographic concentration of VC investors on their continuous participation in the follow-on financing round and the likelihood of a successful exit. Section 5 provides results from identification tests using the introduction of new direct airline routes as a shock. Finally, we present our summary and concluding remarks in Section 6.

## **2. Data and Summary Statistics**

### **2.1. Sample**

Our sample consists of VC-backed U.S. entrepreneurial firms covered in Thomson Reuters' VentureXpert database during the period 1995-2015. VentureXpert, which has been used extensively in the prior literature (e.g., Chemmanur et al. (2014), Bernstein, Giroud, and Townsend (2015)), provides detailed firm-specific funding information, such as VC investor name, investment date of venture financing rounds, amount, security type, and the ultimate portfolio company outcome. We also employ VC fund- and portfolio firm-specific location information (nation, state, and city) from this database. We complement the VentureXpert database with SDC Platinum and Compustat databases to construct firm- and industry-level control variables. Since it usually takes years for entrepreneurial firms to grow from the seed stage to the later stage and exit, we exclude companies that received their first round of investments after 2010 to mitigate downward bias on the likelihood of exit. We also exclude firms with erroneous entries such as VC investment dates, stages, founding dates and exit years. Our final sample consists of 15,485 unique VC-backed firms (51,917 VC investment rounds).

For the analyses of board structure and IPO performance, we hand-collect data from the “Management” section in a firm’s IPO prospectus provided by the SEC. When a firm goes public, it is required to file Form 424B, which contains a detailed description of its current management and board of directors including their names, ages, professional careers, education backgrounds, positions, and brief profiles with the Securities and Exchange Commission (SEC). We identify each portfolio firm’s VC-affiliated directors by reading the profiles included in Form 424B. The sample consists of 922 IPO firms from 1995 to 2015.

Data to identify the introduction of new direct airline routes are collected from the T-100 Domestic Segment database, which contains monthly domestic non-stop segment information reported by both U.S. and foreign air carriers, including origins, destinations, departures performed, and ramp-to-ramp time when the origin and destination airports are both located within the boundaries of the U.S. and its territories. All airlines with flights in the U.S. are required by law to file Form 41 with the U.S. Department of Transportation. These data are collected by the Office of Airline Information, Bureau of Transportation Statistics, Research and Innovative Technology Administration, and are widely used by the aviation industry, press, and legislators to analyze information such as traffic patterns.

## **2.2. Measures of Geographic Proximity among VC Investors**

Following Huang and Kang (2015), we use the following six measures to calculate geographic concentration among VC investors. *Ew Distances* is the logarithm of one plus the equally weighted geographic distance between all of a portfolio firm’s VC investor pairs for a portfolio company, *Vw Distances (Equity)* is the logarithm of one plus the investment amount-weighted physical distance between all of a portfolio firm’s VC investor pairs, and *Vw Distances*

*(Portfolio)* is the logarithm of one plus the portfolio share-weighted physical distance between a portfolio firm's all VC investor pairs. *Lead Vw Distances (Equity)* is the logarithm of one plus the investment-amount weighted physical distance between a portfolio firm's lead VC investor and its other VC investors, and *Lead Vw Distances (Portfolio)* is the logarithm of one plus the portfolio share-weighted physical distance between a portfolio firm's lead VC investor and its other VC investors. Lead VC investors are the VC firms that invest the largest amount of equity in portfolio firms. For VC firms with equal investment amounts, we choose the one that invested in the firm at the earliest time. If there are still ties, we choose the lead VC investor based on its total fund size and total number of firms in which it invests. Finally, *Log (Number of States)* is the logarithm of the number of unique states in which the VC fund is located.

We also compute *Firm-VC Distances*, the logarithm of one plus the equally weighted physical distance between the portfolio firm and its VC investors. All of these physical distance measures are in units of kilometers and are calculated using the Haversine formula based on the geographic coordinates of the city locations for VC investors and portfolio firms. We use a VC fund's locations rather than the VC firm's headquarters location when the VC firm has multiple fund offices.<sup>6</sup>

### 2.3. Summary Statistics

Table 1 provides the summary statistics for our sample firms at the financing round level. The equally weighted geographic distance between all of a firm's VC investor pairs is on

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<sup>6</sup>For example, Accel Partners manages two funds, Accel Internet Fund II L.P., located in Palo Alto, CA, and Accel Internet Fund III L.P., located in Princeton, NJ. When Accel Internet Fund II L.P. serves as a VC investor for the portfolio firm, we use Palo Alto as the VC investor's location, not the location of the Accel Partners headquarters. We obtain geographic coordinates from the MaxMind GeoIP Database and match the coordinates with each firm city and VC fund city. It also should be noted that all of our distance measures are computed using the most recent locations of VC investors and portfolio firms, even though their locations can change over time. As in Bernstein, Giroud, and Townsend (2015), our approach should not create any systematic bias.

average 987.91 kilometers (613 miles), and VC investors are located in 2.17 different states on average. The mean equally weighted geographic distance between the firm and its VC investors is 1,235.35 kilometers (767 miles). The shorter average distance between VC investor pairs than between the firm and its VC investors suggests that VC investors tend to choose geographically proximate VC investors when they syndicate.

During our sample period, approximately 9% and 14% of our sample firms go public and bankrupt or defunct, respectively. On average, our sample portfolio firms receive their first round of VC financing 2.96 years after their foundation and have 6.33 rounds of financing. Our sample IPO firms on average have a first day IPO return of 33%. These firms on average have 7.24 board members, of which 21% are represented by VC investors and 80% are outside directors. Appendix A provides detailed descriptions of the variables reported in Table 1.

Table 2 presents the distribution of our sample firms and main variables of interest by firm state. Almost 42% of our sample firms are located in California, Massachusetts, New York, Texas, and Pennsylvania, consistent with the distribution reported in Tian (2011). Among these five states, VC investors located in California and Massachusetts are on average more geographically dispersed than those located in the other states and use a larger number of financing rounds. Figure 1 illustrates the distribution of geographic distance among VC investors by firm state.

### **3. Geographic Concentration of VC Investors and Choice of Ex Ante Contractual**

#### **Terms**

##### **3.1. Staged Financing**

We first examine the extent to which the geographic concentration of VC investors affects their choice of staged financing. We expect a portfolio firm to experience more intense staged financing from its VC investors who face difficulties in coordination and monitoring due to their geographic dispersion. Monitoring entrepreneur firms is very costly, and these monitoring costs are expected to be larger for geographically dispersed VC investors due to their coordination disadvantages. Therefore, these VC investors may have strong incentives to overcome their monitoring disadvantages by relying more on strict ex ante contractual terms, such as using more intensive staged financing, that help protect them against downside risk.

To test this prediction, using a sample of 46,992 firm-financing round observations, we estimate the following regression:

$$\text{Staging}_{i,t} = \alpha + \beta_1 \text{Log}(1 + \text{Number of Financing Rounds})_{i,t} + \beta_2 \text{Log}(1 + \text{Duration between Two Financing Rounds})_{i,t} + \beta_3 \text{VC Concentration}_{i,t} + \beta_4 \text{FirmVC Distances}_{i,t} + \epsilon_{i,t}$$

where  $i$  indexes a portfolio firm,  $t$  indexes year, and  $\text{Staging}_{i,t}$  is either the number of financing rounds ( $\text{Log}(1 + \text{Number of Financing Rounds})$ ) or investment interval ( $\text{Log}(1 + \text{Duration between Two Financing Rounds})$ ).  $\text{Number of Financing Rounds}$  is the total number of financing rounds the firm has received, and  $\text{Duration between Two Financing Rounds}$  is the duration in months between one round and the next round (or the exit event if the firms exit the venture stage).<sup>7</sup>  $\text{VC Concentration}_{i,t}$  is a measure of the geographic concentration of VC investors discussed in the previous section, and  $\text{FirmVC Distances}_{i,t}$  is the logarithm of one plus the equally

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<sup>7</sup> Tian (2011) notes that duration data is right-censored because a subsequent financing round is unobservable if firms exit the venture stage or are in the middle of an ongoing round. Following Tian (2011), we compute *Duration between Two Financing Rounds* as the duration between the last financing round date and an exit event date if the entrepreneurial firm exits through either an IPO or acquisition. We also acknowledge the methodological limitation of the standard measures of staged financing, including that the number of financing rounds and the time interval between successive financing rounds do not measure the ex ante intensity of staging but rather ex post realization.

weighted distance between a portfolio firm and its VC investors. We include this variable to control for potential concern about home bias (e.g., Coval and Moskowitz (1999), Sorenson and Stuart (2001), Cumming and Dai (2010)).  $X_{i,t}$  is a vector of control variables, including cumulative funding, funding characteristics (number of VC investors, firm age, and total funding) in the first round of VC investment (Tian (2011)), the lead VC investor's fund age and the number of firms in which it has invested since 1995, and an indicator (*Early Stage*) that takes a value of one if the firm is in its seed or early stage when it receives its first VC financing and zero otherwise (Nahata (2008), Tian (2011)). The regression also includes several fixed effects: a portfolio firm's industry-fixed effects at the 3-digit SIC level ( $\alpha_i$ ), year fixed effects for financing ( $\alpha_t$ ),<sup>8</sup> first (entry) financing year fixed effects ( $\gamma_i$ ),<sup>9</sup> as well as firm state fixed effects ( ) and lead VC investor state fixed effects ( $\eta_i$ ). We include lead VC state fixed effects to mitigate the concern that unobserved spatial heterogeneity in the lead VC state simultaneously affects the geographic distribution of firms' VC investors and their staged investment pattern. We cluster standard errors at the firm's industry level. The coefficient of interest is  $\beta_1$ , which measures the effect of geographic concentration of VC investors on staged financing.

Table 3 present the results from OLS regressions in which the dependent variable is *Log (1 + Number of Financing Rounds)*. We find that VC investors' geographic dispersion significantly increases the number of financing rounds. In columns (1) through (6), all distance measures are positively associated with the number of financing rounds that the firm has received at the 1% level. A 1% increase in the equally weighted distance among VC investors is associated with an increase in the number of financing rounds by 1.4%.

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<sup>8</sup> We control for year fixed effects for the financing round to exclude any common time trend affecting entrepreneurial firms' performance.

<sup>9</sup> We control for first (entry) financing year fixed effects since Povel et al. (2016) find a significant and persistent entry year effect, especially during industry booms or busts.



In Table 4, we replace  $\text{Log}(1 + \text{Number of Financing Rounds})$  with  $(\text{Log}(1 + \text{Duration between Two Financing Rounds}))$  as the dependent variable. We find that VC investors' geographic dispersion is associated with a decrease in time intervals between successive financing rounds. A 1% increase in the equally weighted distance among VC investors is associated with a decrease in the duration between the two financing rounds by 1.8%. These results suggest that VC investors that face higher direct monitoring costs due to their location disadvantages maintain a tight leash on entrepreneurs' behavior by increasing the number of financing rounds and shortening the duration between successive financing rounds. These findings support our hypothesis that the superior monitoring ability of geographically concentrated VC investors enables them to focus less on costly staged financing.

### **3.2. Use of Convertible Securities**

In this subsection, we examine whether the geographic dispersion of VC investors affects their choice of funding method in VC investment. VC investors who face high information asymmetry and agency problems in early-stage investment may demand downside-protecting contractual cash flow rights, such as the use of convertible securities, especially when they face monitoring disadvantages in constraining the entrepreneur's behavior. Therefore, we expect the geographic dispersion of VC investors to be positively related to the amount of convertible securities used in the investment.

The results are reported in Table 5. The dependent variable,  $\text{Log}(1 + \text{Convertible Amt})$ , is the logarithm of one plus the amount of convertible securities used in a given financing round. We use the same control variables as those used in Tables 3 and 4. In particular, we control for firm state fixed effects since the design of financial contracts can be influenced by the

geographic locations of the firms (Bengtsson and Ravid (2011)).<sup>10</sup> We find that the coefficients on all concentration measures are positive and highly significant, implying that geographically dispersed VC investors use a larger amount of convertible securities when their coordination costs are higher. The economic magnitude is also large. A 1% increase in the equally weighted distance among VC investors leads to an increase in the amount of convertible securities used in VC investment of 3.6%. These results support our hypothesis and are also consistent with the theoretical prediction that VC investors use convertible claims along with contractual control rights to strengthen monitoring, whereas they use common equity to provide more mentoring (Casamatta (2003)).

