

Eclipsed and Confounded Identities: When High-Status Affiliations Impede Organizational Growth

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Ecclipsed and confounded identities: when high-status affiliations impede organizational growth

I propose that an organization's growth potential may suffer if its identity is eclipsed by or confounded with the organizations with which it collaborates and competes. Using status as a salient feature of identity, I devise two network measures to capture the degree to which organizations' identities are eclipsed and confounded. The theory is tested with data on U.S. venture capital firm syndication between 1995 and 2009. Venture capital firms with eclipsed and confounded identities are less likely to raise a new fund, and occupying a high-status position exacerbates the penalty for having an eclipsed or confounded identity. These findings highlight the previously neglected identity costs that high-status firms impose on their partners. In status-based market competition organizations need to justify their identity claims by distinguishing themselves from the established elite.

Keywords: Identity, distinctiveness, status, networks, resource acquisition, growth, venture capital

How does an organization create an identity that receives recognition from the audiences that provide the organization with resources? Extant literature has highlighted the role of high-status affiliations in creating such an identity (Stuart et al., 1999). Intuitively, high-status affiliations should benefit organizations as they signal to a firm's audiences that its exchange partners deem the firm worthy of affiliation. Under the assumption that high-status firms are selective in their exchange partner choice (cf. Podolny, 1994; Chung et al., 2000), the visibility of high-status affiliations reassures third-party audiences that the focal firm is a high-quality organization. Consequently, audiences commit resources more willingly to organizations with high-status affiliates (e.g., Stuart et al., 1999; Khaire, 2010).

The claim of this paper is that this positive effect of high-status affiliations on audience evaluation is questionable in industries in which firms collaborate and compete. As long as affiliations cut across industry boundaries, identities have a limited potential to infringe upon each other because the roles of the affiliated firms are clearly distributed. However, within the boundaries of an industry, outsiders might be unable to distinguish the roles that affiliated organizations play in their relationships. This might pose a problem if firms compete for and based on dis-

tinctive identities. Under this condition, distinguishing oneself from others becomes a critical task for the organization (Beverland, 2005; Navis and Glynn, 2010; Gioia et al., 2010). Being distinctive from the high-status firms in an industry should be particularly important as high-status firms attract a disproportional share of attention and resources from their audiences (e.g., Castellucci and Ertug, 2010; Malter, 2014; Stuart et al., 1999). This absorptive effect gives rise to the central proposition of this paper: firms that collaborate too intensely with high-status firms in their industry may fail to signal distinctiveness and see their identities discounted by their audiences. The resulting main hypothesis is that audiences commit resources less willingly to organizations that fail to distinguish their identities from the established elite.

This paper is not the first to stress the role of distinctive identities in markets. On the industry level, identity-based competition has been documented in the organizational ecology literature for the competition among organizational forms (e.g., Carroll and Swaminathan, 2000). On the firm and product levels, extant literature has focused on optimal distinctiveness (Deephouse, 1999; Gioia et al., 2010; Navis and Glynn, 2011), the value of uniqueness (Bishop Smith, 2011), and on how to craft brand authenticity (Beverland, 2005). Much of this work has focused on the departure of organizations from implicit norms, standards, or average behaviors of their industry, and product differentiation.¹ Notwithstanding the contributions these papers make to our understanding of organizational identities as external audiences perceive them, these approaches could be under-socialized if the competition for identity were most pronounced among those organizations whose identities are intertwined through existing exchange relationships (cf. Bothner et al., 2010a).

Based on this consideration, this paper takes a structural approach to identity and distinctiveness. This sociologically grounded approach rests on Goffman's (1986) observation that a social identity as external audiences perceive it is defined by those with whom a social actor is seen in public and White's (1992) insight that identities interpenetrate and constrain each other. Us-

¹On the flip side, much of the work on organizational categories has investigated the penalties associated with deviating from such norms and standards (for a review, see Hannan, 2010).

ing status as a particularly salient feature of identity (Jensen et al., 2011), I develop network measures for the degree to which identities are eclipsed and confounded. I define an eclipsed identity as an identity that is outshone by the social status of its exchange partners and a confounded identity as an identity that is excessively integrated with the identities of high-status exchange partners. By focusing on the status of a firm's exchange partners as a determinant of its identity, the paper aims to not only show that an organization must distinguish itself from other firms in its industry, but also from whom.

The empirical setting is the venture capital industry between 1995 and 2009. The choice of this context is instrumental, as previous literature has emphasized the benefits of high network status, which a firm derives directly from a central position among centrally located others, in this and related financial services industries (e.g., Bothner et al., 2014; Hochberg et al., 2007; Podolny, 1993, 2005).² Demonstrating the identity costs that high-status affiliations impose on their affiliates would thus be particularly informative about status-based competitive tensions between affiliated identities.

I analyze the effect of the degree to which a focal venture capital firm's identity is eclipsed by its highest-status co-syndicators or confounded with the collectivity of its co-syndicators. Results from fixed-effects logit estimates show that venture capital firms with more eclipsed identities are less likely to raise a new venture capital fund, and this average effect is driven by firms that occupy higher-status positions themselves. Venture capital firms at all levels of status are less likely to raise a new venture capital fund as the confoundedness of their identities increases, but the effect is stronger among higher-status firms. These results show that audiences commit resources more willingly to organizations that are able to distinguish themselves from the established elite.

²Hochberg et al. (2007) showed that among a number of network variables centrality (the commonly used measure for status in the organizational literature) had the largest effect on the investment performance of venture capital firms.

Theory

Social actors depend on external audiences and aim to make choices that embody identity claims that conform to these audiences' expectations (Zuckerman, 1999, 2000; Jensen, 2006). However, identity claims embody an element of competition because "identities add through contentions to the contingencies faced by other identities," White (1992: p. 6). "An individual identity is thus a history of positioning acts that is tested in each new interaction," (Czarniawska and Wolff, 1998: pp. 35–36). Competition for identity is mandated by crowded identity spaces and by audiences looking for distinctiveness in order to determine merit and allocate recognition, resources, and rewards (cf. Carroll and Swaminathan, 2000; Beverland, 2005; Gioia et al., 2010; Navis and Glynn, 2011). As "[d]ispersions are the sources of identities" White (1992: p. 5) and because identity spaces are crowded, distinctiveness requires active differentiation (Navis and Glynn, 2010, 2011). A lack of distinctiveness should be discounted as it implies a substitutable or redundant identity.

To separate the beneficial from the adverse effects of intertwined identities on each other, I pursue a structural approach to identity and distinctiveness here (e.g., White, 1992). Such an approach rests on the assumption that identities as audiences perceive them are defined by the visible affiliations among social actors. The question how to differentiate in order to achieve distinctiveness thus becomes the question with whom to affiliate and from whom to stay away. Goffman (1986: p. 47) asserted that an audience is likely to perceive sameness between social actors and the affiliates with whom they appear in public. From this, the literature has developed the more general understanding that identities that are connected through "networks of intangible flows" interpenetrate (Bothner et al., 2010a: p. 944, see also White, 1992). Interpenetration implies more generally that affiliations could be a source of both perceived distinctiveness or sameness.

Status-based competitive tensions among affiliated social actors should factor prominently into

a structural approach to distinctive identities. Within the boundaries of an industry, status is a salient feature of identity (Jensen et al., 2011). It is a means and an end in the positioning acts that constitute the competition for a distinctive organizational identity (e.g., Benjamin and Podolny, 1999; Beverland, 2005; Malter, 2014). Moreover, as status leaks through exchange and deference relationships (Podolny, 2005), it is consistent with the idea of affiliated identities interpenetrating each other in the structural theory of identity and social action (cf. White, 1992).

