POWER SOURCE MISMATCH AND THE EFFECTIVENESS OF INTERORGANIZATIONAL RELATIONS: THE CASE OF VENTURE CAPITAL SYNDICATION

DALI MA
Drexel University

MOOWEON RHEE
University of Hawaii

DAEGYU YANG
Kyung Hee University

This study explores the impact of the mismatch between two sources of power, ownership and status, on the effectiveness of interorganizational relations. We characterize three types of dyadic ownership-status relationships and examine their relative mixes at the group level: (1) power source match (A’s ownership and status are both higher than those of B); (2) ownership-dominated power source mismatch (A’s ownership advantage over B is greater than B’s status advantage over A); and (3) status-dominated power source mismatch (A’s ownership advantage over B is less than B’s status advantage over A). We found that power source match enhanced the effectiveness of venture capital (VC) syndication, and that ownership-dominated power source mismatch strengthened the positive effect of power source match because the syndicate could maintain legitimate ownership order and benefit from diverse inputs. By contrast, status-dominated power source mismatch weakened the positive effect of power source match, because it may have created disorderly interaction. Moreover, familiarity between participating VC firms diminished the negative moderating effect of status-dominated mismatch, because mutual trust helped organize group interaction, and entrepreneurial performance fulfilled a similar function, as the autonomy of entrepreneurs from the VC syndicate buffered turbulences caused by interaction problems among VC investors.

The fundamental concept in social science is Power, in the same sense in which Energy is the fundamental concept in physics.

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The attempt to treat one form of power, say wealth, in isolation, can only be partially successful, just as the study of one form of energy will be defective at certain points, unless other forms are taken into account.

–Russell (1938: 4)

Power has been a central topic in classical organization theory (Crozier, 1964; Etzioni, 1961; Pondy, 1966). As the open system perspective prevailed in organizational analysis in the late 1970s (Scott & Davis, 2006), resource dependence theory (Pfeffer & Salancik, 1978/2003) extended the inquiry of power into interorganizational relations. However, resource dependence theory has been “marginalized as an engine for theoretical advancement and a basis for testable empirical research” (Casciaro & Piskorski, 2005: 167) in recent years. The decline of the power account in the analysis of interorganizational relations (Pfeffer, 1997) reflects a shift of
organization theorists’ attention to institutional and evolutionary forces (DiMaggio & Powell, 1983; Hannan & Freeman, 1977), but this decline is unfortunate because institutional actors pursue power (Scott, 1987; Sherer & Lee, 2002), power dynamics shed light on the evolution of organizational fields (Dacin, 1997), and the inquiry into power may enhance the impact of organization theory on other areas, such as financial economics (Hart, 2001).

We join a group of colleagues (Baker, 1990; Casciaro & Piskorski, 2005; Eisenhardt & Schoonhoven, 1996; Gulati & Sutch, 2007) to reinvigorate resource dependence theory. Although resource dependence theory hinges on managing the interdependence between organizations, Hillman, Withers, and Collins have noted that it “has not specified which dependencies take precedence over others if multiple important dependencies exist” (2009: 1417). We suggest that different dependencies may play off against each other, such that one source of power may inhibit the effectiveness of another. Whereas most studies of resource dependence theory focus on only one source of power or lump different power sources together (Casciaro & Piskorski, 2005; Gulati & Sutch, 2007; Pfeffer & Salancik, 1978/2003), we highlight the imperative to investigate the mismatch between multiple sources of power.

Specifically, we explore the mismatch between two sources of power: ownership and status. Ownership is pivotal in both resource dependence theory (Pfeffer & Salancik, 1978/2003) and financial economics (Hart, 2001), and the inquiry into status is one of the major streams of contemporary organization theory (Podolny, 2005). We characterize three types of dyadic relationships between ownership and status and examine their relative mixes at the group level: (1) power source match (actor A’s ownership and status are both higher than those of B); (2) ownership-dominated power source mismatch (A’s ownership advantage over B is greater than B’s status advantage over A); and (3) status-dominated power source mismatch (A’s ownership advantage over B is less than B’s status advantage over A). We examine the impact of these relationships on the effectiveness of venture capital (VC) syndication over a 30-year period (1976–2005).