### 3.3. VC Investors' Board Participation

This subsection investigates the relation between VC investors' geographic concentration and their board participation in entrepreneurial firms. The results are reported in Table 6. The dependent variable is *Percent of VC Board*, the ratio of VC-affiliated directors on the board of a portfolio firm in an IPO year. Supporting our hypothesis, we find that the coefficients on all geographic dispersion measures are positive and significant at the 1% level, suggesting that VC investors take a more active role in portfolio firms' boards when they have a greater need for firm oversight due to coordination problems arising from geographic dispersion. In terms of economic significance, the coefficient estimate of 0.010 on *Ew Distances* suggests that a one-standard-deviation increase in *Ew Distances* leads to a 3.36% ( $= 0.013 * 3.36$ ) increase in *Percent of VC Board*. Given that the unconditional mean *Percent of VC Board* for the full sample is 21%, this number accounts for more than 16% of the sample mean. We also find negative coefficients

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<sup>10</sup> In untabulated tests, we also control for a set of stage indicators in the regression because optimal contracts can differ across a firm's different stages. The results do not change.

on *Firm VC Distances*, suggesting that geographic proximity between a portfolio firm and VC investors increases VC investors' board participation, consistent with Lerner (1995).<sup>11</sup>

Next, using the VC investor-level data, we examine whether the physical distance between a specific VC investor and the other VC investors affects the former's incentives to send representatives to a portfolio firm's board. Our hypothesis suggests that geographic proximity between VC investors increases their opportunity to network (Hong et al. (2005)) and thus may reduce the need to monitor a portfolio firm through board participation. Geographically proximate VC investors who are able to network more intensely may align with each other and steer the development of the portfolio firm toward a direction more favorable to them at the cost of remote VC investors in the syndicate. Thus, it is important for VC investors to take more board seats when they are far away from the other VC investors in the syndicate.<sup>12</sup> To test this prediction, as a first test, we estimate the following probit model specification:

$$\text{tag}( \text{t} \text{ iri gtr a}_i ) \\
 \text{iatangi tt tt ir t}_i \quad \text{irg t iatangi a}_i \quad ( ) \\
 \text{i ag t}_i \quad \text{i}$$

where  $i$  indexes a portfolio firm,  $j$  indexes a specific VC fund, the dependent variable  $VC\ Directors_{ij}$  is an indicator that equals one if a specific VC fund  $j$  takes any board seat in portfolio company  $i$  in the IPO timing and zero otherwise.  $Distance\ to\ other\ VC_{i,j}$  is the distance between a specific VC and the rest of the VC investors in the syndicate. We construct three measures of the relative location.  $Ew\ Distances\ to\ other\ VC$  is the logarithm of one plus the equally weighted

<sup>11</sup> In Appendix Table A.1, we examine the relation between VC investors' geographic concentration and the proportion of independent directors on the board in an IPO year. Consistent with our hypothesis, we find that the proportion of independent directors on the board increases as VC investors' geographic dispersion increases.

<sup>12</sup> A similar implication can be found in Hochverg and Ljungqvist (2010a) and Tykvov (2007). Tykvov (2007) examines how hold-up and moral hazard problems among investors limit the extent to which syndication occurs in equilibrium.

geographic distance between a VC investor and the other VC investors in the syndicate,  $Vw$  Distances (Equity) to other VC is the logarithm of one plus the investment-amount weighted physical distance between a VC investor and the other VC investors, and  $Vw$  Distances (Portfolio) to other VC is the logarithm of one plus the portfolio share-weighted physical distance between a VC investor and the other VC investors.  $Firm VC Distances_{i,j}$  is the logarithm of one plus the distance between the VC investor $_j$  and its portfolio firm  $i$ .  $Lead VC$  is an indicator that takes a value of one if the VC investor is a lead VC investor and zero otherwise.  $X_i$  is the vector of the same set of control variables used in the previous regression specification. All distance measures and control variables are measured immediately prior to the IPO.  $\alpha_i$  and  $\gamma_i$  are industry and IPO year fixed effects for the portfolio firm. The specification also includes fixed effects for firm state ( ) and lead VC investor state ( $\eta_i$ ). We cluster standard errors at the portfolio firm level.

Table 7 presents the results. In columns (1)-(3), the coefficients on *Distance to other VC* are all positive and significant, suggesting that a VC investor located far from the other VC investors in the syndicate is more likely to send its representative to a firm's board. The marginal effect of a one-standard-deviation decrease in *Ew Distances to other VC* translates into a 1.0% (= 0.0055 x 1.89) increase in the likelihood of having a VC director in a portfolio firm. This number represents an 8.0% increase compared with the unconditional probability of going public (13%). Thus, a VC investor that has difficulty coordinating with the other VC investors has a stronger incentive to send its representative to the firm's board to exert a strong influence on the firm. We also find that lead VC investors are more likely to obtain board seats in portfolio firms as they play a major role in monitoring the portfolio firms in syndication.<sup>13</sup>

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<sup>13</sup> Gorman and Sahlman (1989) document that lead VC investors, on average, spend 10 times more time on a portfolio firm than other VC investors.

As a second test, we use  $\text{Log}(1 + \text{Number of VC Directors}_{i,j})$ , the logarithm of one plus the number of board seats in a portfolio firm that a VC fund  $j$  obtains in the IPO timing as the dependent variable. The results are reported in columns (4)-(6) of Table 7. The result remains qualitatively unchanged.<sup>14</sup> The coefficient in column (5) implies that if the investment amount-weighted physical distance between a specific VC investor and the other VC investors changes by 1%, the number of the directors sent by the specific VC investor increases by 2.7% ( $= 0.004 / 0.147$ ).

In Appendix Tables A.2 and A.3, we present the results for VC investors' board participation by subsamples of firms with high and low *Firm-VC Distances*. We find that our results for a VC's board participation, both at the syndicated- and individual-VC level, in Tables 6 and 7, are significant only when *Firm-VC Distances* is higher, suggesting that the demand for VC investors' board participation becomes important when VC investors are located farther from an entrepreneurial firm (i.e., when monitoring is weak).

## **4. Geographic Concentration of VC Investors and Coordination Outcomes**

### **4.1. Successive Syndicate in Follow-on Rounds**

Thus far, we have examined how the heterogeneous geographic concentration of VC investors affects their choice of ex ante contractual terms in VC investment and board participation. In this section, we investigate whether VC investors' geographic concentration indeed improves their coordination. VC investors within a syndicate face coordination frictions due to heterogeneous fund characteristics such as portfolio composition and investment horizon. The divergent incentives within a syndicate combined with the free-rider problem prevent

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<sup>14</sup> Due to the discrete nature of the number of VC directors that are appointed to portfolio firms, we also use Poisson regressions to estimate the regressions and find that our main results remain unchanged.

effective monitoring by VC investors. However, better coordination among VC investors due to close geographic concentration may alleviate such frictions and drive efficient dynamics within VC syndication. Thus, we expect that geographically concentrated VC investors are more likely to syndicate successively in the follow-on financing round.

Table 8 reports the results from OLS regressions in which the dependent variable is the ratio of the number of existing VC investors that participate in both the previous and follow-on round syndication to the total number of existing VC investors in the previous syndication. We find that VC investors' geographic dispersion impedes the constant composition of syndicates in the follow-on round compared to the previous syndicate. In column (1), a one-standard-deviation increase in *Ew Distance* leads to a 4.4% ( $= 0.013 \times 3.36$ ) decrease in the proportion of VC investors who participate in successive syndication in the follow-on round, which accounts for more than 19.9% of the unconditional mean value of the successive VC syndication (22%) in the follow-on round.

#### **4.2. Exits through IPOs and Acquisitions**

As a next test for whether VC investors' geographic concentration improves their coordination, we examine whether it affects the ultimate outcome of their portfolio firms. We expect that better concentration of geographically proximate VC investors leads to an increase in the likelihood of a successful exit through IPOs or acquisitions.

The results from the probit regression are reported in Table 9. The dependent variable (*Exit*) is an indicator that takes a value of one if the firm goes public via an IPO or is acquired

during the sample period.<sup>15</sup> We use portfolio-firm financing round-level data. Consistent with our hypothesis, in columns (1)-(6), we find that the coefficients on all geographic concentration measures are negative and significant at the 1% level. Thus, the geographic proximity of VC investors increases the likelihood of firms' going public or being acquired, suggesting that when VC investors in syndication are geographically concentrated, the coordination cost between VC investors for better monitoring of the portfolio firm decreases, which in turn increases the likelihood of a successful exit via going public or being acquired. The economic magnitude of the effect of VC investors' concentration on *Exit* is large. The marginal effect of a one-standard-deviation decrease in *Ew Distances* translates into a 1.0% ( $= 0.003 \times 3.36$ ) increase in the likelihood of a successful exit for a portfolio firm, which accounts for an 8.4% increase compared with the unconditional mean probability of exit (12%). The economic magnitudes of the effect of other concentration measures on *Exit* are similar to that of the measure in column (1). In Appendix Table A.4, we report the estimation results for the relation between VC investors' geographic concentration and portfolio firms' exit through IPOs and acquisitions, separately. The results do not change.

### **4.3. Geographic Concentration of VC Investors and IPO Underpricing and Valuation**

In this subsection, we examine the relation between the geographic concentration of VC investors and portfolio firms' IPO underpricing and valuation. We expect that the geographic concentration of VC investors leads to lower IPO underpricing and higher IPO valuation due to better monitoring, which helps reduce the information gap about the firm's true value.

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<sup>15</sup> In untabulated tests, we include only acquisitions whose values are greater than \$25 million to capture successful exits of entrepreneurial firms and to ensure that acquisitions as a negative outcome are excluded (Bernstein Giroud, and Townsend (2015)). The result does not change.

Table 10 presents the results from OLS regressions in which the dependent variable is IPO underpricing measured by first-day IPO return. All control variables are measured immediately prior to the IPO. We find that firms with geographically concentrated VC investors experience lower IPO underpricing, consistent with our hypothesis: the coefficients on geographic distance measures are all positive and significant except for column (6), in which *Number of State* is used as the geographic concentration measure. Furthermore, the impact of VC investors' geographic concentration on IPO underpricing is economically large. The coefficient on *Ew Distances* in column (1) indicates that a one-standard-deviation reduction in *Ew Distances* decreases the first-day return by 4.4% ( $= 0.013 \times 3.36$ ), accounting for a nearly 7.6% decrease in the unconditional IPO mean return (33%).

In Table 11, we report the effect of VC investors' geographic concentration on IPO firm valuation. The dependent variable, *IPO Valuation*, is the ratio of market capitalization on the first trading date (first trading-day stock price multiplied by the number of total shares outstanding) to sales one year prior to the IPO.<sup>16</sup> We find that the coefficients on the dispersion measures are all negative and significant except for column (6). Thus, entrepreneurial firms with geographically dispersed VC investors tend to have lower valuation in the IPO year than those with geographically concentrated VC investors.<sup>17</sup>

## 5. Identification Tests

### 5.1. Introduction of New Direct Airline Routes

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<sup>16</sup> Compustat provides IPO firm's financial information two years prior to their IPOs. In Appendix Table A5, we use the enterprise value (market value of equity offered + total debt + minority interest + preferred shares – cash and cash equivalents) divided by the earnings before interest, tax, depreciation, and amortization (EBITDA) in IPO year as the measure of IPO valuation and find similar results. Using PE ratios also does not change the results.

<sup>17</sup> In untabulated results, we also examine the effect of VC concentration on the Price-to-Book ratio at the IPO timing and operating performance measures, such as ROA and ROE. The results are qualitatively consistent.



The investment decisions of VC investors, specifically their syndication decisions, are not random and may be highly correlated with VC investor and portfolio firm characteristics that are unobservable but nevertheless affect portfolio firm performance. This omitted variable problem can potentially bias the estimation of the effect of VC investors' geographic concentration on their monitoring activities and thus portfolio firm performance. It is also possible that VC investors' ability to identify profitable investments may be correlated with their location. Furthermore, geographically proximate VC investors may have similar preferences for certain start-up firms or specialties in investing firms with certain characteristics, which can be correlated with firm performance and governance. Finally, promising deals may attract a group of VC investors who are geographically proximate to initial VC investors through better information sharing (i.e., reverse causality).

To address these concerns, we use the reduction of travel time due to the introduction of new direct airline routes as a quasi-natural experiment for VC investors' geographic concentration (Giroud (2012), Bernstein, Giroud, and Townsend (2015)). Giroud (2012) argues that the reduction in travel time due to the introduction of new direct airline routes is exogenous to both firms' and institutional investors' characteristics and thus can serve as a valid quasi-natural experiment for mitigating the endogeneity problem. Since the introduction of new direct airline routes unexpectedly reduces the travel time between VC investors, it should provide exogenous variation in their coordination costs and thus can be a valid instrument for their geographic concentration.

To define the treatment indicator, we first estimate the optimal travel time between the VC investor city pair by taking into account driving duration from a VC investor city to an airport city and the duration of the flight, including average time spent at airports. The driving

time between the VC investor city pair is calculated using Google Maps API and Excel VBA. A portfolio firm in a particular investment round is treated if, compared to the driving time between the VC investor city pair, the travel time between any of its existing VC investors is reduced by more than a half hour round trip during two investment rounds. The detailed algorithms used to compute optimal itineraries and travel times and the assumptions in the definition of treatment are the same as those used by Giroud (2012) and Bernstein, Giroud, and Townsend (2015). We consider only direct flights because of the compounding probability of delays and cancellations and other types of disabilities, such as anxiety about missing a connection or fatigue due to longer time in transit when taking indirect flights (e.g., Boeh and Beamish (2012)).