Some literature on organizational status has studied affiliations among direct competitors such as the co-syndication networks of investment banks and venture capital firms (e.g., Bothner et al., 2014; Ozmel et al., 2013; Podolny, 1993). The empirical evidence in this literature suggests that it is advantageous for a firm to occupy a high-status position, which it derives from a central network position among centrally located others. Some scholars have concluded from this that it is beneficial for a firm to affiliate strongly with high-status others. But in contrast to attempts in early network literature (e.g., Mizruchi et al., 1986), the organizational status literature has rarely made an attempt to theoretically or empirically discern the effect of a firm's own status from the effect of the status of its exchange partners (for exceptions mostly in analyses of dyad formation, see Podolny, 1994; Chung et al., 2000; Lin et al., 2009; Castellucci and Ertug, 2010).

This lack of differentiation between ego and alter status in the organizational literature is troubling. Conceptually, it is troubling because status is zero-sum and leaks through exchange relations (Podolny, 2005: p. 25). By its property to leak or transfer, status embodies by definition competitive tensions among the identities of affiliated actors (cf. Bothner et al., 2010b). Empirically, it is troubling because literature on the status-based choice of exchange partners has highlighted that the fear of leakage and the attempt to cater to important external audiences do affect the partner choices of organizations (Jensen, 2006; Jensen and Roy, 2008). However, because of the lack of differentiation between the status of a firm and the status of its affiliates,

we know little about the status-based competitive tensions among identities that are connected through exchange relationships. The remainder of my theorizing expands on the idea of a status-based structural approach to distinctive identities and develops the constructs of and measures for eclipsed and confounded identities.

Eclipsed and confounded identities

The central proposition of this paper is that an organization's audience approval may suffer if its identity is eclipsed by or confounded with the status of its exchange partners. I defined an eclipsed identity as an identity that is outshone by the social status of its exchange partners. Eclipsing thus rests on individual status contrasts between a social actor and its exchange partners. I defined a confounded identity as an identity that is excessively integrated with the identities of high-status exchange partners. Confounding thus rests on a focal identity's lack of distinctiveness and recognizability with respect to all its exchange partners.

The approach I propose to capture eclipsed identities focuses on the status asymmetry between the focal social actor's status and individual exchange partners. The approach discussed here is slightly more general than the existing approaches that focused on status differences in dyadic exchanges (e.g., Podolny, 1994). In describing the approach to capturing eclipsed and confounded identities, I start from the simple example of an interpersonal dyad and expand the concept from there before I extrapolate it to organizations.

The marriage between Queen Elizabeth II, Queen of England, and Prince Philip, Duke of Edinburgh, may serve as a starting point. Presumably, the rank as the Queen of England and Head of the Commonwealth of Nations puts Elizabeth II in a higher status position than her husband in the eyes of the general public. In this dyad, Prince Philip's status is eclipsed by the higher status of his spouse. However, the relationship with his spouse is not the only exchange relationship Prince Philip is engaged in, and so the status asymmetry between Prince Philip and his

exchange partners will vary across his relationships. Sometimes his status will eclipse the status of his exchange partners and sometimes the status of his exchange partners will eclipse his.³ To measure how eclipsed an identity is is thus a question of capturing status asymmetries within a social actor's exchange relationships and of aggregating across them.

For dyadic relationships, measuring the status asymmetry within an exchange relationship is straightforward. It can be computed as the difference between the exchange partner's and the focal social actor's status, whatever the measure for status may be (Podolny, 1994; Chung et al., 2000; Lin et al., 2009; Castellucci and Ertug, 2010). However, exchange relationships need not be dyadic and can involve a greater number of social actors. For exchange relationships involving more than one alter, the question becomes which status asymmetry or asymmetries to focus on in order to best capture eclipsing.

The evidence pertaining to the *Matthew effect* shows that social actors of high status attract both the greatest attention and the most rewards (Azoulay et al., 2013; Castellucci and Ertug, 2010; Malter, 2014; Merton, 1968; Simcoe and Waguespack, 2011). This implies that the highest-status actor among a set of exchange partners should be most likely to divert attention, attribution, and benefits away from the other social actors in the exchange. Figuratively speaking, in a triad between Prince Philip, Prince Charles, and Queen Elizabeth, Prince Philip is most strongly eclipsed by Queen Elizabeth, because Prince Charles is himself eclipsed by her. In more general terms, the status asymmetry between the focal actor and its highest-status exchange partner within an exchange should matter the most because the highest-status actor eclipses all others within the exchange. Consequently, I propose that an eclipsed identity is suitably captured in the degree to which a focal identity is outshone by its highest-status exchange partners.

However, to assume that audiences entirely disregard the exchanges between Prince Philip and Prince Charles when evaluating Prince Philip's identity in the triad appears far-fetched. The concept of a confounded identity takes this embeddedness of an identity with the identities

³Note that status equality will be a special and presumably rare case of zero status asymmetry.

of all its exchange partners into account. The idea is that an audience will find an identity less distinct and recognizable the more tightly it is integrated with the identities of high-status others. Confounding implies that Prince Philip's identity will stand out less when he is seen among a cohort of royals than when he is seen among a cohort of commoners and that this dilution of his identity worsens the more exclusively he is seen with them. Both eclipsed and confounded identities should receive less recognition from their audience(s). Audiences should thus be less likely to provide social actors with eclipsed or confounded identities with resources or rewards. I believe eclipsing and confounding to be inputs into a general primitive by which audiences evaluate identities. If this is true, then we can draw the parallel between our royal example and organizational contexts. Take the example of Norwest Venture Partners. Even though Norwest is a high-status venture capital firm, it could cooperate with other high-status firms such as New Enterprise Associates (NEA), Kleiner Perkins Caufield Byers (KP), or Sequoia Capital. Let NEA be the highest-status firm. Then Norwest co-investing with NEA will arguably have two opposing effects on Norwest's identity: the positive effect of status transfer from NEA to Norwest and the negative effect of being eclipsed by NEA. Co-investing with KP and Sequoia will arguably have two opposing effects on Norwest's identity, as well. As before, the affiliation entails some status transfer among the firms. But if Norwest frequently or exclusively co-invests with KP and Sequoia, then its identity will be increasingly confounded with theirs, a circumstance that I suggest will have graver consequences because KP and Sequoia are themselves high-status firms. I argue that eclipsed and confounded identities are less likely to be recognized on their own merit and hypothesize that they impair venture capital firms' chances to solicit resources from potential limited partners.

HYPOTHESIS 1.—*The more a venture capital firm's identity is eclipsed by its highest-status co-syndicators, the lower is its likelihood to raise a new fund.*

HYPOTHESIS 2.—*The more a venture capital firm's identity is confounded with a cohort of high-status co-syndicators, the lower is its likelihood to raise a new fund.*

The proposed negative effects of eclipse and confoundedness derive from a failure to stand out from one's affiliates. Past literature has highlighted that having high-status affiliates is more beneficial for younger, smaller, and lower-status firms (Stuart et al., 1999; Stuart, 2000; Lin et al., 2009). Such firms have yet to establish their legitimacy and as such affiliations with firms that are central in the social structure are a greater endorsement for them than for already well-established firms. By analogy, we may expect that the competitive pressure to distinguish one's identity increases as a firm rises in status. Hence, I hypothesize that the negative effects of having an eclipsed or confounded identity increase in the status of the firm.

HYPOTHESIS 1A.—The higher the status of the venture capital firm, the greater is the negative effect of having an eclipsed identity on the firm's likelihood to raise a new fund.

HYPOTHESIS 2A.—The higher the status of the venture capital firm, the greater is the negative effect of having a confounded identity on the firm's likelihood to raise a new fund.