Hillman et al. (2009) also noticed that, although resource dependence theory shares a number of fundamental assumptions with contingency theory, it has not benefited sufficiently from the latter. We borrow a primary insight of the contingency perspective (Schoonhoven, 1981) by proposing a set of interactive relationships concerning power source mismatch. We underscore the opposite moderating effects of the two types of power source mismatch on the positive association between power source match and the effectiveness of VC syndication. Whereas ownership-dominated power source mismatch will strengthen the positive effect of power source match, because the syndicate can maintain legitimate ownership order while benefiting from diverse inputs, status-dominated power source mismatch will weaken it, because disorderly interaction may emerge. Further, we propose that the damage caused by the moderating effect of status-dominated power source mismatch can be relieved by familiarity among VC firms and the performance of the portfolio company, because mutual trust embedded in familiarity helps organize group interaction, whereas the autonomy of entrepreneurs that perform well buffers turbulences caused by interaction problems among VC investors.

Our study makes three contributions to organization theory. First, we use a novel concept of power source mismatch to revitalize resource dependence theory. We adopt a contingency approach to elucidate the moderating effect of different types of power source mismatch. The mismatch between ownership and status links two disparate streams of inquiry into interorganizational relations: resource dependence and status (Pfeffer, 2003); the moderating effect of familiarity on the interaction of power source match and status-dominated power source mismatch connects the “embeddedness” argument (Granovetter, 1985) with power relations; and the moderating effect of entrepreneurial performance depicts the interaction between different power domains. Second, our study complements the recent exploration of social structural incoherence by organizational theorists and economic sociologists (Zuckerman, 2004). We anchor our theory on one of the most fundamental subjects of social sciences, the problem of order (Wrong, 1994), stressing that disorderly interaction caused by the interaction of power source match and status-dominated power source mismatch hinders the effectiveness of interorganizational relations. Third, our study illustrates the potential impact of organization theory on financial economics. Although venture capitalists intend to be highly rational, they are unlikely to fully discern the consequences of complex patterns of interaction among syndicate members. Although the highly uncertain environment allows venture capitalists to rely on
both financial contracts and organizational status
to coordinate interaction, these two sources of
power may create detrimental misalignment. Fi-
nancial economists should not only focus on the
relationship between investors and entrepreneurs
but also analyze in greater depth the interaction
among investors themselves (Chahine, Arthurs,
Filatotchev, & Hoskisson, 2012).

THEORY AND HYPOTHESES

Power Source Mismatch

Emerson (1962) suggested that power is a prop-
erty of social relations between actors rather than
an actor’s attribute, because it resides implicitly in
the other’s dependency. Furthermore, he notes that
power “exists nonetheless as a potential, to be ex-
plored, tested, and occasionally employed by the
participants” (Emerson, 1962: 32). Similarly, Lev-
inger (1959) defined social power as an actor’s po-
tential for influencing one or more other actors
toward acting or changing in a given direction, and
Wrong stated that “people may react to the pos-
essor or controller of resources by anticipating the
effective use of these resources to control their own
actions” (1979: 126). The notion of “anticipatory
influence” illustrates that the sources of power can
coordinate social interaction without activating the
exercise of power.

Resource dependence theory also elucidates the
importance of power source in forming, maintain-
ing, and changing interorganizational relations. A
key tenet of this theory concerns not how organi-
zations exercise power over each other but how
they take actions (e.g., join ventures, interlocking
board of directors, etc.) in anticipation of the use
of resources that they need yet are controlled by oth-
ers. Pfeffer and Salancik noted that “a major deter-
minant of dependence is extent of discretion over
the allocation and use of a resource possessed by
another social actor,” and “such discretion is a

However, most studies of resource dependence
theory have focused on only one source of power or
lump different power sources together (Casciaro &
Piskorski, 2005; Gulati & Strych, 2007; Pfeffer &
Salancik, 1978/2003), making it difficult to articu-
late the multiplexity of resource dependencies
(Hillman et al., 2009). Pfeffer and Salancik (1978/
2003) noted that the existence of incompatible de-
mands from different coalition participants in-
creases the possibility that an organization will be
unable to maintain the necessary coalition of sup-
port. The notion of power source mismatch adds
new insights to their observation, because the mis-
match arises from multiple dependencies between
the same coalition participants and can impact the
effectiveness of their relations.