A potential concern with using the introduction of new direct airline routes as an exogenous shock to geographic concentration is that airline routes are not randomly introduced. Local shocks in the region of either the VC investor or the portfolio firm could affect both the introduction of new direct airline routes and firm performance. For example, if the firm and its lead VC are located in the same city, a booming economy in this city will lead to improved firm performance and a higher likelihood of new airline routes being introduced due to an increased number of passengers or lobbying by VC investors. Thus, following Huang and Kang (2015), we address this problem by restricting the shock to new routes that do not involve the city in which a portfolio firm is headquartered.

Table 12 presents the results using several measures of intensity of ex ante contractual terms, the proportion of existing VC investors that participate in follow-on round syndication, and an exit indicator as the dependent variables. Our key independent variable of interest is *Reduction in Travel Time*, which is an indicator that equals one if the travel time between a VC city and other VC cities is reduced by more than a half hour in a round trip due to the introduction

of new direct airline routes in the period between consecutive investment years and zero otherwise. Using this difference-in-differences estimation, we find that the effects of VC investors' geographic dispersion on the use of staged financing and convertible securities, syndication dynamics, and exit outcome are consistent with those in Tables 3, 4, 5, and 8, suggesting that our main results are robust to controlling for potential endogeneity problems discussed above. In economic terms, the treatment decreases the number of financing rounds and the amount of convertible securities used in an investment by 1.2% and 4.4%, respectively, and increases the duration between the two financing rounds by 27.8%. The treatment also increases the proportion of existing VC investors who participate in follow-on round syndication and the probability of having a successful exit by 3.2% and 9.8% (marginal effect), respectively. Thus, our previous findings for the effects of VC investors' geographic dispersion on the choice of contractual features in VC investments and coordination outcomes are economically large and significant.

## **5.2. Treatment Effect: Robustness Checks**

### **5.2.1. Propensity Score Matching**

While the airline shock is arguably exogenous, observable VC investor-, firm-, and location-specific characteristics may still affect the probability of firms being treated. To further address this concern, we use a propensity score-matching approach. Specifically, we estimate the propensity scores using a probit model in which the dependent variable is an indicator that takes a value of one if a certain firm-financing round experiences a reduction in travel time due to the introduction of a new direct airline route. To calculate the propensity score, we use variables including the distance between the VC investors, VC investor-firm distance, the number of VC investors, firm age, and fixed effects relating to industry, year, first financing year, firm state,

and lead VC investor state. We then match the control group that does not experience the introduction of a new direct airline route based on the predicted probability of being treated. After propensity score matching, the difference in average propensity score between the treated and control groups decreases significantly from 30.0% to 5.2%.

The results using a propensity score-matching sample are reported in Panel A of Table 13. Consistent with the baseline results in Table 12, we find that the reduction in travel time increases the time interval between successive financing rounds (less-intensive staged financing), the proportion of existing VC investors that participate in follow-on round syndication, and the likelihood of having a successful exit and decreases the amount of convertible securities used in VC investment.

### **5.2.2. Excluding Treatment with Short Distances**

If VC investors are geographically proximate, airline shocks are less likely to have a significant effect on their coordination effort and monitoring incentives. Therefore, as a further robustness test, we exclude the airline shock with a short distance from the sample and use only a shock for VC investor pairs for which the average distance is greater than 200 km as the treatment.<sup>18</sup> The results reported in Panel B of Table 13 indicate that our treatment effects are robust to the exclusion of geographically proximate VC investors.

### **5.2.3. Lead versus Non-Lead VC Investors**

Since lead VC investors are more active than other VC investors in post-investment monitoring, their coordination and monitoring incentives and costs are more likely to be sensitive to a reduction in their travel time (Bernstein, Giroud, and Townsend (2015)). To examine

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<sup>18</sup> The results are robust to using different thresholds (60 miles and 150 miles) for average distance among investors.

whether our previous results differ for lead versus non-lead VC investors, we define two treatment indicators, *Lead VC Reduction in Travel Time*, which takes a value of one if any VC investor in the treated VC investor pair is a lead VC investor and zero otherwise, and *Non-Lead VC Reduction in Travel Time*, which takes the value of one if all VC investors in the treated VC investor pair are non-lead VC investors and zero otherwise. The results are reported in Panel C of Table 13. We find that treatments for both lead and non-lead VC investors have significant effects on the outcome variables considered in Table 12. However, the coefficients on *Lead VC Reduction in Travel Time* are larger in columns (2)-(4) than those on *Non-Lead VC Reduction in Travel Time*, suggesting that the underlying channel of our treatment effects is derived mainly from lead VC investors.

#### **5.2.4. Excluding Portfolio Firms in California**

Almost 37% of our sample firms and 82% of their lead VC investors are located in California. To alleviate the concern that our main results are driven by firms located in California, we exclude firms headquartered in California from the sample and reestimate the regressions in Table 13. The results are reported in Panel A of Table A.6. We find that our treatment effects remain unchanged. In untabulated results, we also reestimate all the regressions in Tables 3 through 11 after excluding firms located in California and find that the results do not change.

#### **5.2.5. Time-varying State Fixed Effects and Heterogeneity in Financing Rounds**

As further robustness checks, to control for any unobservable firm state- and year-specific heterogeneity such as state-specific business cycles and regulatory changes, we

reestimate the regressions in Table 13 after including portfolio firm state-year fixed effects. The results reported in Panel B of Table A.6 show that our main conclusions do not change.<sup>19</sup> It is also possible that contractual terms in VC investment and the motivation for syndication may differ across financing rounds. Thus, to control for the differences in VC investment dynamics across financing rounds, we examine our treatment effects by including financing round fixed effects in Table 13 regressions. We find that our inferences remain the same (Panel C of Table A.6).

## 6. Summary and Conclusion

This paper examines the impact of VC investors' geographic concentration on ex ante contractual features (i.e., investment terms and board participation) used in VC investment and firm performance. We hypothesize that geographic proximity between VC investors improves VC investors' monitoring efficiency through better information sharing and coordination and reduced free-rider problems. This coordination and monitoring effectiveness incentivizes geographically concentrated VC investors to rely less on costly ex ante contractual features than geographically dispersed VC investors and enhances portfolio firms' exit and IPO performance.

Consistent with our hypothesis, we find that compared to geographically concentrated VC investors, geographically dispersed VC investors use more intense staged financing and a larger amount of convertible securities in their investment and are more likely to send their representatives to portfolio firms' boards to overcome their weakness in coordination and

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<sup>19</sup> In untabulated tests, we include industry-financing year fixed effects to control for any unobservable time-varying industry-level characteristics. Our treatment effects are robust to controlling for industry-financing year fixed effects. We also examine the treatment effects after controlling for heterogeneous time trend effects from the first (entry) financing round characteristics by including the interaction terms between funding characteristics and financing year fixed effects. The results do not change. Finally, we reestimate all the regressions in Tables 3 through 11 after including firm state-year fixed effects (financing round fixed effects, industry-financing year fixed effects) and find that the results do not change.

monitoring. We further find that VC investors are more likely to take a board seat when they are distant from the other VC investors in a syndicate, suggesting heterogeneous incentives of board participation among VC investors with different locations.

Moreover, we find that portfolio firms with VC investors who are more geographically concentrated enjoy better coordination outcomes, as evidenced by successive syndication in a follow-on round, and are also more likely to successfully exit through IPOs or acquisitions. Using a sample of VC-backed IPO firms, we also find that portfolio firms with close geographic concentration among VC investors experience lower IPO underpricing and higher valuation around IPOs.

Overall, the results documented in this study provide new evidence of the role of geography in the selection of ex ante contractual features in VC investment, corporate governance, and portfolio firm performance.

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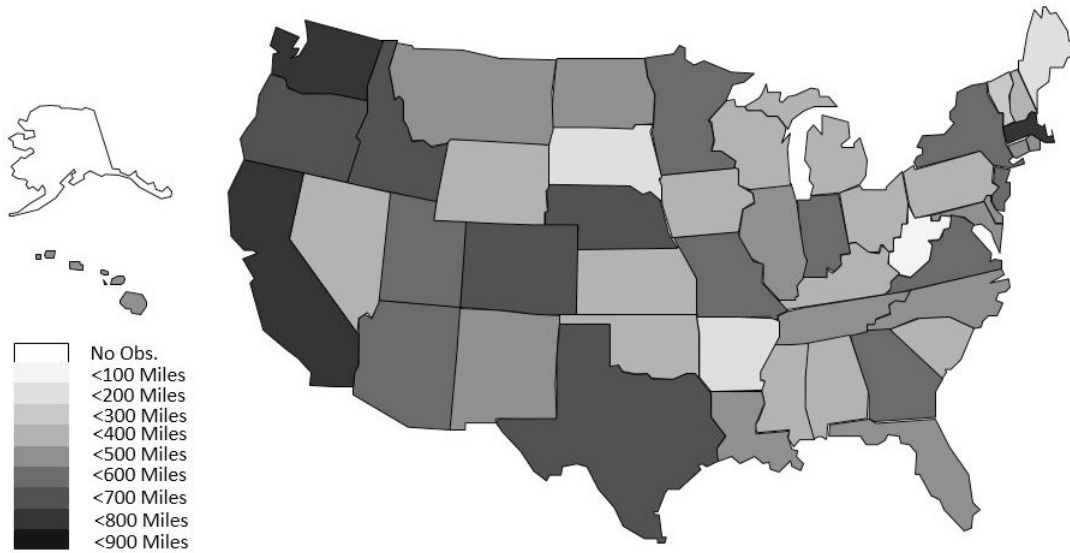
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### Figure 1: Geographic Distance of Venture Capital (VC) Investors across States

This figure shows the distribution of geographic distance among venture capital (VC) investors across states; darker states are those in which firms have more geographically dispersed VC investors.



**Table 1: Summary Statistics**

The table presents summary statistics for all entrepreneurial firms in the U.S. with venture capital (VC) investment for the period of 1995-2015. The sample consists of 51,917 start-up firm-financing round observations (15,485 unique firms). *Ew Distances* is the logarithm of the equally weighted physical distance (in kilometers) between all of a firm's VC-pairs. *Vw Distances (Equity)* is the logarithm of the investment amount-weighted physical distance between all of a firm's VC-pairs. *Vw Distances (Portfolio)* is the logarithm of the portfolio share-weighted physical distance between all of a firm's VC-pairs. *Lead Vw Distances (Equity)* is the logarithm of the investment amount-weighted physical distance between a lead VC investor and the other VC investors. *Lead Vw Distances (Portfolio)* is the logarithm of the portfolio share-weighted physical distance between a lead VC investor and the other VC investors. *Log (Number of States)* is the logarithm of the number of unique states in which VC funds are headquartered. The Appendix provides detailed variable descriptions.

Variable	Mean	Std. Dev.	Min.	Median	Max.	Obs.
<b>Distance characteristics</b>						
Ew Distances	4.54	3.36	0.00	6.22	8.58	51,917
Ew Distances to Other VCs	6.78	1.89	0.00	7.40	8.82	8,027
Firm-VC Distances	6.01	2.17	0.00	6.90	9.01	51,917
Lead Vw Distances (Equity)	4.39	3.38	0.00	5.96	8.70	51,917
Lead Vw Distances (Portfolio)	4.36	3.37	0.00	5.81	8.97	51,917
Number of States	2.17	1.39	1.00	2.00	13.00	51,917
Vw Distances (Equity)	4.49	3.35	0.00	6.13	8.65	51,917
Vw Distances (Equity) to Other VC	6.69	2.00	0.00	7.39	8.76	8,027
Vw Distances (Portfolio)	4.47	3.34	0.00	6.09	8.69	51,917
Vw Distances (Portfolio) to Other VC	6.62	1.99	0.00	7.28	8.77	8,027
<b>Airline shock characteristics</b>						
Large Reduction in Traveling Time (indicator)	0.03	0.17	0.00	0.00	1.00	51,917
Lead VC's Reduction in Travel Time (indicator)	0.06	0.23	0.00	0.00	1.00	51,917
Reduction in Traveling Time (indicator)	0.11	0.31	0.00	0.00	1.00	51,917
<b>VC financing characteristics</b>						
Early Stage (indicator)	0.30	0.46	0.00	0.00	1.00	51,917
Lead VC (indicator)	0.13	0.34	0.00	0.00	1.00	8,027
Number of Financing Rounds	6.33	3.85	1.00	6.00	24.00	51,917
Number of Investors at Round One	2.59	1.63	1.00	2.00	20.00	51,917
Log (1 + Convertible Amt.)	0.75	1.06	0.00	0.00	7.38	51,917
Log (1 + Duration between Two Financing Rounds)	2.71	1.09	0.00	2.61	5.55	47,589
Log (1 + Number of Financing Rounds)	1.03	0.75	0.00	1.10	3.18	51,917
Log (1 + Number of Investors at Round One)	2.59	1.63	1.00	2.00	20.00	51,917
Log (1 + Lead VC Investor Age)	2.60	0.79	0.00	2.70	5.04	51,917
Log (1 + Number of Firms in Lead VC Portfolio)	3.78	1.29	0.69	3.89	7.06	51,917
Log (1 + Number of VC Director)	0.10	0.26	0.00	0.00	1.61	8,027
Log (1 + Total Funding)	3.33	1.22	0.00	3.45	8.72	51,710
Log (1 + Total Funding at Round One)	3.33	1.22	0.00	3.45	8.72	51,710
Successive VC Syndication	0.22	0.20	0.00	0.18	1.00	37,665
Total Funding at Round One (\$ mil)	8.40	77.60	0.00	3.90	14795	51,917
VC Director (indicator)	0.13	0.34	0.00	0.00	1.00	8,027
<b>Firm characteristics</b>						
Being Acquired (indicator)	0.11	0.32	0.00	0.00	1.00	51,917
Board Size	7.24	1.99	0.00	7.00	20.00	626
Exit (indicator)	0.12	0.33	0.00	0.00	1.00	51,917
Going Public (indicator)	0.02	0.13	0.00	0.00	1.00	51,917
Log (Firm Age at Round One)	2.96	3.94	0.00	1.58	34.73	51,917
Percent of Independent Directors	0.80	0.12	0.00	0.83	1.00	625
Percent of VC Directors	0.21	0.17	0.00	0.18	0.78	625
<b>IPO characteristics</b>						
IPO Underpricing	0.33	0.41	-0.10	0.19	1.89	991
IPO Valuation	19.69	1.07	16.45	19.66	25.13	927
Log (1 + Proceed)	4.24	0.75	1.80	4.25	9.68	767
Log (1 + Lockup Days)	3.01	2.57	0.00	5.20	6.58	991

**Table 2: Distribution of Sample Firms by States and Venture Capital (VC) Investment Characteristics**

The table presents the distribution of sample start-up firms and venture capital (VC) investors' geographic distance and investment characteristics by firm state. The sample consists of 15,485 entrepreneurial firms in the U.S. with VC investment for the period of 1995-2015. The VC geographic distances and firm-VC distances are in miles. The Appendix provides detailed variable descriptions.