Measuring eclipsed and confounded identities

This section formalizes measures for eclipsed and confounded identities in networks of discrete exchanges. Consider the $m \times n$ matrix P that captures the occurrence of n possible exchange partners in m exchanges. Element $p_{i,j}$ takes 1 if exchange partner j participated in exchange relationship i and 0 otherwise. In the context of venture capital firm syndication matrix P would be the investment matrix for all investment rounds in a given time frame. Accordingly element $p_{i,j}$ would capture whether venture capitalist j invested in round i . Consider, for example, the hypothetical investment matrix shown in table 1, which features the boolean investment decisions of six venture capital firms in three investment rounds.

 Insert table 1 here

Matrix $R = P^T P$ is then an $n \times n$ matrix that captures the number of times the respective social actors have encountered each other in exchange. In the context of venture capital firm syndication, R would be the co-investment matrix. Element $r_{i,j}$ would capture the number of rounds in which venture capital firms i and j co-invested. The co-investment matrix R corresponding to our sample investment matrix P is shown in table 2. The corresponding unweighted network is shown in figure 1.

 Insert table 2 here

 Insert figure 1 here

Setting its diagonal elements to zero, matrix R is the standard input into computing a social actor's Bonacich centrality (Bonacich, 1987), which is the standard metric for status in the organizational network literature (e.g., Podolny, 1993). Bonacich centrality is computed as:

$$c(\alpha, \beta) = \alpha(I - \beta R)^{-1} R \mathbf{1} \quad (1)$$

where R is a matrix of relationships, I is a conformable identity matrix, $\mathbf{1}$ is a conformable vector of ones, and α is an arbitrary scaling constant to center $c(\alpha, \beta)$ around one (see Bonacich, 1987). The parameter β determines the direction and degree to which an actor benefits (or suffers) from the connections of his connections, the connections of his or her connections'

connections, and so forth. The higher the absolute value of β , the lower is the rate of decay for connections at higher removes. Consistent with prior literature, I set β to 3/4 times the reciprocal of the largest eigenvalue of R (e.g., Podolny, 1993). The status score vector $c(\alpha, \beta)$ for the sample network is shown in table 3.

 Insert table 3 here

The centrality scores thus computed follow the intuitive pattern. C is most central, and F is least central, with the other actors falling in-between. The investment matrix P , the co-investment matrix R , and the status score vector $c(\alpha, \beta)$ contain all the necessary information to define network measures for eclipsed and confounded identities.

Eclipsed identities

Conceptually, an eclipsed identity is one that is outshone by its highest-status exchange partners. To measure an eclipsed identity in a network, a matrix is created of the same dimensions as investment matrix P and its rows are repeatedly populated with the status score vector $c(\alpha, \beta)$. The resulting matrix is element-by-element multiplied with P , yielding matrix S as shown in table 4.

 Insert table 4 here

This matrix contains the status scores for only those exchange partners that participated in an exchange. Eclipsing within an exchange relationship can be read off table 4 directly. For

example, C eclipses A and B in round *I*, C eclipses D and E in round *II*, and D eclipses F in round *III*.

To get a useful measure of an eclipsed identity, we need to aggregate the eclipsing that occurs within an actor's exchanges across his or her exchanges. To do so, we can take the status differences between actor *i* and his or her highest-status exchange partners within his exchanges and average across them:

$$eclipse_i = (s_{max}^T P_i - R_{ii} c_i(\alpha, \beta)) R_{ii}^{-1} \quad (2)$$

where s_{max} is a column vector that holds the row maxima of *S*; P_i is the column vector in *P* that represents actor *i*; R_{ii} is the total number of exchanges actor *i* was engaged in; and $c_i(\alpha, \beta)$ is actor *i*'s status score as measured by *i*'s centrality in the exchange network.

To return to our example, venture capital firm *D* engages in two investment rounds. It is outshone by *C* by 0.37 in investment round *II*. Because it is the highest-status firm investing in round *III*, it is not outshone, such that the difference between its own status and the status of the highest-status entity in the exchange is 0. If these two investments were *D*'s only exchanges, firm *D*'s score for having an eclipsed identity would be $(0.37+0)/2=0.185$. A value of zero would imply that a firm has never been eclipsed in exchange. The higher the value is, the more has a firm been eclipsed by its highest-status exchange partners.

Confounded identities

I had defined a confounded identity as an identity that is excessively integrated with the identities of high-status exchange partners. This conceptualization implies that an identity will more easily stand out not only the lower the status of its exchange partners is, but also the less frequently it is seen with the same closed set of social actors. I thus propose to weight the status of *i*'s exchange partners with the proportion of exchanges in which *i* encounters *j* and then sum

over these values.

To measure the confoundedness of an identity, every element of row R_i of matrix R is divided by element R_{ii} , which yields a matrix V . After this computation, the diagonal elements of V are set to zero. The resulting matrix is shown in table 5.

Insert table 5 here

The rows V_i capture the proportion of i 's exchanges with j . If the proportions are high, then i has a strong tendency to jointly engage in exchanges with j .⁴ The closer the values are to one, the greater is i 's tendency to transact with only a closed set of alters. Large proportions thus imply a greater integration of i 's identity with the identities of its exchange partners and, thus, greater confoundedness. To incorporate the exacerbating effect of high-status connections on the confoundedness of firm i 's identity, I propose to matrix-multiply V_i with the status vector c . This yields confoundedness scores that increase in the degree to which an identity is integrated with a closed set of alters and in the status of these alters.

$$confoundedness_i = V_i \cdot c(\alpha, \beta) \quad (3)$$

Eclipsing and confounding in the venture capital industry

Data

To test the hypotheses that eclipsed and confounded identities are penalized by their audiences, I use data on U.S. venture capital firm syndication. The choice of this setting is instrumental, as

⁴Note that the reverse need not hold true. While all of i 's exchange relationships may involve j , the exchange relationships with i could only be a small fraction of j 's exchanges.

venture capital syndication and the syndication of similar financial services firms has been used frequently in the status literature (e.g., Bothner et al., 2014; Ozmel et al., 2013; Podolny, 1993). The data were retrieved from VentureXpert and consist of information about all investment rounds recorded for the years 1992 to 2009. The data identify the investing venture capital firms, the target companies, the investment round, and the date of an investment. From this information, it is easy to construct the investment matrix P for any given time frame, which captures whether venture capital firms invested in a given round. Measures for status, eclipsed, and confounded identities are derived from the year-specific investment matrices as detailed further below. These data are complemented with data for the dependent and control variables, which were retrieved or derived from the same data. All independent and control variables are computed based on the three years prior to the focal year, implying that the econometric analysis is performed with data for the years 1995 to 2009.

Dependent variable. To test the hypotheses, the dependent variable needs to correlate with an external audience's approval of a venture capital firm's identity and reflect its growth. A firm's ability to convince investors to commit financial resources to it is indicative of both criteria. A venture capital firm's ability to raise a new fund is a suitable dependent variable not only because growth is a widely accepted positive performance metric of the firm, but also because launching new funds is a principal objective of venture capital firms. As Bothner et al. (2014) note: "a focal VC firm fails principally because limited partners—its most consequential audience—lose confidence to such an extent that the focal VC cannot raise new capital and is thus forced to exit." Variable $\text{fund launched}_{i,t}$ takes 1 in year t if firm i makes an investment from a fund from which it has never made an investment before and 0 otherwise.

Independent variables. I use the network measures for eclipsed and confounded identities as defined earlier. For a focal year t they are computed based on the analogues of matrices P , R , S , and V for the years $t - 1$ to $t - 3$. The required status scores as measured by Bonacich centrality, which are an input into the measures for eclipsed and confounded identities, are generated from

the co-investment matrix $R = P^T P$, after setting its diagonal to zero. Consistent with prior literature, I assume a β of 3/4 times the reciprocal of the largest eigenvalue of R (e.g., Podolny, 1993).