Our approach of power source mismatch sug-
gests that one resource dependency may prevail
over another (Hillman et al., 2009), so that one
source of power may inhibit the effectiveness of
another. Emerson (1962) suggested that multiple
power relations do not necessarily neutralize each
other, but that mismatched dependencies (A de-
pend on B along one source of power, yet B de-
pend on A along another) may create instability in
social relations. In response to the call by scholars
of power relations (Cook, 1977; Emerson, 1962), we
extend the inquiry into interpersonal power rela-
tions to interorganizational power relations, artic-
ulating the impact of different forms of mismatch
between two major power sources: ownership and
status.

Ownership and Status

Ownership has attracted considerable attention
in the study of resource dependence (Hillman &
Dalziel, 2003; Katila, Rosenberger, & Eisenhardt,
2008; Lincoln, Gerlach, & Takahashi, 1992; Palmer
& Barber, 2001), because it is the “means of poss-
sessing a resource and therefore controlling it”
(Pfeffer & Salancik, 1978: 48). Status refers to an
actor’s prestige, which reflects the worth of the
actor (Jasso, 2001). Ownership is a source of legit-
imate power (French & Raven, 1959), because it
involves the assertion of a legitimate right to take or
retain the possession of an object and the acknowl-
ledgeability of the rightfulness of this claim by others
(Kronman, 1983). Status is a source of referent
power (French & Raven, 1959), in that a low-status
actor desires to be associated with a higher-status
one and is willing to assume attitudes or beliefs
held by the latter. Ownership is deal-specific and
thus relatively short-term, whereas status is based
on cross-deal relationships and is longer-term in

Pfeffer (2003) noted that there has been little
research connecting status inquiry to resource de-
pendence theory. We link these approaches by ex-
amining the mismatch between ownership and sta-
tus in the context of venture capital, a key form of
entrepreneurial financing (Bygrave & Timmons,
1992). In addition to providing capital, VC firms
help new ventures (portfolio companies) formulate strategy, recruit key personnel, build customer relations, and communicate with investors (Hallen, 2008; Hsu, 2004; Podolny, 2001) to earn capital gains from the ventures’ successful exit, which is a major indicator of the effectiveness of VC investment (Hochberg, Ljungqvist, & Lu, 2007; Stuart, Hoang, & Hybels, 1999). VC firms often form co-investment syndicates to accumulate capital, spread risks, and combine complementary expertise (Fund, Pollock, Baker, & Wowak, 2008; Podolny, 2001; Sorenson & Stuart, 2001).

In spite of these benefits, coordination between VC firms is challenging, because conflict may outweigh cooperation in interorganizational collaboration that lacks a formal authority structure (Ring & Van de Ven, 1992). Team research suggests that group members often disagree over the group’s goals, the strategies to pursue these goals, and possible solutions to problems, such that groups must coordinate members’ behavior to work and make collective decisions in a peaceful and efficient manner (Anderson & Brown, 2010). VC syndicates are not free of such group problems (Chahine et al., 2012); thus, it is important for them to engage in orderly social interaction to process complex information from both the highly uncertain technological industries of their portfolio companies and the volatile financial market, provide coherent advice to portfolio companies, and reach a timely consensus over major actions such as the recruitment of start-up management teams, obtaining a new round of financing, and managing time-to-exit, among others (Gompers, Kovner, Lerner, & Scharfstein, 2008; Guler, 2007; Hsu, 2004; Lerner, 1994; Wright & Lockett, 2003).

Most financial economics studies assume that VC investors act in concert under a financial contract (Chahine et al., 2012), such that signing a deal will ensure seamless cooperation among participating VC firms (Gompers & Lerner, 1999; Lerner, 1994). According to their roles as delineated in the financial contract, VC firms holding higher equity stakes have more legitimate power (French & Raven, 1959) in making major decisions. Organization theorists do not question the importance of ownership but suggest that cognitive limitation and environmental complexity make it impossible for economic actors to fully anticipate the consequences of most goal-oriented behaviors (Guler, 2007; Hallen, 2008; Podolny, 2001; Rider, 2009). When asked whether VC firms in a syndicate could run into conflict, a venture capitalist said, “It happens and could be nasty.”1 Wright and Lockett (2003) suggested that the syndicated investment agreement is a document that enshrines the rights of participants rather than specifying behavior, implying that social forces may influence interactions between VC investors in a syndicated deal. Another venture capitalist insisted that ownership represents the only order in a syndicated deal, but when asked to evaluate the role of status in a syndicate, she said, “If you are Kleiner Perkins, you speak, we listen. Period.”