Firm State	Obs.	Ew Distances	Firm-VC Distances	Number of Rounds	Exit	Firm State	Obs.	Ew Distances	Firm-VC Distances	Number of Rounds	Exit
Alabama	55	264	737	2.78	0.30	Nebraska	26	405	912	2.88	0.38
Arizona	136	475	1,348	4.06	0.24	Nevada	32	286	1,231	3.91	0.16
Arkansas	9	108	623	2.78	0.19	New Hampshire	98	353	515	4.51	0.18
California	5,703	638	843	4.37	0.20	New Jersey	346	462	564	4.13	0.24
Colorado	423	513	889	4.32	0.21	New Mexico	40	447	674	4.20	0.14
Connecticut	256	332	535	4.20	0.21	New York	1,001	463	626	3.55	0.20
Delaware	18	484	528	4.17	0.15	North Carolina	303	403	589	4.41	0.21
Florida	314	397	1,036	3.51	0.23	North Dakota	6	273	942	3.33	0.39
Georgia	386	432	660	4.17	0.25	Ohio	210	271	450	3.71	0.15
Hawaii	11	500	3,290	3.00	0.18	Oklahoma	35	252	773	3.00	0.21
Idaho	25	582	1,142	2.60	0.28	Oregon	137	597	1,061	4.09	0.21
Illinois	364	385	674	3.59	0.23	Pennsylvania	556	297	377	3.87	0.19
Indiana	68	376	473	3.22	0.21	Rhode Island	40	262	331	3.73	0.16
Iowa	30	238	587	3.03	0.46	South Carolina	33	324	719	3.24	0.26
Kansas	59	255	528	3.58	0.22	South Dakota	7	187	383	1.71	0.29
Kentucky	47	252	433	3.62	0.26	Tennessee	134	355	559	3.75	0.20
Louisiana	31	343	393	3.48	0.25	Texas	922	521	877	4.09	0.20
Maine	28	143	288	2.46	0.30	Utah	144	542	888	3.81	0.19
Maryland	430	351	434	3.33	0.19	Vermont	20	168	456	4.30	0.14
Massachusetts	1,498	608	727	4.72	0.20	Virginia	428	433	614	3.76	0.21
Michigan	147	273	411	3.53	0.15	Washington	537	607	1,003	4.09	0.21
Minnesota	235	439	688	4.10	0.21	West Virginia	16	229	347	2.19	0.14
Mississippi	15	288	565	3.93	0.15	Wisconsin	78	253	451	3.78	0.22
Missouri	39	413	884	4.15	0.16	Wyoming	3	113	147	3.67	0.39
Montana	4	414	1,345	5.25	0.16	Total	15,485	367	746	3.67	0.22

**Table 3: Geographic Concentration of Venture Capital (VC) Investors and Number of Staged Financing**

The table reports the results of the OLS regressions of the number of staged financing for portfolio firms by venture capital (VC) investors on VC investors' geographic concentration. The sample consists of 46,992 start-up firm-financing round observations (13,213 unique firms) with VC investment for the period of 1995-2015. The dependent variable is the logarithm of one plus the total number of financing rounds that the entrepreneur firm receives from VC investors. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Independent Variable	Log (1 + Number of Financing Rounds)					
	(1)	(2)	(3)	(4)	(5)	(6)
Ew Distances	0.014*** (15.16)					
Vw Distances (Equity)		0.013*** (14.00)				
Vw Distances (Portfolio)			0.014*** (14.38)			
Lead Vw Distances (Equity)				0.011*** (11.01)		
Lead Vw Distances (Portfolio)					0.011*** (11.29)	
Log (Number of States)						0.029*** (3.87)
Firm-VC Distances	-0.011*** (-6.67)	-0.011*** (-6.87)	-0.011*** (-6.81)	-0.009*** (-5.84)	-0.009*** (-5.73)	-0.004*** (-2.69)
Log (1 + Total Funding)	0.276*** (36.29)	0.276*** (35.25)	0.276*** (35.51)	0.279*** (34.55)	0.279*** (34.75)	0.283*** (36.92)
Log (1 + Number of Investor at Round One)	0.055*** (6.90)	0.055*** (6.93)	0.055*** (6.93)	0.061*** (7.65)	0.061*** (7.66)	0.073*** (7.81)
Log (Firm Age at Round One)	0.013** (2.18)	0.013** (2.17)	0.013** (2.18)	0.012** (2.00)	0.012** (1.99)	0.010* (1.72)
Log (1 + Total Funding at Round One)	-0.247*** (-39.77)	-0.246*** (-39.01)	-0.246*** (-39.12)	-0.248*** (-39.57)	-0.249*** (-39.60)	-0.252*** (-40.83)
Early Stage (indicator)	-0.270*** (-28.77)	-0.270*** (-28.97)	-0.270*** (-28.91)	-0.271*** (-29.01)	-0.271*** (-28.99)	-0.271*** (-28.15)
Log (1 + Lead VC Investor Age)	0.010 (1.56)	0.010 (1.57)	0.010 (1.58)	0.010 (1.57)	0.010 (1.57)	0.009 (1.46)
Log (1 + Number of Firms in Lead VC Portfolio)	0.003 (0.98)	0.003 (0.95)	0.003 (0.97)	0.003 (0.93)	0.003 (0.95)	0.003 (1.05)
Industry Fixed Effects & Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,992	46,992	46,992	46,992	46,992	46,992
Adjusted R-squared	0.727	0.727	0.727	0.727	0.727	0.726

**Table 4: Geographic Concentration of Venture Capital (VC) Investors and Duration of Financing Rounds**

The table reports the results from the OLS regressions of the duration (investment interval) of each staged financing for portfolio firms by venture capital (VC) investors on VC investors' geographic concentration. The sample consists of 43,111 start-up firm-financing round observations (13,667 unique firms) with VC investment for the period of 1995-2015. The dependent variable is the logarithm of the duration in months between the current and the next financing (exit time if there is no additional financing) rounds. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Independent Variable	Log (1 + Duration between Two Financing Rounds)					
	(1)	(2)	(3)	(4)	(5)	(6)
Ew Distances	-0.018*** (-7.10)					
Vw Distances (Equity)		-0.019*** (-6.46)				
Vw Distances (Portfolio)			-0.019*** (-6.87)			
Lead Vw Distances (Equity)				-0.016*** (-6.14)		
Lead Vw Distances (Portfolio)					-0.016*** (-6.74)	
Log (Number of States)						-0.088*** (-4.16)
Firm-VC Distances	0.020*** (8.28)	0.021*** (8.60)	0.020*** (8.53)	0.019*** (7.86)	0.018*** (7.74)	0.015*** (7.15)
Log (1 + Total Funding)	-0.015* (-1.73)	-0.014 (-1.65)	-0.015* (-1.67)	-0.018** (-2.02)	-0.018** (-2.05)	-0.013 (-1.47)
Log (1 + Number of Investor at Round One)	-0.077*** (-4.44)	-0.076*** (-4.57)	-0.077*** (-4.49)	-0.082*** (-4.73)	-0.083*** (-4.63)	-0.082*** (-5.45)
Log (Firm Age at Round One)	0.124*** (11.91)	0.123*** (11.90)	0.124*** (11.93)	0.124*** (11.91)	0.125*** (11.93)	0.126*** (11.79)
Log (1 + Total Funding at Round One)	0.046*** (4.07)	0.046*** (3.94)	0.046*** (4.01)	0.048*** (4.20)	0.048*** (4.27)	0.045*** (3.64)
Early Stage (indicator)	-0.035** (-2.24)	-0.034** (-2.21)	-0.034** (-2.20)	-0.034** (-2.17)	-0.033** (-2.16)	-0.033** (-2.15)
Log (1 + Lead VC Investor Age)	-0.006 (-0.72)	-0.007 (-0.75)	-0.007 (-0.75)	-0.007 (-0.77)	-0.007 (-0.77)	-0.007 (-0.75)
Log (1 + Number of Firms in Lead VC Portfolio)	-0.034*** (-6.48)	-0.034*** (-6.46)	-0.034*** (-6.47)	-0.034*** (-6.39)	-0.034*** (-6.39)	-0.034*** (-6.48)
Industry Fixed Effects & Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	43,111	43,111	43,111	43,111	43,111	43,111
Adjusted <i>R</i> -squared	0.063	0.064	0.064	0.063	0.063	0.063



**Table 5: Geographic Concentration of Venture Capital (VC) Investors and Use of Convertible Securities**

The table reports the results from the OLS regressions of the amount of convertible equity used by venture capital (VC) investors in VC firm funding. The sample consists of 46,997 start-up firm-financing round observations (13,213 unique firms) with VC investment for the period of 1995-2015. The dependent variable is the logarithm of one plus the amount of convertible equity used in each financing round. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*\*\*, \*\*, and\* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Independent Variable	Log (1 + Convertible Amt.)					
	(1)	(2)	(3)	(4)	(5)	(6)
Ew Distances	0.036*** (15.75)					
Vw Distances (Equity)		0.037*** (15.57)				
Vw Distances (Portfolio)			0.037*** (16.06)			
Lead Vw Distances (Equity)				0.034*** (15.64)		
Lead Vw Distances (Portfolio)					0.034*** (16.56)	
Log (Number of States)						0.199*** (10.52)
Firm-VC Distances	-0.008** (-2.20)	-0.009** (-2.45)	-0.009** (-2.29)	-0.006* (-1.69)	-0.006 (-1.54)	-0.002 (-0.55)
Log (1 + Total Funding)	0.565*** (25.73)	0.564*** (25.56)	0.564*** (25.56)	0.567*** (25.68)	0.568*** (25.65)	0.553*** (24.16)
Log (1 + Number of Financing Rounds)	-0.480*** (-15.59)	-0.481*** (-15.79)	-0.481*** (-15.70)	-0.478*** (-15.77)	-0.477*** (-15.66)	-0.469*** (-15.15)
Log (1 + Number of Investor at Round One)	0.093*** (5.41)	0.091*** (5.39)	0.093*** (5.45)	0.099*** (5.51)	0.101*** (5.55)	0.093*** (6.28)
Log (Firm Age at Round One)	-0.048*** (-5.32)	-0.047*** (-5.25)	-0.048*** (-5.23)	-0.049*** (-5.42)	-0.049*** (-5.46)	-0.051*** (-5.82)
Log (1 + Total Funding at Round One)	-0.269*** (-17.73)	-0.267*** (-17.90)	-0.268*** (-17.82)	-0.269*** (-17.78)	-0.270*** (-17.78)	-0.260*** (-20.15)
Early Stage (indicator)	0.010 (0.23)	0.008 (0.20)	0.008 (0.20)	0.008 (0.19)	0.008 (0.18)	0.010 (0.22)
Log (1 + Lead VC Investor Age)	-0.008 (-1.25)	-0.007 (-1.17)	-0.007 (-1.18)	-0.007 (-1.13)	-0.007 (-1.13)	-0.007 (-1.20)
Log (1 + Number of Firms in Lead VC Portfolio)	0.059*** (12.15)	0.058*** (12.10)	0.059*** (12.08)	0.058*** (12.09)	0.058*** (12.06)	0.058*** (12.27)
Industry Fixed Effects & Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,997	46,997	46,997	46,997	46,997	46,997
Adjusted R-squared	0.265	0.265	0.265	0.265	0.264	0.264