Control variables. The control variables aim to account for alternative explanations for the effects of having an eclipsed or confounded identity such as the performance or quality of the venture capital firm, the number of its exchange partners, and the focal firm's status. A venture capital firm's status as measured by its Bonacich centrality is an input into the measures for eclipsed and confounded identities, which will likely cause correlation between these measures. Estimating the potentially adverse effects of having an eclipsed or confounded identity thus requires to control for the firm's *status*. The focal firm's status in the co-investment network is measured by its Bonacich centrality. Status as measured by Bonacich centrality is a recursive measure such that the centrality of one actor in the network is determined by the centrality of its affiliates, whose centralities are determined by the centralities of their affiliates, and so forth. Whether the social status of an actor in a network can be meaningfully distinguished from its identity being eclipsed or confounded is thus itself an open empirical question.

Confoundedness weights the status scores of a focal venture capital firm's exchange partners with the proportion of the focal firm's exchanges in which it has encountered them and then sums over these weighted status scores. We might expect this sum to increase in the total number of a firm's exchange partners as well as in the average number of exchange partners per exchange. Therefore, I implement the control variable *degree* for the number of distinct venture capital firms with which a focal venture capital firm has co-syndicated investment rounds in the years $t - 1$ to $t - 3$.⁵ Similarly, I implement the control *average # of investors in round* to account for the typical size of the syndicates with which the focal firm invests.

A venture capital firm's underlying quality should drive its performance and its ability to con-

⁵Sauder et al. (2012) noted that it is unknown whether Bonacich centrality (status) and degree centrality have any distinguishable effects and thus discriminant validity. Generally, the two will be fairly highly correlated because degree centrality is the most strongly weighted input into Bonacich centrality.

vince limited partners to commit resources to it. The omission of performance controls would thus lead to an overestimation of status, eclipsing, and confounding effects if these variables were themselves positively correlated with performance. I follow extant literature in implementing performance controls. I control for successful *exits* as well as *failures*. Exits are measured by the compound number of IPOs, mergers, acquisitions, and LBOs of portfolio companies in which the focal venture capital firm had invested over the years $t - 1$ to $t - 3$. Analogously, failures are measured by the number of companies in which a focal venture capital firm had invested that were reported as defunct, Chapter 11, or Chapter 7 over the years $t - 1$ to $t - 3$. The empirical analysis indicated that collapsing exits and failures in this way had greater explanatory power than separating them out. The effects of interest are robust to a specification that separates exits and failures into their components.

I implement additional controls that account for firm size and performance. I control for the number of *rounds* in which the focal firm invested in the years $t - 1$ to $t - 3$. I also control for a firm's *sum of investments* in the years $t - 1$ to $t - 3$, where the individual investments are proxied for by the (estimated) investment in a round divided by the number of investors in a round. The dummy *sum of investments missing* takes 1 if this variable cannot be computed because of missing data and 0 otherwise. I also control for the number of distinct *funds* from which a venture capital firm has made investments over the past three years. Further, I compute a measure of *diversification* as the Herfindahl index based on the proportions of rounds invested across two-digit industry codes. Finally, I code the variable *diversification missing* 1 if the diversification variable cannot be calculated because of missing data, and 0 otherwise.

I include year fixed effects to account for the time-varying munificence in the financing available to venture capital firms. In unreported analyses I included dummy variables for the industry focus of the firm based on two-digit SIC codes and the investment round focus of the firm (seed, early-stage, late-stage). However, these two sets of dummy variables had little explanatory power. For model parsimony they were not included in the analyses presented below.

Method

I analyze the data with fixed-effects logistic regressions. The models take the general form:

$$Pr(\text{new fund launched}_{i,t} = 1) = \frac{\exp(v_i + x_{i,t}\beta)}{1 + \exp(v_i + x_{i,t}\beta)} \quad (4)$$

where *new fund launched*_{*i,t*} is the indicator whether firm *i* made an investment from a new fund in year *t*; *v_i* is the *time-constant*, firm-specific effect; *x_{i,t}* is the vector of values for the independent and control variables of firm *i* in year *t*; and β is the vector of coefficients that is to be estimated by maximum likelihood estimation. The firm-specific effects, *v_i*, are integrated out of the likelihood function (Chamberlain, 1980). This implies that the fixed-effects logistic regression does not suffer from the incidental parameters problem, the bias induced by estimating a large number of fixed effects in nonlinear maximum likelihood models when the cross-section or the time series of the panel is short (Neyman and Scott, 1948).

The fixed-effects analysis drops all firms that did not raise a new fund during the period of study. A fixed-effects analysis eliminates the concern that unobserved, time-constant heterogeneity in venture capital firm quality, which might correlate with the network position a firm obtains, affects the results. Conditioning the analysis on firms that were able to raise a new venture capital fund at least once over the period of study also reduces the dataset to an inherently more comparable set of organizations.

Results

Table 6 provides descriptive statistics for and the correlations between the variables. The results of the main analysis are presented in table 7. There are three ways to assess the effect size in a logistic regression: the coefficient estimates, the marginal effects, and the odds ratios. The coefficients in a logistic model are the estimated effects on the logged odds, which are

also known as the linear predictor. Because both the probability and the odds of success are nonlinear transformations of the linear predictor, the logged odds have no intuitive relationship to the effect size of a variable on the probability or odds of success.

The marginal effect is the effect of a marginal change in an independent variable on the probability of success. However, the marginal effect for any observation depends on the values of all its covariates, not just the variable of interest (Ai and Norton, 2003). In a fixed-effects analysis, the fixed effect would be one of these covariates. But paradoxically, the fixed-effects logistic analysis that was specifically chosen to account for unobserved heterogeneity would have to make the homogeneity assumption that all fixed effects are zero when estimating the marginal effects because the fixed effects were integrated out of the likelihood and not estimated for that reason (Karaca-Mandic et al., 2012). Equally troublingly, a logistic regression that estimated the fixed effects, if at all estimable, would generally be biased because of the incidental parameters problem mentioned earlier. Either way, the estimated marginal effects would generally be biased in an unknowable direction and not be appropriate for evaluating effect sizes in fixed-effects logistic models.

The odds ratio is the only statistic from a fixed-effects logistic regression that is directly informative about the effect of a variable on the chance of success (Karaca-Mandic et al., 2012). The odds are defined as the ratio of the probability of success over the probability of failure. The odds ratio then expresses in the form of a factor how a one-unit change in an independent variable multiplies the odds of success. Importantly, odds ratios operate independently of the values of the covariates and can thus be evaluated in a nonlinear model even when the fixed effects were not estimated. Consequently, all results that follow are expressed odds ratios.

Insert tables 6 and 7 here

Models 1 through 6 in table 7 show the hierarchical inclusion of eclipsing and confounding effects. All models indicate that status has a strong positive effect on a firm's odds to raise a new fund. This reaffirms the extant status literature. In support of hypothesis 1, Model 2 shows that having an eclipsed identity has a negative and significant effect on the average firm's odds to raise a new fund. As a firm's being eclipsed rises from the twenty-fifth percentile to the median, its odds to raise a new fund are estimated to decrease by 14 percent. As a firm's being eclipsed rises from the median to the seventy-fifth percentile, the odds are estimated to decrease by 11 percent.