A remarkable finding from VC studies is that status decreases the uncertainty that the financial market faces when evaluating a portfolio company (Hsu, 2004; Podolny, 2001) and increases the likelihood of a portfolio company’s successful exit (Stuart et al., 1999), a perspective recently subscribed to by financial economists as well (Hochberg et al., 2007). Nonetheless, few studies have examined the function of status within a VC syndicate, and we suggest that status is not only a signal (Podolny, 2005) for the external audiences (e.g., future VC investors, investment banks, institutional investors), but also an important mechanism influencing VC firms’ behavior in a syndicate.

Status could be a constraint on low-status VC firms because they have a high motivational investment in being affiliated with a higher-status VC firm (“marry-up”; Castellucci & Ertug, 2010; Emerson, 1962; Fund et al., 2008; Podolny, 2005), which can endorse lower-status players in the VC industry and signal the quality of the deal. Therefore, although ownership has the legitimacy to be the predominant interaction order in a VC syndicate, its actual coordinating function may be inhibited by status-based dependency. In other words, the effectiveness of ownership relies on whether it can successfully absorb status constraint.

Team research has indicated that different compositions of the same characteristic could coexist and interact with each other (Gibson & Vermeulen, 1999). To better comprehend social and economic dynamics in the VC industry, we interviewed eight VC professionals (principals or partners in eight VC firms) in November and December 2008, in the region where the first author resided. The interview questions were opened, centering on the following topics: (1) background information (for both the individual professional and his/her firm); (2) experience with VC syndication; (3) the function of ownership, prestige, and prior collaboration in VC syndication; and (4) the relationship between VC firms and entrepreneurs of portfolio companies.

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2003; O’Reilly, Caldwell, & Barnett, 1989). Similarly, we suggest that matched resource dependency may coexist with different forms of mismatched dependencies. We define power source match as a syndicate member having both ownership and status advantage over another member, ownership-dominated power source mismatch as a member’s ownership advantage over another one being greater than the latter’s status advantage, and status-dominated power source mismatch as a member’s ownership advantage over another one being less than the latter’s status advantage. All three types of relationships can simultaneously exist within a syndicate, so we can capture their relative mixes at the syndicate level, as illustrated by the example in Exhibit 1.

**Hypotheses**

**Power source match.** If a VC firm with higher ownership also possesses higher status, the status advantage will reinforce its ownership advantage. Whereas ownership advantage provides the VC firm more contractual rights, status advantage allows it to receive deference from the lower-status partner, thereby strengthening the coordinating function of ownership. At the syndicate level, VC syndicates with greater power source match will more effectively coordinate group interaction. Consequently, the syndicate can reach timely consensus on major decisions (Lerner, 1994), and its portfolio companies can receive clear and coherent guidance from the syndicate. Taken together, the orderly interaction stemming from power source match will benefit the effectiveness of VC syndication. Thus, we hypothesize:

Hypothesis 1. The greater the power source match, the more effective the VC syndication.

**Ownership-dominated power source mismatch.** In conjunction with power source match, power source mismatch may also exist in VC syndication. Although power source match represents the coherence of multiple dependencies, its impact on the effectiveness of interorganizational relations may depend on different forms of power source mismatch that it interacts with. We investigate the moderating effects of power source mismatch in response to Hillman et al.’s (2009) call for linking resource dependence theory with contingency theory, and we propose that ownership-dominated power source mismatch will benefit syndicate effectiveness by complementing power source match.