**Table 6: Geographic Concentration of Venture Capital (VC) Investors and the Proportion of Directors Who Are Representatives of VC Investors on the Board: Firm-level Analyses**

The table reports the results from the OLS regressions of the proportion of directors who are affiliated with VC investors (*VC Directors*) on start-up-firm boards. The sample consists of 825 going-public start-up firms in the U.S. with VC investment for the period of 1995-2015. The dependent variable is the ratio of the number of *VC directors* to the total number of directors on the board in the IPO year. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Independent Variable	Percent of VC Directors					
	(1)	(2)	(3)	(4)	(5)	(6)
Ew Distances	0.010*** (4.60)					
Vw Distances (Equity)		0.011*** (4.43)				
Vw Distances (Portfolio)			0.010*** (4.48)			
Lead Vw Distances (Equity)				0.011*** (4.24)		
Lead Vw Distances (Portfolio)					0.012*** (4.46)	
Log (Number of States)						0.044*** (2.98)
Firm-VC Distances	-0.005 (-1.20)	-0.005 (-1.29)	-0.005 (-1.20)	-0.006 (-1.53)	-0.006 (-1.64)	-0.003 (-0.58)
Log (1 + Total Funding)	0.005 (0.95)	0.004 (0.92)	0.005 (0.98)	0.004 (0.90)	0.004 (0.88)	0.002 (0.29)
Log (1 + Number of Financing Rounds)	0.035** (2.49)	0.035** (2.51)	0.035** (2.55)	0.034** (2.47)	0.034** (2.47)	0.037** (2.27)
Log (1+Number of Investor at Round One)	0.038*** (2.74)	0.037*** (2.70)	0.038*** (2.70)	0.036** (2.62)	0.035** (2.49)	0.036*** (3.23)
Log (Firm Age at Round One)	-0.013 (-1.28)	-0.013 (-1.28)	-0.013 (-1.25)	-0.013 (-1.30)	-0.013 (-1.28)	-0.014 (-1.44)
Log (1 + Total Funding at Round One)	-0.013* (-1.87)	-0.013* (-1.86)	-0.013* (-1.92)	-0.012* (-1.84)	-0.012* (-1.79)	-0.010 (-1.43)
Early Stage (indicator)	-0.012 (-1.27)	-0.012 (-1.26)	-0.012 (-1.25)	-0.012 (-1.29)	-0.012 (-1.24)	-0.012 (-1.40)
Log (1 + Lead VC Investor Age)	-0.007 (-0.73)	-0.007 (-0.72)	-0.007 (-0.74)	-0.007 (-0.72)	-0.007 (-0.73)	-0.007 (-0.75)
Log (1 + Number of Firms in Lead VC Portfolio)	0.013** (2.09)	0.013** (2.06)	0.013** (2.06)	0.013** (2.06)	0.012** (2.05)	0.013** (2.36)
Industry Fixed Effects & Exit Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	823	823	823	823	823	823
Adjusted R-squared	0.169	0.169	0.168	0.171	0.172	0.165

**Table 7: Geographic Concentration of Venture Capital (VC) Investors and Their Board Participation: VC Investor-level Analyses**

Columns (1) - (3) of the table report the results from logit regression of the likelihood of having representatives who are affiliated with venture capital (VC) investors (*VC Directors*) on start-up-firm boards. Columns (4) - (6) of the table report results from OLS regressions of the number of *VC Directors* on start-up-firm boards. The sample consists of 1,183 directors in start-up IPO firms with VC investment in the U.S. for the period of 1995-2015. In columns (1) - (3), the dependent variable is an indicator that equals to one if a specific-VC fund takes any board seat in portfolio company in the IPO timing and zero otherwise. In columns (4) - (6), the dependent variable is the logarithm of one plus the number of board seats that *VC Directors* have in a firm in the IPO year. All distance measures and control variables are constructed using all previous financing rounds' characteristics. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for firm clustering. \*\*\*, \*\*, and\* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Independent Variable	VC Director (indicator)			Log (1 + Number of VC Directors)		
	(1)	(2)	(3)	(4)	(5)	(6)
Ew Distances to other VC	0.028*			0.003		
	(1.78)			(1.07)		
Vw Distances (Equity) to other VC		0.037**			0.004*	
		(2.51)			(1.83)	
Vw Distances (Portfolio) to other VC			0.036**			0.004*
			(2.51)			(1.82)
Firm-VC Distances	-0.048**	-0.055**	-0.054**	-0.006	-0.008**	-0.007*
	(-1.99)	(-2.36)	(-2.31)	(-1.62)	(-1.97)	(-1.93)
Lead VC (indicator)	0.365***	0.371***	0.371***	0.062***	0.063***	0.063***
	(8.21)	(8.34)	(8.34)	(7.58)	(7.69)	(7.69)
Log (1 + Total Funding)	-0.081**	-0.085**	-0.084**	-0.012**	-0.012**	-0.012**
	(-2.31)	(-2.40)	(-2.39)	(-2.24)	(-2.32)	(-2.32)
Log (1 + Number of Financing Rounds)	-0.086	-0.088	-0.088	-0.014	-0.014	-0.014
	(-1.45)	(-1.50)	(-1.51)	(-1.49)	(-1.57)	(-1.57)
Log (1 + Number of Investor at Round One)	-0.028	-0.036	-0.035	-0.005	-0.007	-0.006
	(-0.49)	(-0.63)	(-0.60)	(-0.66)	(-0.81)	(-0.79)
Log (Firm Age at Round One)	-0.083**	-0.083**	-0.082**	-0.017***	-0.016***	-0.016***
	(-2.21)	(-2.21)	(-2.18)	(-2.88)	(-2.87)	(-2.84)
Log (1 + Total Funding at Round One)	0.012	0.017	0.015	0.003	0.003	0.003
	(0.38)	(0.53)	(0.49)	(0.53)	(0.65)	(0.62)
Early Stage (indicator)	0.030	0.029	0.031	0.000	0.000	0.000
	(0.51)	(0.50)	(0.53)	(0.05)	(0.02)	(0.04)
Log (1 + Lead VC Investor Age)	-0.027	-0.027	-0.027	-0.005	-0.005	-0.005
	(-0.96)	(-0.95)	(-0.97)	(-1.20)	(-1.20)	(-1.22)
Log (1 + Number of Firms in Lead VC Portfolio)	-0.005	-0.007	-0.006	0.001	0.001	0.001
	(-0.20)	(-0.27)	(-0.25)	(0.33)	(0.27)	(0.30)
Industry Fixed Effects & Exit Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,708	7,708	7,708	7,999	7,999	7,999
Pseudo R-squared	0.088	0.089	0.089			
Adjusted R-squared				0.052	0.053	0.053

**Table 8: Geographic Concentration of Venture Capital (VC) Investors and Successive VC Syndication**

The table reports results from OLS regressions of the proportion of VC investors who participated in follow-on round syndication. The sample consists of 34,951 start-up firm-financing round observations (8,266 unique firms) with VC investment for the period of 1995-2015. The dependent variable is the ratio of the number of existing VC investors that participate in both the previous and follow-on round syndication divided to the total number of existing VC investors in the previous syndication. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Independent Variable	Successive VC Syndication					
	(1)	(2)	(3)	(4)	(5)	(6)
Ew Distances	-0.013*** (-10.71)					
Vw Distances (Equity)		-0.013*** (-11.19)				
Vw Distances (Portfolio)			-0.013*** (-10.48)			
Lead Vw Distances (Equity)				-0.010*** (-10.66)		
Lead Vw Distances (Portfolio)					-0.010*** (-10.66)	
Log (Number of States)						-0.042*** (-8.47)
Firm-VC Distances	0.007*** (5.73)	0.007*** (5.44)	0.007*** (5.57)	0.005*** (3.49)	0.005*** (3.79)	0.001 (0.85)
Log (1 + Total Funding)	-0.007*** (-2.90)	-0.007*** (-2.99)	-0.007*** (-3.05)	-0.009*** (-3.76)	-0.009*** (-3.78)	-0.006** (-2.58)
Log (1 + Number of Financing Rounds)	0.012 (1.56)	0.011 (1.51)	0.012 (1.57)	0.011 (1.42)	0.011 (1.44)	0.013* (1.74)
Log (1 + Number of Investor at Round One)	-0.029*** (-9.05)	-0.029*** (-9.09)	-0.030*** (-9.10)	-0.032*** (-9.89)	-0.032*** (-9.81)	-0.031*** (-9.18)
Log (Firm Age at Round One)	-0.002 (-0.63)	-0.003 (-0.64)	-0.003 (-0.65)	-0.002 (-0.51)	-0.002 (-0.49)	-0.002 (-0.41)
Log (1 + Total Funding at Round One)	0.008*** (2.75)	0.008*** (2.77)	0.008*** (2.86)	0.009*** (3.19)	0.009*** (3.19)	0.008*** (2.92)
Early Stage (indicator)	0.009*** (3.24)	0.009*** (3.27)	0.009*** (3.19)	0.009*** (2.98)	0.009*** (2.97)	0.007** (2.23)
Log (1 + Lead VC Investor Age)	0.001 (0.56)	0.001 (0.48)	0.001 (0.48)	0.001 (0.47)	0.001 (0.45)	0.002 (0.80)
Log (1 + Number of Firms in Lead VC Portfolio)	0.000 (0.36)	0.001 (0.48)	0.000 (0.40)	0.001 (0.61)	0.001 (0.55)	0.000 (0.42)
Industry Fixed Effects & Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	34,951	34,951	34,951	34,951	34,951	34,951
Adjusted R-squared	0.150	0.149	0.149	0.145	0.146	0.140

**Table 9: Geographic Concentration of Venture Capital (VC) Investors and the Likelihood of Going Public and Being Acquired**

The table reports the results from logit regressions of the likelihood of start-up firms' going public or being acquired. The sample 46,553 start-up firm-financing round observations (13,213 unique firms) with VC investment for the period of 1995-2015. The dependent variable is an indicator that takes a value of one if the firm goes public or is acquired during the financing round and zero otherwise. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*, \*\*, and \*\*\* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Independent Variable	Exit (indicator)					
	(1)	(2)	(3)	(4)	(5)	(6)
Ew Distances	-0.014*** (-3.61)					
Vw Distances (Equity)		-0.014*** (-3.70)				
Vw Distances (Portfolio)			-0.015*** (-3.69)			
Lead Vw Distances (Equity)				-0.013*** (-3.43)		
Lead Vw Distances (Portfolio)					-0.013*** (-3.48)	
Log (Number of States)						-0.061*** (-3.01)
Firm-VC Distances	0.014*** (2.76)	0.014*** (2.72)	0.014*** (2.70)	0.013*** (2.66)	0.013*** (2.66)	0.010** (2.18)
Log (1 + Total Funding)	0.062*** (3.96)	0.062*** (3.99)	0.062*** (3.98)	0.061*** (3.94)	0.061*** (3.96)	0.063*** (3.81)
Log (1 + Number of Financing Rounds)	-0.042*** (-2.72)	-0.042*** (-2.74)	-0.041*** (-2.73)	-0.043*** (-2.80)	-0.043*** (-2.78)	-0.046*** (-2.89)
Log (1 + Number of Investor at Round One)	-0.069** (-2.38)	-0.069** (-2.39)	-0.069** (-2.41)	-0.072** (-2.42)	-0.072** (-2.42)	-0.075** (-2.53)
Log (Firm Age at Round One)	0.064*** (5.10)	0.064*** (5.11)	0.064*** (5.10)	0.065*** (5.16)	0.065*** (5.17)	0.066*** (5.35)
Log (1 + Total Funding at Round One)	0.092*** (9.90)	0.092*** (9.86)	0.092*** (9.91)	0.093*** (9.92)	0.093*** (9.99)	0.092*** (9.66)
Early Stage (indicator)	-0.259*** (-7.18)	-0.258*** (-7.18)	-0.258*** (-7.17)	-0.258*** (-7.17)	-0.258*** (-7.16)	-0.258*** (-7.11)
Log (1 + Lead VC Investor Age)	0.049*** (5.99)	0.049*** (6.02)	0.049*** (6.00)	0.049*** (6.03)	0.049*** (6.03)	0.048*** (5.99)
Log (1+Number of Firm in Lead VC portfolio)	-0.043*** (-2.70)	-0.043*** (-2.70)	-0.043*** (-2.70)	-0.043*** (-2.68)	-0.043*** (-2.69)	-0.043*** (-2.70)
Industry Fixed Effects & Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,553	46,553	46,553	46,553	46,553	46,553
Pseudo R-squared	0.060	0.060	0.060	0.060	0.060	0.060