The negative and significant interaction effect in model 3 in table 7 indicates that the negative effect of having an eclipsed identity increases in the status of the firm, in support of hypothesis 1a. To assess the interaction effect, I split status and eclipse into their deciles and computed the predicted odds ratio for each observation. I then averaged the predictions for the observations within each decile combination. The advantage of this approach over a more traditional interaction plot is that it does not have to assume or inspect that all combinations of the chosen quantiles of two variables can be validly compared. Instead, it assures by design to compare only the combinations of those quantiles that are represented in the data.

The predictions shown in table 8 illustrate the interaction effect between status and eclipse. As a firm moves from a lower to a higher decile in status, its odds to launch a new fund increase. This reflects the positive direct effect of status. As a firm moves from a lower to a higher decile in eclipse, its odds to launch a new fund decline. This represents the direct effect of eclipse. The decrease in the odds to launch a new fund associated with a firm's identity being eclipsed rises as the firm's status increases. This reflects the interaction effect between status and eclipse. For example, the odds ratio of a firm in the third decile of status decreases from 1.004 to 0.888 as its eclipse increases from the third to the eighth decile. By contrast, the odds ratio of a firm in the eighth decile of status decreases from 1.578 to 1.037 for the same quantile change in eclipse.⁶

⁶Note that effects in the third and eighth decile will roughly correspond to effects at the twenty-fifth and seventy-fifth percentile.

So whereas the odds ratio of firms in the eighth over firms in the third decile of eclipse is $(0.888/1.004)=0.884$ for firms at the third decile of status, it is $1.037/1.578=0.657$ for firms at the eighth decile of status. If the negative effect of having an eclipsed identity were independent of status, then we would expect these two odds ratios to be the same or, equivalently, we would expect the ratio of these odds ratios to be equal to one. In this case the ratio of the odds ratios is $0.657/0.884=0.743$. The decline of the odds associated with having an eclipsed identity is thus substantially larger for firms at the eighth than for firms at the third decile of status.

 Insert table 8 and 9 here

Model 4 in table 7 shows a negative and significant effect of having a confounded identity on firms' odds to raise a new fund. This supports hypothesis 2. A increase from the twenty-fifth percentile of confoundedness to the median is estimated to decrease a firm's odds to raise a new fund by 32 percent. An increase in confoundedness from the median to the seventy-fifth percentile is estimated to decrease the odds by 22 percent.

Model 5 in table 7 confirms the negative interaction effect between status and confoundedness. Table 9 shows the joint effect of status and confoundedness on the odds to raise a new fund. The odds ratios were predicted for each individual observation and then averaged for each combination of deciles of the status and confoundedness distributions. The odds ratios increase in status and decrease in confoundedness, reaffirming the main effects. The decrease in the odds ratio associated with an increase in confoundedness is larger for firms at higher levels of status, in support of hypothesis 2a. In this case we cannot compare all combinations of the third and eighth deciles of the status and confoundedness distributions. The reason is that firms that occupy a combined position in the eighth decile of the status distribution and the third decile of the confoundedness distribution are so rare that this comparison would be fragile. To draw a valid comparison, we can compare combinations of the third and seventh deciles of both variables,

for example. Increasing confoundedness from the third to the seventh decile is associated with an odds ratio of $0.577/0.934=0.618$ for firms at the third decile of status, but $0.803/1.524=0.527$ for firms at the seventh decile of status. The ratio of these odds ratios is $0.527/0.617=0.853$, indicating that higher-status firms are penalized more heavily for a confounded identity. Finally, model 6 in table 7 shows that the effects of eclipsed or confounded identities remain significant in each others' presence.

To further ascertain that the estimated effects are effects of identities as potential limited partners perceive them, I split the sample into the time periods before and after the dot.com bubble burst in 2000. Identity should be a more important sifting and sorting criterion for potential limited partners before the bubble burst because venture capital firm performance is less informative about the underlying quality of a venture capital firm in an anyway munificent environment. Conversely, a venture capital firm's true quality should be more important in the resource-poor environment after the bubble. Therefore, if eclipsing and confounding truly captured identity effects, they should be stronger before than after the bubble, whereas if they captured unobserved heterogeneity in quality, they should be stronger thereafter.

The analyses in models 7 (pre bubble) and 8 (post bubble) in table 7 show that the negative effect of an eclipsed identity mainly pertains to firms that occupy high-status positions in both periods. The effect is only slightly weaker after the bubble, but it has 40 percent lower statistical strength after the bubble when accounting for the fact that the post-bubble sample is more than two times larger than the pre-bubble sample. The direct effect of confoundedness is significant before the crash and insignificant thereafter, whereas the interaction effect of status and confoundedness is insignificant before the crash and significant thereafter. Having a confounded identity negatively affected a larger set of organizations before than after the bubble, a time during which identity was arguably a more important sifting and sorting criterion for potential limited partners. These results lend further support to the contention that eclipse and confoundedness capture aspects of firms' identities.

The estimated effects of past exits and failures on the odds to raise a new fund increase the confidence in these models. Consistent with expectations, successful exits improve a firm's odds to raise a new fund, whereas failures decrease these odds. The evidence also indicates that limited partners discounted more diversified venture capital firms in their investment decisions, suggesting that they preferred venture capital firms with more focused identities.

Discriminant validity and unobserved heterogeneity in quality

The development of the social network literature over the past three decades has brought with it a natural proliferation of measures of an actor's structural position in a network. Any proposal of new network measures is thus challenged to document their discriminant validity vis-a-vis potentially related measures. In the part that follows, I attempt to establish the discriminant validity of the proposed measures for eclipsed and confounded identities and further rule out residual concerns that they might capture unobserved heterogeneity in firm quality.

Following Podolny's (1993) seminal treatment of organizational status in tombstone advertising in the securities market, Bonacich centrality has become the standard measure of organizational network status. In the application of Bonacich centrality as a measure of status, a social actor is supposed to benefit from his or her connections, his or her connections' connections, and so forth, because being embedded centrally among centrally located others reflects the deference flowing toward an actor. However, through the selection of a negative instead of a positive parameter value Bonacich centrality can also be used as a measure of power if connections at the second remove put an actor's direct connections in a gatekeeper position or provide them with alternatives to the exchange with him or her. Recent work by Malter and Piskorski (2014) shows that the Bonacich centralities akin to status and power thus computed are moderately to highly correlated across network types and sizes. Because of this correlation and the fact that the proposed measures for eclipsed and confounded identities are both based on Bonacich centrality akin to status, there is a concern that they might merely capture a focal actor's lack

of power. To explicitly control for an actor's network power, I computed Bonacich centralities akin to power using a β of $-3/4$ of the reciprocal of the largest eigenvalue of R .

Similarly, Mizruchi et al. (1986) pointed out that a focal actor's eigenvector centrality is additive in reflected and derived centrality. Derived centrality is that part of a focal actor's centrality that he or she truly derives from his or her connections, his or her connections' connections, and so forth. Reflected centrality is that part of a social actor's centrality that the focal actor projects onto his or her connections by virtue of his or her own centrality and that these connections merely reflect back onto the focal social actor. The concern is that the measures for eclipsed and confounded identities might correlate negatively with reflected centrality or positively with derived centrality. To assess whether the proposed measures add value above the distinction between reflected and derived centrality, I computed an analogue of the reflected centrality score developed by (Mizruchi et al., 1986). It isolates that part of actor i 's Bonacich centrality that a focal actor projects onto his or her affiliates, and that these affiliates in turn reflect back on the focal actor. Conditional on controlling for an actor's reflected centrality, the actor's status accounts for his or her derived centrality.