Power source match is a platform that ensures smooth ownership-based group interaction, and ownership-dominated power source mismatch is a controllable “deviance” that fosters diverse inputs, which may enhance the group’s effectiveness (Hinsz, Tindale, & Vollrath, 1997; Horwitz & Horwitz, 2007; Milliken, Bartel, & Kurtzberg, 2003). Because status concerns a VC firm’s role in the VC industry instead of its specific ownership role in a syndicate, high-status VC firms may “cross the line,” provoking different opinions even though their ownership is lower than a lower-status one. The opinion of these high-status firms may be valuable because of their extensive social networks, rich experience with technological industries, and tacit knowledge in determining when to make a timely exit (Gompers et al., 2008; Hallen & Eisenhardt, 2012; Lerner, 1994; Lindsey, 2008).

On the other hand, the value of status also causes lower-status VC firms to depend on high-status ones, leading status to become a constraint on the lower-status firms. If a lower-status VC firm’s ownership advantage is greater than its status disadvantage over another VC firm, it can use its legitimate power advantage to absorb the latter’s status constraint by asserting its property rights. As a venture capitalist from a boutique VC firm commented regarding working with prestigious VC firms, “Yes, we respect them even though we are the lead, as long as they don’t go too far.” The comment suggests that a low-status VC firm might use ownership advantage to claim its leading ownership position. Because the high-status VC firm depends on the low-status VC firm’s commitment of financial resources in executing the deal, the relatively substantial ownership advantage (vis-à-vis status disadvantage) will facilitate the enactment of the low-status VC firm’s ownership role, consistent with Wright and Lockett’s notion of “residual power” (2003: 2086) in VC syndicates’ decision making. Ownership-dominated power source mismatch not only lets the VC firm with higher status and lower ownership express different opinions but also enables the VC firm with higher ownership and lower status to effectively exercise its contractual ownership rights, thereby supplementing the benefits of ownership-based interaction from power source match.

Hypothesis 2. Ownership-dominated power source mismatch strengthens the positive effect of power source match on the effectiveness of VC syndication.
EXHIBIT 1
An Example of the Computation of Power Source Match and Mismatch
Team X has four VC firms: A, B, C, and D (sum of status score = 1; sum of ownership score = 1)

<table>
<thead>
<tr>
<th>VC Firms</th>
<th>Status</th>
<th>Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.4</td>
<td>0.2</td>
</tr>
<tr>
<td>B</td>
<td>0.3</td>
<td>0.4</td>
</tr>
<tr>
<td>C</td>
<td>0.2</td>
<td>0.1</td>
</tr>
<tr>
<td>D</td>
<td>0.1</td>
<td>0.3</td>
</tr>
</tbody>
</table>

The party with the higher ownership score in a dyad is \( i \); \( j \) is the other party of the dyad; \( O \) is ownership; \( S \) is status; \( (O_i - O_j) \) is \( i \)'s ownership advantage; \( (S_j - S_i) \) is \( j \)'s status advantage.

Power Source Match
(A, C), (B, C), and (B, D) are the dyads of power source match.

\[
PM_X = \sum_{i,j}^k \frac{(O_i - O_j) - (S_j - S_i)}{n} = \frac{(0.4 - 0.2) - (0.1 - 0.3)}{6} + \frac{(0.4 - 0.1) - (0.2 - 0.3)}{6} + \frac{(0.4 - 0.3) - (0.1 - 0.3)}{6} = 0.17
\]

Ownership-Dominated Power Source Mismatch
(A, B) and (C, D) are the dyads of ownership-dominated power source mismatch.

\[
OM_X = \sum_{i,j}^k \frac{(O_i - O_j) - (S_j - S_i)}{n} = \frac{(0.4 - 0.2) - (0.2 - 0.4)}{6} + \frac{(0.4 - 0.1) - (0.2 - 0.3)}{6} + \frac{(0.4 - 0.3) - (0.1 - 0.3)}{6} = 0.03
\]

Status-Dominated Power Source Mismatch
(A, D) is the dyad of status-dominated power source mismatch.

\[
SM_X = \sum_{i,j}^k \frac{(O_i - O_j) - (S_j - S_i)}{n} = \frac{(0.3 - 0.2) - (0.1 - 0.1)}{6} = 0.03
\]

All the dyads of team X are as follows:

<table>
<thead>
<tr>
<th>Dyads</th>
<th>( O_i )</th>
<th>( O_j )</th>
<th>( S_j )</th>
<th>( S_i )</th>
<th>( O_i - O_j )</th>
<th>( S_j - S_i )</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A, B)</td>
<td>0.4</td>
<td>0.2</td>
<td>0.4</td>
<td>0.3</td>
<td>0.2</td>
<td>0.1</td>
</tr>
<tr>
<td>(A, C)</td>
<td>0.2</td>
<td>0.1</td>
<td>0.2</td>
<td>0.4</td>
<td>0.3</td>
<td>0.1</td>
</tr>
<tr>
<td>(A, D)</td>
<td>0.3</td>
<td>0.2</td>
<td>0.4</td>
<td>0.1</td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td>(B, C)</td>
<td>0.4</td>
<td>0.1</td>
<td>0.2</td>
<td>0.3</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>(B, D)</td>
<td>0.4</td>
<td>0.3</td>
<td>0.2</td>
<td>0.1</td>
<td>0.2</td>
<td>0.1</td>
</tr>
<tr>
<td>(C, D)</td>
<td>0.3</td>
<td>0.1</td>
<td>0.2</td>
<td>0.1</td>
<td>0.2</td>
<td>0.3</td>
</tr>
</tbody>
</table>

**Status-dominated power source mismatch.** By contrast, status-dominated power source mismatch may disrupt the ownership-based interaction bred by power source match, because it becomes very problematic when a low-status VC firm’s ownership advantage is not substantial enough to absorb the status constraint imposed by a higher-status partner.

The substantial status difference fosters a low-status VC firm’s strong desire to affiliate with higher-status players (French & Raven, 1959; Podolny, 2005), making it difficult for the low-status firm to assert its smaller ownership advantage over a higher-status firm. Moreover, because the firm with a substantial status advantage yet relatively smaller ownership disadvantage does not depend significantly on the lower-status firm’s financial contribution to the deal, it may neglect the opinion of the latter (Fiske, 1993) and dampen the latter’s motivation (Keltner, Gruenfeld, & Anderson, 2003), both of which could diminish the legitimate ownership order. The coexistence of power source match and status-dominated power source mismatch may also create confusion among syndicate members regarding whether the whole group will gauge action upon ownership or status, resulting in ambiguities when they interact. In addition, due to ineffective coordination caused by status-dominated power source mismatch, entrepreneurs may receive conflicting directions from the VC syndicate, because higher-status VC firms may offer directions without consulting low-status firms, whereas the latter may also directly provide guidance to entrepreneurs based on their legitimate ownership advantage. With regard to the importance of order in syndicated deals, a venture capitalist reminded the CEO of portfolio companies that “as a CEO, that can be a disaster—come to a crossroads for the company and suddenly you’re trying to herd a whole bunch of cats into a decision, or fielding anxious phone calls from all directions. Without a strong lead investor helping to manage her co-investors through that process, you as CEO are in for a splitting headache.”

Hypothesis 3. **Status-dominated power source mismatch diminishes the positive effect of power source match on the effectiveness of VC syndication.**

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2 This quote can be found in a blog maintained by Brad Svrluga, an early-stage venture capitalist (“Beware the Headless Horseman”). Accessed in December 2011.
**Familiarity.** We suggest that familiarity stemming from prior collaboration among syndicate members may moderate the interactive effect of power source match and status-dominated power source mismatch, mitigating damages caused by the latter. In contrast to the relationship between new collaborators, repeated interactions contain greater trust (Gulati, 1995) and more stable role expectations (Ring & Van de Van, 1994). Cook and Emerson (1978) conceived commitment between exchange partners to be an interpersonal attachment leading actors to exchange repeatedly with the same partners, and Kramer (1999) suggested that interactional histories give decision makers useful information to assess partners’ dispositions, intentions, and motives. In addition, repeated collaboration also originates from “self-selection,” a rational choice view of trust (Kramer, 1999); venture capitalists frequently made the following comment in our interviews: “If I worked with someone once and found something uncomfortable, I would never work with him again.”