**Table 10: Geographic Concentration of Venture Capital (VC) Investors and IPO Underpricing**

The table reports the results from OLS regressions of the first-day IPO return. The sample consists of 992 IPO firms with VC investments for the period of 1995-2015. The dependent variable is the percentage return on the first trading day (first-day closing price / IPO offer price). All distance measures and control variables are constructed using all previous financing rounds' characteristics. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*, \*\*, and \*\*\* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Independent Variable	IPO Underpricing					
	(1)	(2)	(3)	(4)	(5)	(6)
Ew Distances	0.013** (2.34)					
Vw Distances (Equity)		0.013** (2.30)				
Vw Distances (Portfolio)			0.013** (2.22)			
Lead Vw Distances (Equity)				0.013** (2.43)		
Lead Vw Distances (Portfolio)					0.014** (2.52)	
Log (Number of States)						0.007 (0.24)
Firm-VC Distances	-0.003 (-0.23)	-0.002 (-0.22)	-0.002 (-0.20)	-0.003 (-0.27)	-0.003 (-0.30)	0.006 (0.54)
Log (1 + Total Funding)	0.043** (2.19)	0.043** (2.20)	0.044** (2.21)	0.043** (2.19)	0.043** (2.18)	0.047** (2.34)
Log (1 + Number of Financing Rounds)	-0.032 (-1.05)	-0.032 (-1.03)	-0.032 (-1.02)	-0.033 (-1.05)	-0.033 (-1.07)	-0.020 (-0.64)
Log (1 + Number of Investor at Round One)	-0.007 (-0.20)	-0.007 (-0.20)	-0.007 (-0.19)	-0.008 (-0.23)	-0.009 (-0.25)	0.008 (0.22)
Log (Firm Age at Round One)	0.000 (0.01)	0.000 (0.01)	0.000 (0.02)	0.000 (0.01)	0.001 (0.03)	-0.003 (-0.16)
Log (1 + Total Funding at Round One)	-0.035** (-2.01)	-0.035** (-2.01)	-0.035** (-2.02)	-0.035** (-2.00)	-0.035** (-1.99)	-0.037** (-2.10)
Early Stage (indicator)	0.016 (0.49)	0.016 (0.49)	0.017 (0.51)	0.016 (0.48)	0.016 (0.48)	0.023 (0.69)
Log (1 + Lead VC Investor Age)	-0.035* (-1.95)	-0.034* (-1.95)	-0.035* (-1.95)	-0.034* (-1.94)	-0.035* (-1.95)	-0.034* (-1.91)
Log (1 + Number of Firms in Lead VC portfolio)	0.008 (0.54)	0.007 (0.53)	0.007 (0.53)	0.008 (0.55)	0.008 (0.56)	0.008 (0.55)
Industry Fixed Effects & Exit Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	922	922	922	922	922	922
Adjusted R-squared	0.232	0.232	0.232	0.232	0.233	0.228

**Table 11: Geographic Concentration of Venture Capital (VC) Investors and IPO Valuation (Multiples)**

The table reports the results from OLS regressions of IPO valuation. The sample consists of 277 IPO firms with VC investments for the period of 1995-2015. The dependent variable is the ratio of the market capitalization on the first trading date (stock price on the first trading date multiplied by the total number of shares outstanding) to sales one year prior to the IPO. All distance measures and control variables are constructed using all previous financing rounds' characteristics. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*, \*\*, and \*\*\* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Independent Variable	IPO Valuation					
	(1)	(2)	(3)	(4)	(5)	(6)
Ew Distances	-2.560*					
	(-2.06)					
Vw Distances (Equity)		-2.728*				
		(-2.00)				
Vw Distances (Portfolio)			-2.830**			
			(-2.09)			
Lead Vw Distances (Equity)				-2.866*		
				(-1.94)		
Lead Vw Distances (Portfolio)					-2.905*	
					(-1.96)	
Log (Number of States)						-10.763
						(-1.23)
Log (1 + Proceed)	5.795**	5.764**	5.806**	5.778**	5.900**	6.734***
	(2.63)	(2.60)	(2.65)	(2.62)	(2.72)	(3.04)
Log (1 + LockupDays)	-4.306**	-4.336**	-4.328**	-4.321**	-4.326**	-4.281**
	(-2.35)	(-2.35)	(-2.35)	(-2.32)	(-2.35)	(-2.21)
Firm-VC Distances	1.076	1.205	1.287	1.342	1.395	0.784
	(0.61)	(0.67)	(0.70)	(0.74)	(0.78)	(0.60)
Log (1 + Total Funding)	-1.391	-1.274	-1.317	-1.278	-1.272	-0.097
	(-0.81)	(-0.75)	(-0.77)	(-0.73)	(-0.73)	(-0.04)
Log (1 + Number of Financing Rounds)	9.414	9.403	9.570	9.506	9.435	8.500
	(1.36)	(1.34)	(1.37)	(1.32)	(1.30)	(1.15)
Log (1 + Number of Investor at Round One)	18.670*	18.860*	18.901*	19.038*	19.139*	19.634*
	(2.04)	(2.06)	(2.06)	(2.03)	(2.02)	(1.87)
Log (Firm Age at Round One)	1.710	1.620	1.605	1.570	1.483	2.486
	(0.52)	(0.50)	(0.49)	(0.49)	(0.46)	(0.63)
Log (1 + Total Funding at Round One)	-1.816	-1.787	-1.752	-1.749	-1.802	-3.156
	(-0.88)	(-0.88)	(-0.87)	(-0.85)	(-0.86)	(-1.05)
Early Stage (indicator)	1.984	2.180	2.166	2.342	2.117	2.168
	(0.45)	(0.48)	(0.48)	(0.53)	(0.49)	(0.48)
Log (1 + Lead VC Investor Age)	-4.716***	-4.659***	-4.537***	-4.560***	-4.503***	-4.705***
	(-3.00)	(-2.99)	(-2.97)	(-3.01)	(-2.99)	(-2.85)
Log (1+Number of Firm in Lead VC portfolio)	1.616	1.551	1.639	1.456	1.500	1.418
	(0.49)	(0.47)	(0.50)	(0.45)	(0.46)	(0.47)
Industry Fixed Effects & Exit Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	277	277	277	277	277	277
Adjusted R-squared	0.220	0.222	0.223	0.224	0.224	0.217

**Table 12: Endogeneity of the Geographic Concentration of Venture Capital (VC) Investors: Tests Using the Introduction of New Direct Airline Routes as a Natural Experiment**

The table reports the results from OLS and logit regressions of venture capital (VC) investors' financing terms and VC firms' exit performance using the introduction of new direct airline routes that reduce the travel time between VC investors as an exogenous shock to geographic distance. The sample consists of 46,997 start-up firm-financing round observations (13,213 unique firms) with VC investment for the period of 1995-2015. In columns (1) - (3), the dependent variables are the logarithm of one plus the total number of financing rounds that the entrepreneur firm receives from VC investors, the logarithm of the duration in months between the current and the next financing (exit time if there is no additional financing) rounds, and the logarithm of one plus the amount of convertible equity used in each financing round, respectively. In column (4), the dependent variable is the proportion of the total number of existing VC investors who participated in follow-on round syndication. In column (5), the dependent variable is an indicator that takes a value of one if the firm goes public via an IPO or is acquired during the sample period and zero otherwise. *Reduction in Travel Time* is an indicator that takes a value of one if VC investors experience a reduction in travel time between the current and the next financing round. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*\*\*, \*\*, and\* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Independent Variable	Log (1 + Number of Financing Rounds)	Log (1+ Duration between Two Financing Rounds)	Log (1 + Convertible Amt.)	Successive VC Syndication	Exit
	(1)	(2)	(3)	(4)	(5)
Reduction in Travel Time	-0.012* (-1.81)	0.278*** (19.48)	-0.044** (-2.52)	0.007*** (4.20)	0.496*** (19.85)
Firm-VC Distances	-0.002 (-1.59)	0.004 (1.49)	0.017*** (8.62)	-0.004*** (-3.24)	-0.004 (-0.93)
Log (1 + Total Funding)	0.290*** (93.77)	-0.046*** (-5.31)	0.598*** (64.55)	-0.016*** (-5.75)	0.018 (1.33)
Log (1 + Number of Investor at Round One)	0.085*** (15.59)	-0.139*** (-5.91)	0.174*** (13.46)	-0.045*** (-10.77)	-0.158*** (-4.31)
Log (Firm Age at Round One)	0.010*** (3.16)	0.126*** (11.43)	-0.057*** (-8.41)	-0.001 (-0.23)	0.068*** (5.46)
Log (1 + Total Funding at Round One)	-0.258*** (-77.36)	0.069*** (7.18)	-0.294*** (-30.95)	0.013*** (5.03)	0.130*** (10.18)
Early Stage (indicator)	-0.271*** (-52.84)	-0.039** (-2.55)	0.012 (1.08)	0.006* (1.89)	-0.269*** (-7.65)
Log (1 + Lead VC Investor Age)	0.008*** (2.70)	-0.003 (-0.32)	-0.012 (-1.64)	0.003 (1.32)	0.018** (2.31)
Log (1 + Number of Firms in Lead VC Portfolio)	0.004* (1.68)	-0.036*** (-6.91)	0.060*** (12.13)	0.000 (0.12)	-0.031** (-2.08)
Log (1 + Number of Financing Rounds)			-0.464*** (-42.16)	0.011 (1.57)	-0.051*** (-3.17)
Industry Fixed Effects & Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	46,997	43,111	46,997	34,951	46,553
Adjusted R-squared	0.726	0.068	0.259	0.133	
Pseudo R-squared					0.071



**Table 13: Endogeneity of the Geographic Concentration of Venture Capital (VC) Investors: Additional Tests**

The table reports the results from OLS and logit regressions of venture capital (VC) investors' financing terms and VC firms' exit performance using the introduction of new direct airline routes that reduce the travel time between VC investors (*airline shock*) as an exogenous shock to geographic distance. In Panel A, the sample consists of 8,001 start-up firm-financing round observations (2,593 firms that experience the introduction of new direct airline routes that reduce the travel time and 2,763 firms that do not experience such an introduction) for the period of 1995-2015. In Panels B and C, the sample consists of 46,997 start-up firm-financing round observations (13,213 unique firms) with VC investment for the period of 1995-2015. The dependent variables are identical to those in Table 12. In panel A, *Reduction in Travel Time* is an indicator that takes a value of one if VC investors experience a reduction in travel time between the current and the next financing round. In Panel B, we treat *airline shock* with a distance reduction due to the introduction of a new direct airline route less than 200 km as no shock (i.e., zero value for *Reduction in Travelling Time*). In Panel C, we separate *Reduction in Travelling Time* into two indicators: *Lead VC Reduction in Travel Time* is an indicator that takes a value of one if the treatment is associated with a travel time reduction for lead VC investors and zero otherwise, and *Non-Lead VC Reduction in Travel Time* is an indicator that takes a value of one if the treatment is associated with a travel time reduction for non-lead VC investors and zero otherwise. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Using Propensity Score Matching Sample

Independent Variable	Log (1 + Number of Financing Rounds)	Log (1 + Duration between Two Financing Rounds)	Log (1 + Convertible Amt.)	Successive VC Syndication	Exit (indicator)
	(1)	(2)	(3)	(4)	(5)
Reduction in Travel Time	0.008 (1.63)	0.359*** (19.12)	-0.163*** (-7.83)	0.025*** (6.64)	1.823*** (20.07)
Firm and Lead VC controls	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects & Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	8,001	4,983	8,001	7,806	7,722
Adjusted R-squared	0.621	0.083	0.214	0.149	
Pseudo R-squared					0.193

Panel B. Treating *Airline Shock* with a Distance Reduction due to an Introduction of a New Direct Airline Route Less Than 200 km as No shock

Independent Variable	Log (1 + Number of Financing Rounds)	Log (1 + Duration between Two Financing Rounds)	Log (1 + Convertible Amt.)	Successive VC Syndication	Exit (indicator)
	(1)	(2)	(3)	(4)	(5)
Reduction in Travel Time	-0.014** (-2.22)	0.285*** (19.04)	-0.044** (-2.48)	0.007*** (3.87)	0.492*** (18.58)
Firm and Lead VC controls	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects & Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	46,997	43,111	46,997	34,951	46,553
Adjusted R-squared	0.726	0.068	0.259	0.133	
Pseudo R-squared					0.070

Panel C. Decomposing *Reduction in Travelling Time* into *Lead VC Reduction in Travel Time* and *Non-Lead VC Reduction in Travel Time*

Independent Variable	Log (1 + Number of Financing Rounds)	Log (1 + Duration between Two Financing Rounds)	Log (1 + Convertible Amt.)	Successive VC Syndication	Exit (indicator)
	(1)	(2)	(3)	(4)	(5)
Lead VC Reduction in Travel Time	-0.000 (-0.04)	0.332*** (20.41)	-0.068*** (-3.11)	0.008*** (3.67)	0.546*** (19.69)
Non-Lead VC Reduction in Travel Time	-0.033*** (-3.69)	0.207*** (7.21)	-0.018 (-0.70)	0.006 (2.09)	0.426*** (12.54)
Firm and Lead VC controls	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects & Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	43,613	43,111	43,613	34,951	43,162
Adjusted R-squared	0.728	0.068	0.269	0.133	
Pseudo R-squared					0.074

**Table A.1: Geographic Concentration of Venture Capital (VC) Investors and the Proportion of Independent Directors on the Board: Firm-level Analysis**