Uzzi's (1996) measure of first-order network coupling captures the asymmetry in the strengths of a focal actor's exchange relations. In essence, it is a Herfindahl-index over an actor's tie strengths. In the venture capital context, a low score on this measure indicates a venture capital firm's low propensity to co-syndicate financing rounds with a closed set of other venture capital firms. Bothner et al.'s (2010a) measure of fragility extends Uzzi's measure by basing a social actor's fragility on the entire network structure. A focal actor is more fragilely positioned in social structure to the extent that his or her tie strengths are very asymmetric, and he or she is connected to actors whose tie strengths are very asymmetric, and so forth.⁷ As the proposed measure for confoundedness does not only increase in the status of a firm's exchange partners

⁷Fragility is to first-order network coupling like Bonacich centrality is to degree centrality. Just as degree centrality is the most highly weighted input into Bonacich centrality, first-order network coupling is the most highly weighted input into fragility.

but also in its tendency to jointly engage in exchange with a closed set of exchange partners, confoundedness might be positively correlated with first-order network coupling and fragility. I computed the first-order network coupling and fragility of U.S. venture capital firms in year t using the analogue to matrix V (table 5) for the years $t - 1$ to $t - 3$.

Lastly, I theorized that the penalties accruing to eclipsed and confounded identities would be a function of how an audience perceives organizational identities based on their affiliations. They should not be a function of actual differences in firm quality. I attempted to control for a venture capital firm's quality by backward-looking measures for its size and investment success as well as fixed effects. However, limited partners deciding to fund a venture capital firm might possess information about a venture capital firm's ongoing investments and how these investments will develop in the future. In other words, they may have information about the time-varying quality of the firm that is not captured in historic performance data. The affiliations that firms are able to obtain might reflect such time-varying heterogeneity in firm quality before it gets expressed in firm performance. Hence, there is a concern that the proposed measures for eclipsed and confounded identities could capture residual time-varying heterogeneity in firm quality.

Malter (2014) suggested that controlling for future performance could remedy the problem that a firm's structural position might capture residual heterogeneity in firm quality. In the worst case this would result in downward-biased estimates of status (and related) effects and an increased risk of maintaining a null that should be rejected. Such a downward bias would result if a venture capital firm with a less eclipsed or confounded identity were more likely to raise a new fund and raising that new fund improved future performance. However, the average time to exit from an investment in the venture capital industry alleviates this problem. A venture capital firm's exits and failures in the first few years following the launch of a new fund will predominantly result from investments that had already been made before the new fund was launched. Controlling for a venture capital firm's performance in the near future is thus unlikely to absorb effects of eclipsed and confounded identities on firm performance through

their effects on a firm's likelihood to raise a new fund, but likely to absorb unobserved, time-varying heterogeneity in firm quality that might have been known to potential limited partners. I computed the variables future exits and future failures for the years $t + 1$ to $t + 3$ analogously to the exit and failure variables that were included in the main analysis. As the computation of these variables requires three years of data ahead, this analysis uses data from the years 1995 to 2006.

Table 10 displays the high-level results of the robustness analyses for the regression models in table 7. A checkmark indicates that the effects of having an eclipsed or confounded identity in the models indicated by the row names were robust to the individual inclusion of the variable(s) indicated by the column name.⁸ The table shows that the measures for having an eclipsed or confounded identity have discriminant validity from related measures and do not seem to be driven by residual time-varying heterogeneity in firm quality. The detailed results of these analyses are available from the author. These results further increase the confidence that the proposed measures for eclipsed and confounded identities capture important aspects of venture capital firms' identities as they are perceived by one of their most important audiences.

 Insert table 10 here

It is interesting to note that exits and failures in the three years ahead both positively predicted a venture capital firm's odds to raise a new fund. This could either indicate that the firm was on a previously unaccounted-for growth trajectory or that limited partners were more inclined to invest in venture capital firms that sought greater risk in their investments. Limited partners encouraging risk seeking would be plausible because the upside and downside of venture capital investments are highly asymmetric. I also note that the results were robust to excluding firms

⁸The multicollinearity in the data is high due to the correlation between the status, power, eclipse, and confoundedness constructs. The multicollinearity is exacerbated by the interaction effects. This resulted in unreliable estimates for model 6, which could therefore not be reproduced.

whose status, eclipse, or confoundedness scores were zero. This drops 190 firms with 2500 observations that tended to invest without co-syndicating partners. The results were also robust to analyzing the data with linear probability models that were identically specified otherwise. However, this modeling approach is subject to the caveat that it predicted negative probabilities for 627 observations (3.6 percent of the sample) in addition to the inability to properly account for the innate heteroskedasticity of the error terms in probability models.

Discussion

I theorized that affiliations impose identity costs on a social actor if actors compete for recognition in crowded identity spaces. I defined eclipsed and confounded identities as constructs that capture a lack of distinctiveness of a social actor's identity from the identities of his or her affiliates. Having an eclipsed identity captures a lack of distinctiveness attributable to an unfavorable status contrast between the focal actor and his or her highest-status exchange partners. Having a confounded identity captures a lack of distinctiveness due to an excessive integration of a focal actor's identity with high-status affiliates. I developed two measures to capture eclipsed and confounded identities in networks of discrete exchanges.

The evidence indicated that potential limited partners discount venture capital firms with eclipsed and confounded identities. Empirically, I showed that venture capital firms with more eclipsed or confounded identities were less likely to raise a new venture capital fund, and this effect was stronger if the focal firm occupied a high-status position itself. The penalty for having an eclipsed identity prevailed only among higher-status firms. The penalty for having a confounded identity prevailed among all firms, on average, but was stronger for higher-status firms.

When a firm considers engaging in an exchange relationship, it should thus take the competitive tensions between the involved identities into account and how engaging in the relationship will affect the distinctiveness of its own identity. Conditional on being able to achieve the same level

of performance, a firm can optimize the distinctiveness of its identity by minimizing unfavorable status contrasts and by preventing an excessive integration of its identity with the identities of high-status exchange partners. The more general tradeoff between the anticipated benefits of a relationship and its identity costs may be difficult to make, as it has to be made at the margin. However, the estimates indicate that a firm might be better off to establish a middle-status identity that is neither eclipsed nor confounded than a high-status identity that is.

With this insight this paper contributes to our theoretical understanding of identity- and status-based market competition. Identities are intertwined. Being connected through networks implies an influence of our affiliates' identities on our own (e.g., Bothner et al., 2010a; Goffman, 1986; White, 1992). Earlier microsociological literature suggested that audiences perceive sameness between an actor and the affiliates with whom the actor is seen in public (Goffman, 1986: 47). The presented evidence shows that audiences critically differentiate identities within this sameness. Echoing theoretical arguments that social actors compete based on status and for a distinctive identity (Jensen et al., 2011, Gioia et al., 2010, Navis and Glynn, 2010, Podolny, 2005: 25, White, 1992: 5–6), this study showed not only that a firm must distinguish itself, but also from whom. The identity costs imposed by high-status affiliations indicate that the ability to leverage status spillovers is bounded by an audience's demand for a distinctive identity. This suggests that firms need to justify their identity claims by distinguishing themselves from the established elite.

The findings of this study partially contradict and point to the limitations of the extant organizational status literature. Analyses of status effects in similar industries suggested that a firm benefits from affiliations with high-status firms (e.g., Podolny, 2005). Consistent with this literature I found reaffirming evidence that a high-status position benefits a venture capital firm's chances to raise a new fund. However, these benefits are limited by the degree to which seeking high-status partners results in a firm's identity being eclipsed and confounded. The shortcoming of the extant literature in this regard lied in not having distinguished a firm's status from

the status of its exchange partners. Having separated them from each other is the theoretical, methodological, and empirical contribution of this paper.