Based on amicable prior interactions, familiarity also engenders greater psychological safety (Edmondson, 1999), a shared belief that a syndicate is a safe environment for VC firms to challenge each other. As the group’s psychological safety increases, they can feel more comfortable about claiming legitimate ownership advantage over those with higher status but lower ownership without being concerned about losing future opportunities to affiliate with the latter. When low-status firms make the claim of ownership advantage in a familiar team, higher-status firms will also not reduce their motivational investment (Emerson, 1962) in the interdependent power relations. Therefore, familiarity enhances the prominence of the ownership-based order and facilitates smoother interaction between VC firms in the syndicate. Thus, we hypothesize:

**Hypothesis 4.** Greater familiarity among syndicate members diminishes the negative interactive effect of power source match and status-dominated power source mismatch on the effectiveness of VC syndication.

**Entrepreneurial performance.** Because of the potential agency problems (e.g., entrepreneurs hold asymmetric information against VC investors, entrepreneurs derive private benefits from VC investment, etc.), VC firms typically acquire control rights that are disproportionally large compared to what they would have under the “one share one vote rule” (Kirilenko, 2001: 565). From a resource dependence perspective (Pfeffer & Salancik, 1978), the relationship between the VC syndicate and entrepreneurs highlights the tension between interdependence and autonomy (Emerson, 1962). Entrepreneurs need resources and help from VC investors but also desire autonomy, potentially leading entrepreneurs of better-performing portfolio companies to seek greater control (Kaplan & Stromberg, 2003).

We propose that entrepreneurial performance (i.e., the performance of the portfolio company) may also moderate the interactive effect of power source match and status-dominated power source mismatch, helping mitigate problems caused by the latter. When the portfolio company achieves better performance, entrepreneurs will gain more autonomy in the interdependent relationship with a VC syndicate because VC firms will be less likely to interfere with the operations of a venture with strong performance. VC firms’ concerns about the agency problem are alleviated, because they are more confident of the entrepreneurs’ capability and commitment and willing to give more control back to the entrepreneurs. As Beth Seidenberg, a partner at Kleiner Perkins, noted, “When you get venture capital money into your company, we will own . . . anywhere from 20% to 60%. . . . For the founders, they want to get more ownership . . . and the only way to do that is to increase the valuation of their company. So we are all motivated to do the same thing.”3 Another venture capitalist commented, “As long as things are going on well, a venture capitalist will leave you [entrepreneur] alone.”4 Allowing entrepreneurs more autonomy will shield the portfolio company from the detrimental moderating effect of status-dominated power source mismatch. Even if entrepreneurs receive conflicting directions due to status-dominated mismatch of the VC syndicate, they will now have greater autonomy in deciding which direction to take in their managerial practice. Therefore, entrepreneurial performance may buffer against turbulence caused by interaction problems among VC investors. Thus, we hypothesize:

**Hypothesis 5.** Better entrepreneurial performance diminishes the negative interactive

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effect of power source match and status-dominated power source mismatch on the effectiveness of VC syndication.

DATA AND METHODS

Sample and Data

We analyzed all venture-backed biotech companies in the United States from the beginning of 1976 to the end of 2005. We collected data from the VentureXpert database, which has been extensively used to study the VC industry (Podolny, 2001; Sorenson & Stuart, 2001, 2008). Our final sample consisted of 1,503 VC firms investing in 1,096 biotech ventures. To our knowledge, this is the longest research period covered for the study of the US biotech industry, a major sector for venture capital investment (Stuart et al., 1999). Because our data started from the birth year of the biotech industry (the first modern biotech company, Genentech, was founded in 1976), we were able to avoid the potential problem of “left censoring” (Collett, 2003) in the survival analysis, which we report later.

Ownership and Status

Ownership refers to a participating VC firm’s equity share based on its cumulative investment and ranges from 0 to 1. Following Hochberg et al. (2007), we used VentureXpert’s estimated amount for the missing equity data and obtained 94 percent of the equity information for all the financing rounds in the sample. We included other investors (e.g., banks, insurance companies, endowments) in computing ownership because they often take a considerable portion of ownership, and we added a dichotomous variable indicating whether the syndicate had investors that were not private VC firms (Hochberg et al., 2007). Because status is relatively stable (Podolny, 2005; Washington & Zajac, 2005), we used a five-year window \( t - 5 \) (McFadyen & Cannella, 2004; Podolny, Stuart, & Hannan, 1996; Sorenson & Stuart, 2001) to construct the matrix for the current year \( t \) to smooth potential “sudden” status changes caused by short-term variations.