The table reports the results from OLS regressions of the proportion of independent directors on start-up-firm boards. The sample consists of 823 going-public start-up firms in the U.S. with VC investment for the period of 1995-2015. The dependent variable is the ratio of the number of independent directors to the total number of directors on the board in the IPO year. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Independent Variable	Percent of Independent Directors					
	(1)	(2)	(3)	(4)	(5)	(6)
Ew Distances	0.006** (2.47)					
Vw Distances (Equity)		0.006** (2.51)				
Vw Distances (Portfolio)			0.006** (2.57)			
Lead Vw Distances (Equity)				0.006** (2.60)		
Lead Vw Distances (Portfolio)					0.006** (2.63)	
Log (Number of States)						0.024** (2.48)
Firm-VC Distances	-0.001 (-0.10)	-0.001 (-0.10)	-0.001 (-0.13)	-0.001 (-0.12)	-0.001 (-0.14)	0.000 (0.07)
Log (1+Total Funding)	0.004 (0.51)	0.004 (0.51)	0.004 (0.50)	0.004 (0.52)	0.004 (0.51)	0.002 (0.27)
Log (1+ Number of Rounds)	0.024*** (2.90)	0.025*** (2.93)	0.024*** (2.88)	0.024*** (2.89)	0.024*** (2.87)	0.025*** (3.19)
Log (1+Number of Investor at round one)	-0.002 (-0.30)	-0.003 (-0.32)	-0.003 (-0.34)	-0.003 (-0.37)	-0.003 (-0.41)	-0.003 (-0.40)
Log (Firm Age at Round One)	-0.014** (-2.33)	-0.014** (-2.34)	-0.014** (-2.32)	-0.014** (-2.35)	-0.014** (-2.36)	-0.014** (-2.59)
Log (1+Total Funding at Round One)	0.006 (1.01)	0.006 (1.01)	0.006 (0.99)	0.006 (1.03)	0.006 (1.04)	0.007 (1.30)
Early Stage (indicator)	-0.013 (-1.07)	-0.013 (-1.06)	-0.013 (-1.06)	-0.013 (-1.07)	-0.013 (-1.06)	-0.013 (-1.10)
Log (1+Lead VC Investor Age)	0.005 (0.56)	0.005 (0.57)	0.005 (0.56)	0.005 (0.57)	0.005 (0.57)	0.005 (0.56)
Log (1+Number of Firms in Lead VC portfolio)	0.004 (1.03)	0.004 (1.02)	0.004 (1.00)	0.004 (1.04)	0.004 (1.03)	0.004 (1.15)
Industry Fixed Effects & Exit Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	823	823	823	823	823	823
Adjusted R-squared	0.137	0.137	0.138	0.137	0.138	0.135

**Table A.2: Geographic Concentration of Venture Capital (VC) Investors and the Proportion of Directors Who Are Representatives of VC Investors on the Board: Firm-level Analysis by Subsample (High and Low Firm-VC distance Samples)**

The table reports results from OLS regressions of the proportion of directors who are affiliated with VC investors (*VC Directors*) on start-up-firm boards. The sample consists of 825 going-public start-up firms in the U.S. with VC investment for the period of 1995-2015. The dependent variable is the ratio of the number of *VC directors* to the total number of directors on the board in the IPO year. Panel A (Panel B) presents the results for the subsample of firms with high (low) firm-VC distance based on the sample median. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

**Panel A: Subsample of Firms with High Firm-VC Distance**

Independent Variable	Percent of VC Directors					
	(1)	(2)	(3)	(4)	(5)	(6)
Ew Distances	0.010*					
	(2.02)					
Vw Distances (Equity)		0.010**				
		(2.10)				
Vw Distances (Portfolio)			0.010*			
			(2.03)			
Lead Vw Distances (Equity)				0.011**		
				(2.09)		
Lead Vw Distances (Portfolio)					0.012**	
					(2.23)	
Log (Number of States)						0.033
						(1.29)
Firm and Lead VC controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects & Exit Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	397	397	397	397	397	397
Adjusted R-squared	0.076	0.077	0.076	0.079	0.081	0.072

**Panel B: Subsample of Firms with Low Firm-VC Distance**

Independent Variable	Percent of VC Directors					
	(1)	(2)	(3)	(4)	(5)	(6)
Ew Distances	0.005					
	(1.67)					
Vw Distances (Equity)		0.005				
		(1.43)				
Vw Distances (Portfolio)			0.005			
			(1.48)			
Lead Vw Distances (Equity)				0.006*		
				(1.89)		
Lead Vw Distances (Portfolio)					0.007**	
					(2.21)	
Log (Number of States)						0.049*
						(1.85)
Firm and Lead VC controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects & Exit Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	387	387	387	387	387	387
Adjusted R-squared	0.185	0.185	0.185	0.187	0.188	0.193

**Table A.3: Geographic Concentration of Venture Capital (VC) Investors and Their Board Participation: Firm-Director-level Analyses by Subsample (High and Low Firm-VC distance Samples)**

Columns (1) - (3) of the table report the results from logit regression of the likelihood of having representatives who are affiliated with venture capital (VC) investors (*VC Directors*) on start-up-firm boards. Columns (4) - (6) of the table report the results from OLS regressions of the number of *VC Directors* on start-up-firm boards. The sample consists of 1,183 directors in start-up IPO firms with VC investment in the U.S. for the period of 1995-2015. Panel A (B) presents results for the subsample of firms with high (low) firm-VC distance based on the sample median. In columns (1) - (3), the dependent variable is an indicator that equals to one if a firm has a *VC Director* on the board in an IPO year, and zero otherwise. In columns (4) - (6), the dependent variable is the logarithm of one plus the number of board seats that *VC Directors* have in a firm in the IPO year. All distance measures and control variables are constructed using all previous financing rounds' characteristics. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*\*\*, \*\*, and\* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

**Panel A: Subsample of Firms with High Firm-VC Distance**

Independent Variable	VC Director (indicator)			Log (1 + Number of VC Directors)		
	(1)	(2)	(3)	(4)	(5)	(6)
Ew Distances to other VC	0.060** (2.33)			0.009*** (2.61)		
Vw Distances (Equity) to other VC		0.058** (2.41)			0.008** (2.54)	
Vw Distances (Portfolio) to other VC			0.060** (2.55)			0.009*** (2.78)
Lead VC Dummy	0.311*** (4.69)	0.312*** (4.69)	0.313*** (4.68)	0.049*** (4.33)	0.049*** (4.30)	0.049*** (4.32)
Firm and Lead VC controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects & Exit Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,723	3,723	3,723	3,991	3,991	3,991
Pseudo R-squared	0.105	0.105	0.106			
Adjusted R-squared				0.055	0.055	0.055

**Panel B: Subsample of Firms with Low Firm-VC Distance**

Independent Variable	VC Director (indicator)			Log (1 + Number of VC Directors)		
	(1)	(2)	(3)	(4)	(5)	(6)
Ew Distances to other VC	-0.001 (-0.07)			-0.003 (-0.88)		
Vw Distances (Equity) to other VC		0.012 (0.76)			0.000 (0.10)	
Vw Distances (Portfolio) to other VC			0.010 (0.64)			-0.000 (-0.05)
Lead VC Dummy	0.449*** (7.11)	0.458*** (7.24)	0.457*** (7.25)	0.078*** (6.50)	0.080*** (6.61)	0.080*** (6.61)
Firm and Lead VC controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects & Exit Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,837	3,837	3,837	3,994	3,994	3,994
Pseudo R-squared	0.112	0.113	0.113			
Adjusted R-squared				0.062	0.062	0.062

**Table A.4: Geographic Concentration of Venture Capital (VC) Investors and Likelihood of Going Public and Being Acquired**

The table reports the results from logit regressions of the likelihood of start-up firms' going public (being acquired). The sample consists of 46,729 start-up firm-financing round observations (15,485 unique firms) with VC investment for the period of 1995-2015. The dependent variable in Panel A is an indicator that takes a value of one if the firm goes public during the financing round and zero otherwise. The dependent variable in Panel B is an indicator that takes a value of one if the firm is acquired during the financing round and zero otherwise. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

**Panel A. Likelihood of Going Public**

Independent Variable	Going Public (indicator)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ew Distances	-0.026*** (-5.46)						
Vw Distances (Equity)		-0.025*** (-5.39)					
Vw Distances (Portfolio)			-0.025*** (-5.34)				
Lead Vw Distances (Equity)				-0.025*** (-5.78)			
Lead Vw Distances (Portfolio)					-0.025*** (-5.82)		
Log (Number of States)						-0.155*** (-4.43)	
Reduction in Traveling Time							0.259*** (6.18)
Firm and Lead VC controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effect & Exit Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	43,007	43,007	43,007	43,007	43,007	43,007	43,007
Pseudo R-squared	0.220	0.220	0.220	0.220	0.220	0.220	0.222

**Panel B. Likelihood of Being Acquired**

Independent Variable	Being Acquired (indicator)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ew Distances	-0.008** (-2.50)						
Vw Distances (Equity)		-0.009*** (-2.69)					
Vw Distances (Portfolio)			-0.009*** (-2.77)				
Lead Vw Distances (Equity)				-0.008** (-2.43)			
Lead Vw Distances (Portfolio)					-0.008** (-2.49)		
Log (Number of States)						-0.037** (-2.16)	
Reduction in Traveling Time							0.491*** (25.10)
Firm and Lead VC controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effect & Exit Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,729	46,729	46,729	46,729	46,729	46,729	46,729
Pseudo R-squared	0.054	0.054	0.054	0.054	0.054	0.054	0.066

**Table A.5: Geographic Concentration of Venture Capital (VC) Investors and IPO Valuation (Multiples)**

The table reports the results from OLS regressions of IPO valuation. The sample comprises of 467 IPO firms with VC investments for the period of 1995-2015. The dependent variable is the enterprise value (market value of equity offered + total debt – cash and cash equivalents) divided by earnings before interest, tax, depreciation, and amortization (EBITDA) in the IPO year. All distance measures and control variables are constructed using all previous financing rounds' characteristics. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Independent Variable	Enterprise Value / EBITDA					
	(1)	(2)	(3)	(4)	(5)	(6)
Ew Distances	-0.953** (-2.37)					
Vw Distances (Equity)		-0.954** (-2.32)				
Vw Distances (Portfolio)			-0.829* (-1.97)			
Lead Vw Distances (Equity)				-0.885** (-2.06)		
Lead Vw Distances (Portfolio)					-0.838* (-1.90)	
Log (Number of States)						-7.536** (-2.26)
Firm-VC Distances	1.388 (1.64)	1.404 (1.66)	1.314 (1.54)	1.370 (1.68)	1.335 (1.67)	1.705* (1.99)
Log (1+Total Funding)	-2.551 (-1.56)	-2.522 (-1.57)	-2.598 (-1.62)	-2.555 (-1.61)	-2.585 (-1.65)	-1.615 (-1.16)
Log (1+ Number of Rounds)	2.827 (0.79)	2.776 (0.77)	2.683 (0.75)	2.680 (0.75)	2.641 (0.73)	3.462 (0.94)
Log (1+Number of Investor at round one)	-4.819** (-2.42)	-4.800** (-2.41)	-4.953** (-2.45)	-4.851** (-2.46)	-4.881** (-2.47)	-3.579** (-2.29)
Log (Firm Age at Round One)	0.231 (0.10)	0.236 (0.11)	0.294 (0.13)	0.288 (0.13)	0.293 (0.13)	0.458 (0.21)
Log (1+Total Funding at Round One)	0.299 (0.16)	0.296 (0.16)	0.334 (0.18)	0.322 (0.18)	0.318 (0.17)	-0.557 (-0.34)
Early Stage (indicator)	1.688 (0.46)	1.691 (0.46)	1.664 (0.46)	1.729 (0.47)	1.675 (0.46)	2.239 (0.58)
Log (1+Lead VC Investor Age)	1.694 (1.20)	1.689 (1.18)	1.702 (1.19)	1.706 (1.19)	1.718 (1.20)	1.783 (1.27)
Log (1+Number of Firms in Lead VC portfolio)	-1.848** (-2.22)	-1.840** (-2.21)	-1.847** (-2.23)	-1.855** (-2.21)	-1.872** (-2.24)	-1.919** (-2.50)
Industry Fixed Effects & Exit Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	467	467	467	467	467	467
Adjusted R-squared	0.092	0.092	0.091	0.092	0.091	0.102

**Table A.6: Endogeneity of the Geographic Concentration of Venture Capital (VC) Investors: Additional Tests**

The table reports the results from OLS and logit regressions of venture capital (VC) investors' financing terms and VC firms' exit performance using the introduction of new direct airline routes that reduce the travel time between VC investors (*airline shock*) as an exogenous shock to geographic distance. In Panel A, the sample consists of 28,320 start-up firm-financing round observations (9,785 unique firms that are not headquartered in California) with VC investment for the period of 1995-2015. In Panels B and C, the sample consists of 46,997 start-up firm-financing round observations (13,213 unique firms) with VC investment for the period of 1995-2015. The dependent variables are identical to those in Table 12. In Panel B, we include firm state-year fixed effects and on Panel C, we include financing round fixed effects. *Reduction in Travel Time* is an indicator that takes a value of one if VC investors experience a reduction in travel time between the current and the next financing round. The Appendix provides detailed variable descriptions. *T*-statistics are in parentheses and estimated using robust standard errors that adjust for industry clustering. \*, \*\*, and \*\*\* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