This study may also point to the scope conditions of other studies that highlighted the benefits of high-status affiliations. Eclipsing and confounding should have the greatest effects when identities compete directly for audience recognition. Without the direct competition for identity between affiliated actors, high-status affiliations should not result in the perception that a focal actor's identity is eclipsed or confounded. In this light, affiliations of entrepreneurial firms with high-status customers (Khair, 2010) should be unproblematic. Affiliations between biotech and pharmaceutical firms (Stuart et al., 1999) or between commercial and investment banks, for example, might be more problematic because they involve related organizations that might stand in some competition for identity. High-status affiliations should impose the highest identity costs when affiliated firms compete directly for a distinctive identity, as they do in venture capital firm syndication. This gives rise to the testable hypothesis that the relatedness of affiliated firms, their industries, or the categories to which they belong moderates the effects of having an eclipsed or confounded identity.

Extant literature found that both the constraint on and the costs of accessing exchange partners are the highest when these exchange partners occupy high-status positions (Rider, 2009; Castellucci and Ertug, 2010). In light of this evidence it appears implausible that the venture capital firms studied here overcommit to co-syndicating with high-status venture capital firms due to a lack of alternatives or lower costs. In fact, it should be easier and cheaper for firms to engage in exchange relationships with lower-status exchange partners. This makes it unlikely that the existence of eclipsed and confounded identities that are penalized by their audience(s) are reconcilable with equilibrium approaches to relationship formation. Instead, it suggests disequilibrium behavior on part of the firms. The present study shares this notion of biased partner choices with Sorenson and Waguespack (2006) who observed that film producers overcommit resources to exchange partners with whom they have successfully transacted in the past.

The question is why this disequilibrium behavior occurs in the first place and why it persists. Whereas the initial existence of this behavior might be best explained by venture capital firms' unawareness or misestimation of limited partners' taste for high-status affiliations, its persistence over time is more difficult to explain. That venture capital firms knowingly act against their self-interest for extended periods of time is implausible. Hence, we have to explain why venture capital firms fail to learn the preferred identity configuration from limited partners' stated or observed preferences for so many years.

On the one hand, limited partners might persistently misstate their preferred identity configuration (for example because they may themselves be unaware of the existence or influence of their taste for certain affiliations on their financing decisions), and venture capital firms might not check whether limited partners' observed preferences map onto their stated preferences. On the other hand, venture capital firms might attempt to identify the identity configuration limited partners prefer from their own experiences or the experiences of a small number of competitors. The effects for the subset of firms that any given venture capital firm attends to would then be much noisier, on average, than the statistically strong relationships observed in the data. Limited partners misstating their preferences or venture capital firms attempting to draw inferences based on limited data might explain why a disequilibrium state of the world in which venture capital firms continue to forge eclipsed and confounded identities persists.

I believe eclipsing and confounding to be fundamental inputs into the primitive by which audiences assess identities. If this were true, then competition based on and for distinctive identities would unfold similarly in other social realms. The measures developed in this study lend themselves to testing this conjecture in other social networks. They are not specific to the context studied here. To explore the generalizability of these suspected principles in the evaluation of identities is an important task for future research. The developed measures for eclipsed and confounded identities rely on discrete observable exchanges among social actors. For continuous relationships the developed measures may require adjustments. How to best implement these

adjustments is left to future work.

This study investigated the decisions of an audience that is particularly important to venture capital firms—potential limited partners—in response to cues about venture capital firms’ identities. However, recent research on status and identity in the organizational literature highlights that audiences need not respond unanimously to the same identity cues (Kovács and Sharkey, 2014; Pontikes, 2012). Hence, there is a chance that other important audiences, for example potential portfolio firms, react differently to what I defined as eclipsed and confounded identities. If some audiences reacted positively to these identity cues, we would have to either acknowledge that the proposed measures do not capture eclipsed and confounded identities as some audiences see them or explain why these audiences appreciate eclipsed or confounded identities even though they recognize them as such. In either case, the negative effects estimated here would then mischaracterize the net effect across all audiences. To validate the general nature of the effects, eclipsed and confounded identities would have to be penalized not only across a broad range of settings, but also a broad range of audiences.

Figure 1
CO-INVESTMENT NETWORK

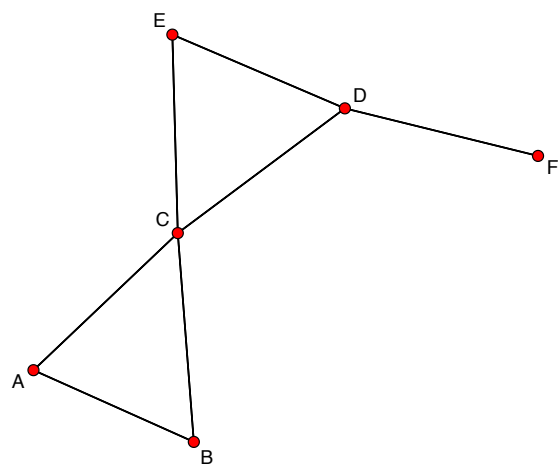


Table 1
HYPOTHETICAL INVESTMENT MATRIX P

	Venture capital firm					
	A	B	C	D	E	F
Round						
I	1	1	1	0	0	0
II	0	0	1	1	1	0
III	0	0	0	1	0	1

NOTE.—Illustration of investments by venture capital firms into investment rounds, where 1 indicates that venture capital firm j invested in round i .

Table 2
CO-INVESTMENT MATRIX R

	VC firm					
	A	B	C	D	E	F
VC firm						
A	1	1	1	0	0	0
B	1	1	1	0	0	0
C	1	1	2	1	1	0
D	0	0	1	2	1	1
E	0	0	1	1	1	0
F	0	0	0	1	0	1

NOTE.—Co-investment matrix $R = P^T P$ for the hypothetical investment matrix P in table 1.

Table 3
STATUS SCORE VECTOR $c(\alpha, \beta)$

VC firm	Status score
A	0.87
B	0.87
C	1.48
D	1.11
E	0.94
F	0.42

NOTE.—Status scores are Bonacich centralities for the sample matrix R in table 2 after setting the diagonal to zero. Parameter β is set to 3/4 times the reciprocal of the largest eigenvalue of R ; α is set such that the squared length of c is equal to the number of actors.

Table 4
STATUS-WEIGHTED INVESTMENT MATRIX S

	Venture capital firm					
	A	B	C	D	E	F
Round						
I	0.87	0.87	1.48	0	0	0
II	0	0	1.48	1.11	0.94	0
III	0	0	0	1.11	0	0.42

NOTE.—Cell values indicate the status scores of the venture capital firms that invested in round i .

Table 5
PROPORTIONAL CO-INVESTMENT MATRIX V

	VC firm					
	A	B	C	D	E	F
VC firm						
A	0	1	1	0	0	0
B	1	0	1	0	0	0
C	0.5	0.5	0	0.5	0.5	0
D	0	0	0.5	0	0.5	0.5
E	0	0	1	1	0	0
F	0	0	0	1	0	0

NOTE.—Cell values are the proportions of investments in which venture capital firm i has co-invested with venture capital firm j , after setting the diagonal elements to zero.

Table 6
DESCRIPTIVE STATISTICS AND CORRELATIONS FOR THE VENTURE CAPITAL DATA, 1995–2009

Variable	Mean	S.D.	Min	Max	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) Fund launched	0.23	0.42	0	1.00	1												
(2) Status (log+1)	0.32	0.44	0	2.96	0.10	1											
(3) Eclipsing (log+1)	0.89	0.64	0	2.95	-0.05	0.28	1										
(4) Confounding (log+1)	0.89	0.80	0	3.84	0.00	0.65	0.79	1									
(5) Degree (log +1)	2.47	1.40	0	6.59	0.04	0.80	0.53	0.74	1								
(6) Average # of investors in round	4.26	2.42	1	28.73	-0.04	0.35	0.66	0.75	0.52	1							
(7) Exits	2.9	6.62	0	178.00	0.11	0.67	-0.02	0.27	0.47	0.11	1						
(8) Fails	0.32	1.40	0	35.00	0.01	0.41	0.03	0.20	0.32	0.11	0.42	1					
(9) Rounds (log +1)	2.37	1.17	0.69	6.65	0.09	0.79	0.13	0.40	0.82	0.11	0.61	0.36	1				
(10) Sum of investment (000s logged)	8.74	2.14	0	14.94	0.00	0.22	0.35	0.34	0.40	0.34	0.13	0.09	0.26	1			
(11) Sum of investments missing	0.04	0.20	0	1.00	0.00	-0.15	-0.24	-0.22	-0.31	-0.20	-0.06	-0.05	-0.22	-0.85	1		
(12) Funds	2.59	2.01	1	45.00	0.08	0.63	0.01	0.26	0.56	0.13	0.65	0.33	0.69	0.21	-0.13	1	
(13) Diversification	0.49	0.30	0	1.00	-0.05	-0.27	0.06	-0.07	-0.34	0.08	-0.23	-0.10	-0.51	-0.16	0.11	-0.35	1
(14) Diversification missing	0.02	0.15	0	1.00	-0.01	-0.11	-0.13	-0.13	-0.20	-0.09	-0.07	-0.03	-0.21	-0.14	0.09	-0.12	-0.26

NOTE.—Correlations with an absolute value greater than 0.01 are significant at $p < 0.05$.

Table 7
ODDS RATIOS FROM FIXED-EFFECTS LOGIT ESTIMATES FOR THE ODDS TO RAISE A NEW
FUND

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Status	1.82*** (4.08)	1.80*** (4.01)	4.17*** (6.90)	2.55*** (5.83)	12.15*** (6.40)	16.16*** (7.03)	27.51*** (3.41)	13.53*** (4.64)
Eclipsing		0.79*** (-3.50)	0.91 (-1.24)			0.99 (-0.17)	1.15 (0.82)	0.94 (-0.49)
Status × eclipsing			0.47*** (-5.75)			0.54*** (-4.55)	0.50* (-1.92)	0.57*** (-2.74)
Confounding				0.68*** (-5.17)	0.72*** (-4.29)	0.78*** (-2.66)	0.56*** (-3.11)	1.00 (0.04)
Status × confounding					0.53*** (-4.38)	0.60*** (-3.34)	0.72 (-0.87)	0.54*** (-2.94)
Degree (log+1)	0.94 (-1.11)	1.03 (0.52)	0.99 (-0.13)	1.06 (0.99)	0.97 (-0.41)	0.98 (-0.28)	1.47*** (2.78)	0.82** (-2.17)
Average # of investors in round	0.99 (-0.82)	1.00 (-0.11)	1.00 (0.22)	1.03 (1.38)	1.04* (1.88)	1.04* (1.85)	1.04 (0.91)	1.06** (2.07)
Exits	1.02*** (3.44)	1.02*** (3.21)	1.01*** (2.64)	1.02*** (3.08)	1.02*** (3.58)	1.02*** (2.97)	1.02 (1.48)	1.02*** (3.12)
Failures	0.97** (-2.01)	0.96** (-2.14)	0.96** (-2.17)	0.96** (-2.28)	0.96** (-2.15)	0.96** (-2.20)	0.90 (-1.41)	0.95** (-2.46)
Rounds (log +1)	1.11 (1.49)	1.04 (0.55)	1.09 (1.21)	1.01 (0.12)	0.94 (-0.83)	0.98 (-0.30)	0.58*** (-3.46)	1.38*** (2.91)
Sum of investment (000s logged)	1.03 (0.85)	1.03 (0.93)	1.03 (0.97)	1.03 (0.85)	1.03 (0.89)	1.03 (0.97)	0.94 (-0.92)	1.07 (1.63)
Sum of investments missing	1.37 (1.06)	1.37 (1.07)	1.45 (1.24)	1.38 (1.09)	1.38 (1.08)	1.44 (1.22)	0.55 (-0.94)	2.54** (2.24)
Funds	0.69*** (-15.56)	0.69*** (-15.78)	0.67*** (-16.41)	0.68*** (-16.05)	0.67*** (-16.35)	0.66*** (-16.79)	0.37*** (-15.33)	0.50*** (-18.22)
Diversification	0.93 (-0.55)	0.92 (-0.69)	0.89 (-0.91)	0.87 (-1.07)	0.78* (-1.91)	0.78* (-1.86)	0.98 (-0.09)	0.89 (-0.61)
Diversification missing	0.81 (-1.09)	0.77 (-1.35)	0.77 (-1.35)	0.73 (-1.59)	0.63** (-2.32)	0.65** (-2.18)	0.63 (-1.04)	0.75 (-1.03)
Observations	17,498	17,498	17,498	17,498	17,498	17,498	4,053	9,820
Firms	1,731	1,731	1,731	1,731	1,731	1,731	862	1,267
log likelihood	-5857	-5851	-5834	-5844	-5834	-5822	-1363	-3211

NOTE.—*** p<0.01, ** p<0.05, * p<0.1; z-statistics in parentheses. All analyses included year fixed effects.

Table 8
ODDS RATIOS FOR THE JOINT EFFECT OF STATUS AND ECLIPSE

Status (decile)	Eclipse (decile)									
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
1st	1.000	1.000								
2nd	1.008	1.005	0.986	0.960	0.935					
3rd		1.024	1.004	0.972	0.946	0.924	0.905	0.888	0.866	0.831
4th		1.062	1.035	1.002	0.969	0.942	0.918	0.896	0.872	0.816
5th		1.119	1.090	1.044	1.005	0.971	0.940	0.911	0.877	0.806
6th			1.174	1.118	1.060	1.017	0.973	0.937	0.894	0.816
7th			1.330	1.235	1.155	1.091	1.028	0.974	0.914	0.807
8th			1.578	1.435	1.320	1.207	1.115	1.037	0.945	0.810
9th				1.878	1.631	1.439	1.287	1.149	1.003	0.824
10th			10.488	4.996	3.117	2.211	1.740	1.405	1.120	0.830

NOTE.—Percentile combinations not represented in the data or representing fewer than 30 observations are shown as empty cells.

Table 9
ODDS RATIOS FOR THE JOINT EFFECT OF STATUS AND CONFOUNDEDNESS

Status (decile)	Confoundedness (decile)									
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
1st	1.000	0.994								
2nd	1.012	0.998	0.910	0.784	0.689					
3rd		1.020	0.934	0.805	0.699	0.629	0.577	0.526	0.481	0.448
4th		1.086	0.977	0.843	0.737	0.656	0.595	0.543	0.494	0.425
5th			1.070	0.916	0.793	0.699	0.630	0.573	0.518	0.411
6th			1.210	1.046	0.891	0.776	0.694	0.625	0.561	0.445
7th			1.524	1.274	1.063	0.913	0.803	0.706	0.622	0.486
8th				1.699	1.392	1.161	0.989	0.865	0.732	0.561
9th				2.684	2.144	1.693	1.416	1.184	0.996	0.711
10th					4.062	3.884	3.441	2.682	2.159	1.225

NOTE.—Percentile combinations not represented in the data or representing fewer than 30 observations are shown as empty cells.

Table 10**ROBUSTNESS AND DISCRIMINANT VALIDITY**

	Power	Reflected	Embeddedness	Fragility	Future Exits & Failures
Model 2	✓	✓	✓	✓	p<0.11
Model 3	✓	✓	✓	✓	✓
Model 4	✓	✓	✓	✓	✓
Model 5	✓	✓	✓	✓	✓

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