**Panel A. Excluding Portfolio Firms Headquartered in California**

Independent Variable	Log (1 + Number of Financing Rounds)	Log (1 + Duration between Two Financing Rounds)	Log (1 + Convertible Amt.)	Successive VC Syndication	Exit (indicator)
	(1)	(2)	(3)	(4)	(5)
Reduction in Travel Time	-0.021** (-2.14)	0.290*** (16.05)	-0.011 (-0.39)	0.012*** (3.73)	0.511*** (13.89)
Firm and Lead VC controls	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects & Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	28,320	25,820	28,320	19,229	27,933
Adjusted R-squared	0.694	0.079	0.245	0.137	
Pseudo R-squared					0.085

**Panel B. Controlling for Firm State-Year Fixed Effects**

Independent Variable	Log (1 + Number of Financing Rounds)	Log (1 + Duration between Two Financing Rounds)	Log (1 + Convertible Amt.)	Successive VC Syndication	Exit (indicator)
	(1)	(2)	(3)	(4)	(5)
Reduction in Travel Time	-0.014** (-2.10)	0.276*** (18.43)	-0.041** (-2.28)	0.009*** (3.16)	0.509*** (20.47)
Firm and Lead VC controls	Yes	Yes	Yes	Yes	Yes
Firm State-Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects & Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	46,924	43,031	46,924	32,477	45,254
Adjusted R-squared	0.731	0.071	0.260	0.143	
Pseudo R-squared					0.084

**Panel C. Controlling for Financing Round Fixed Effects**

Independent Variable	Log (1 + Duration between Two Financing Rounds)	Log (1 + Convertible Amt.)	Successive VC Syndication	Exit (indicator)
	(1)	(2)	(3)	(4)
VC Reduction in Travel Time	0.276*** (18.00)	-0.016 (-0.92)	0.008*** (3.00)	0.497*** (16.08)
Firm and Lead VC controls	Yes	Yes	Yes	Yes
Financing Round Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects & Year Fixed Effects	Yes	Yes	Yes	Yes
First Financing Year Fixed Effects	Yes	Yes	Yes	Yes
Firm & Lead VC State Fixed Effects	Yes	Yes	Yes	Yes
Observations	43,111	43,613	34,951	43,162
Adjusted R-squared	0.068	0.269	0.133	
Pseudo R-squared				0.074

## Appendix A Variable Definitions

The Appendix provides detailed descriptions of all the variables used in the tables.

Variable Name	Definition	Data Source
<b>Distance characteristics</b>		
Ew Distances	Logarithm of one plus the equally-weighted geographic distance in kilometers between the firm's existing VC investor pairs. Specifically, if the geographic distance in kilometers between the existing VC pairs are $dist_{12}$ , $dist_{13}$ , ..., and $dist_{ij}$ , then the <i>Ew Distances</i> is the log of one plus the average of these distances. When there is only one existing VC investor, then <i>textitEw Distances</i> equals zero. In cross-sectional regressions, <i>Ew Distances</i> is the logarithm of one plus the equally-weighted distance in kilometers between the firm's all VC pairs.	VentureXpert, MaxMind GeoIP Database
Ew Distances to other VC	Logarithm of one plus the equal weighted distance in kilometers between one VC and the other VCs	VentureXpert, MaxMind GeoIP Database
Lead Vw Distances (Equity)	Logarithm of one plus the portfolio-weighted distance in kilometers between the firm's existing VC investor pairs. Specifically, if the if the geographic distance in kilometers between the existing VC pairs are $dist_{12}$ , $dist_{13}$ , ..., and $dist_{ij}$ , and the cumulative equity investment amount in each VC's portfolio is $share_1$ , $share_2$ , ..., $share_i$ , then the weight for the VC pair distance $dist_{ij}$ is $w_{ij} = share_i + share_j$ and $VwWdistanceWwstawaWwV WwWV \sum WwVwstWwVwWwV \sum WwWwV$ . When there is only one existing VC investor, then <i>Vw Distances (Portfolio)</i> equals zero. In cross-sectional regressions, <i>Vw Distances (Portfolio)</i> is the logarithm of one plus the portfolio-weighted distance in kilometers between the firm's all VC pairs.	VentureXpert, MaxMind GeoIP Database
Lead Vw Distances (Portfolio)	Logarithm of one plus the portfolio-share-weighted distance in kilometers between the firm's existing VC investor pairs. Specifically, if the if the geographic distance in kilometers between the existing VC pairs are $dist_{12}$ , $dist_{13}$ , ..., and $dist_{ij}$ , and the cumulative equity investment amount in each VC's portfolio is $share_1$ , $share_2$ , ..., $share_i$ , then the weight for the VC pair distance $dist_{ij}$ is $w_{ij} = share_i + share_j$ , and $VwWdistanceWwstawaWwV WwWV \sum WwVwstWwVwWwV \sum WwWwV$ . Only lead-VC pairs are included, i.e. VC pairs with at least one lead VC. When there is only one existing VC investor, then <i>Lead Vw Distances (Portfolio)</i> equals zero. In cross-sectional regressions, <i>Lead Vw Distances (Portfolio)</i> is the log of one plus the equity-weighted distance in kilometers between the firm's all lead-VC pairs.	VentureXpert, MaxMind GeoIP Database
Log (Number of States)	Logarithm of the number of different VC states for one firm. For example, if the firm has ten existing VCs in a particular round and those VCs are located in seven different states in the U.S., then Number of States is seven. In cross-sectional regressions, Log (Number of States) is the log of the number of all different VC states for one firm.	VentureXpert
Vw Distances (Equity)	Logarithm of one plus the equity-weighted distance in kilometers between the firm's existing VC investor pairs. Specifically, if the if the geographic distance in kilometers between the existing VC pairs are $dist_{12}$ , $dist_{13}$ , ... and $dist_{ij}$ , and the cumulative equity investment amount each VC has made is $equity_1$ , $equity_2$ , ..., $equity_i$ , then the weight for the VC pair distance $dist_{ij}$ is $w_{ij} = equity_i + equity_j$ and $VwWdistanceWwstawaWwV WwWV \sum WwVwstWwVwWwV \sum WwWwV$ . When there is only one existing VC investor, then <i>Vw Distances (Equity)</i> equals zero. In cross-sectional regressions, <i>Vw Distances (Equity)</i> is the logarithm of one plus the equity-weighted distance in kilometers between the firm's all VC pairs.	VentureXpert, MaxMind GeoIP Database
Vw Distances (Equity) to other VC	Logarithm of one plus the equity investment weighted distance in kilometers between one VC and the other VCs	VentureXpert, MaxMind GeoIP Database
Vw Distances (Portfolio)	Logarithm of one plus the portfolio-weighted distance in kilometers between the firm's existing VC investor pairs. Specifically, if the if the geographic distance in kilometers between the existing VC pairs are $dist_{12}$ , $dist_{13}$ , ..., and $dist_{ij}$ , and the cumulative equity investment amount in each VC's portfolio is $share_1$ , $share_2$ , ..., $share_i$ , then the weight for the VC pair distance $dist_{ij}$ is $w_{ij} = share_i + share_j$ and $VwWdistanceWwstawaWwV WwWV \sum WwVwstWwVwWwV \sum WwWwV$ . When there is only one existing VC investor, then <i>Vw Distances (Portfolio)</i> equals zero. In cross-sectional regressions, <i>Vw Distances (Portfolio)</i> is the logarithm of one plus the portfolio-weighted distance in kilometers between the firm's all VC pairs.	VentureXpert, MaxMind GeoIP Database
Vw Distance	Logarithm of one plus the portfolio share weighted distance in kilometers between one	VentureXpert,



(Portfolio) to other VC	VC and the other VCs	MaxMind GeoIP Database
<i>Airline shock characteristics</i>		
Large Reduction in Traveling Time (indicator)	Indicator variable equal to one if the treatment is associated with a round-trip travel time reduction more than 120 minutes.	VentureXpert, T-100 Domestic Segment Database, Google Maps
Lead VC Reduction in Traveling Time (indicator)	Indicator variable equal to one if the treatment is associated with a travel time reduction for VC-pairs with at least one lead VC.	VentureXpert, T-100 Domestic Segment Database, Google Maps
Log (1+Reduced Travel Time)	Logarithm of one plus the average reduced one-trip travel time in hours between VC city pairs.	VentureXpert, T-100 Domestic Segment Database, Google Maps
Non-Lead VC Reduction in Traveling Time (indicator)	Indicator variable equal to one if the treatment is associated with a travel time reduction for VC-pairs without any lead VC	VentureXpert, T-100 Domestic Segment Database, Google Maps
Reduction in Traveling Time (indicator)	Treatment indicator that takes the value of one if at least one new direct airline route that reduces the travel time between the headquarters of two of a firm's existing VC investors' fund city during two consecutive investment year, and zero otherwise. We restrict the shocks to those new direct routes that do not involve the city in which the firm is headquartered. In order to be considered as treated, the reduction in round-trip travel time should be more than 30 minutes.	VentureXpert, T-100 Domestic Segment Database, Google Maps
Small Reduction in Traveling Time (indicator)	Indicator variable equal to one if the treatment is associated with a one-trip travel time reduction more than 120 minutes.	VentureXpert, T-100 Domestic Segment Database, Google Maps
<i>VC financing characteristics</i>		
Early Stage (indicator)	Dummy variable that takes one if the company received the current VC investment in its seed or early stage, and zero otherwise.	VentureXpert
Lead VC (indicator)	Dummy variable that takes one if the VC is a lead VC.	VentureXpert
Log (1+Convertible Amt.)	Logarithm of one plus the amount of convertible securities investment in USD millions in one round	VentureXpert
Log (1+Duration between Two Financing Rounds)	Logarithm of one plus the duration in months between one round and the next round or the exit event.	VentureXpert
Log (1+Number of Financing Rounds)	Logarithm of one plus the total number of financing rounds the entrepreneur has received.	VentureXpert
Log (1+Number of Investors at Round One)	Logarithm of one plus the number of VC investors in the first round.	VentureXpert
Log (1+Lead VC Investor Age)	Logarithm of one plus the lead VC investor age in years	VentureXpert
Log (1 + Number of Firms in Lead VC Portfolio)	Logarithm of one plus number of companies that the lead VC investor invested since 1995	VentureXpert
Log (1+Number of VC Directors)	Logarithm of one plus the number of board seats that a VC fund obtains in the IPO timing.	VentureXpert, SEC Form 424B
Log (1+Total Funding)	Logarithm of one plus the total venture capital funding in USD millions the entrepreneur has raised.	VentureXpert
Log (1+Total Funding at Round One)	Logarithm of one plus the total venture capital funding in USD millions the entrepreneur raised in the first round	VentureXpert
Successive VC	The proportion of VC investors who participated in follow-on round syndication to the	VentureXpert

Syndication VC Director (indicator)	total number of existing VC investors Dummy that equals to one if a specific-VC fund takes any board seat in the portfolio company in the IPO timing and zero otherwise.	VentureXpert, SEC Form 424B
<b><i>Firm characteristics</i></b>		
Being Acquired (indicator)	Dummy variable that takes one if the firm is acquired during this period, and zero otherwise. We restrict the acquisition to be greater than 25 million US dollars in our exit dummy to ensure that acquisitions with negative outcomes are excluded.	VentureXpert
Exit (indicator)	Dummy variable that takes one if the firm goes public via an IPO or is acquired after the VC investment and prior to the next VC investment, and zero otherwise. We restrict the acquisition to be greater than 25 million US dollars in our exit dummy to ensure that acquisitions with negative outcomes are excluded.	VentureXpert
Going Public (indicator)	Dummy variable that takes one if the firm has gone public via an IPO during the period, and zero otherwise.	VentureXpert
Log (Firm Age at Round One)	Logarithm of one plus the firm age in years in the first round.	VentureXpert
Percent of Independent VC Directors	Ratio of independent VC directors on the board in IPO year	VentureXpert, SEC Form 424B
Percent of VC Directors	Ratio of VC directors on the board in IPO year.	VentureXpert, SEC Form 424B
<b><i>IPO characteristics</i></b>		
Enterprise Value/EBITDA	Ratio of enterprise value (market value of equity offered + total debt – cash and cash equivalents) to EBITDA	VentureXpert, SDC Platinum
IPO Underpricing	Ratio of market capitalization on the first trading date (first trading-day stock price multiplied by total shares outstanding) to sales one-year prior to the IPO.	VentureXpert, SDC Platinum
IPO Valuation	Ratio of market capitalization on the first trading date (first trading-day stock price multiplied by total shares outstanding) to sales one-year prior to the IPO.	VentureXpert, SDC Platinum