We used Bonacich’s (1987) centrality to measure a VC firm’s status (Podolny, 2001):

\[
C_i(\alpha, \beta) = \sum_j (\alpha + \beta c_{ij})R_{ijt-1},
\]

where \( c_{ij} \) is the centrality of VC firm \( i \) in year \( t \) and \( R_{ijt-1} \) refers to an element of a co-investment matrix \( R_{t-1} \), indicating the number of times that VC firms \( i \) and \( j \) jointly invest in the same companies over the past five-year time period. \( \alpha \) is an arbitrary scaling coefficient, and \( \beta \) denotes a weighting parameter, representing the extent to which the centrality of VC firm \( i \) is a function of the centralities of the VC firms in matrix \( R_{ijt-1} \).

To obtain the centrality score, we set \( \beta \) equal to zero, which essentially computes degree centrality (i.e., a VC firm’s status is determined by how many partners with which it is directly affiliated; Bonacich, 1987). Degree centrality has been used to measure a VC firm’s status (Hochberg et al., 2007), and the venture capitalists that we interviewed considered the VC status scores based on the zero value of \( \beta \) to be more appropriate than those based on other \( \beta \) values. In addition, the status scores that we obtained had a .92 correlation with the reputation index computed by Lee, Pollock, and Jin (2011). We divided each VC firm’s status score by the sum of the status scores of all VC firms, such that a VC firm’s status score ranges from 0–1, comparable to the range of the ownership score.

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5 Approximately 16 percent of the estimated amount was based on mean substitution (i.e., the total actual amount divided by the number of VC firms in a round), and VentureXpert obtained information for the rest of the missing data via alternative sources.

6 Their reputation index was based on six factors: (1) the total dollar amount of investment funds raised over the previous five years; (2) the number of investment funds founded over the previous five years; (3) the number of start-ups invested in over the previous five years; (4) the total dollar amount of funds invested in start-ups over the previous five years; (5) the number of companies taken public over the previous five years; and (6) the age of the VC firm.
Power Source Match/Mismatch

Building from group research on power asymmetry (Van der Vegt, de Jong, Bunderson, & Molleman, 2010), our measure of syndicate-level power source match/mismatch is the average score of dyadic power source match/mismatch. Dyadic power source match/mismatch refers to power source match/mismatch between any two VC firms in a syndicate, and the syndicate-level power source match/mismatch is the average of all dyadic power source match/mismatch. Because the distribution of the dyadic power source match/mismatch may be more skewed for one syndicate than for the other, we used the coefficient of variation (standard deviation divided by the mean; Harrison & Klein, 2007) to control for the distribution of power source match/mismatch between any two VC firms in a syndicate.7

Regarding status-dominated mismatch, k is the number of dyadic pairs in which a party’s ownership advantage (Oi − Oj) is less than the other’s status advantage (Sj − Si).8

Familiarity. We operationalized familiarity as the number of dyadic ties among participating VC firms in the previous five years (Gulati, 1995; Gulati & Garigiulo, 1999). We used the five-year window because Sorenson and Stuart (2001: 1568) noted that “if two firms have not co-invested within a five-year period, it seems unlikely that their members remain close confidants.” Consistent with our measure of status, familiarity was based on prior collaborations in all industries. In a separate analysis, we used the number of ties formed over the past three years and obtained consistent regression results.

Entrepreneurial performance. Patents represent a major form of intellectual property for venture-backed portfolio companies (Ueda, 2004) and a key indicator of their performance (Stuart et al., 1999). Mann and Sager (2007) found a high correlation between patent acquisition and several indicators of venture capital investment (e.g., number of rounds and total investment), suggesting that patents are a critical resource for entrepreneurs seeking to influence the outcome of the negotiation with VC firms. We thus used the count of patents that each portfolio company had prior to an investment round (Somaya, Williamson, & Zhang, 2007) as a proxy measure of entrepreneurial performance. We obtained patent data from two sources: the US patent database (1976–2006), composed by the National Bureau of Economic Research (NBER), and a database maintained by Recombinant Capital, a biotech research firm, which we used to supplement the NBER patent database. We obtained patent data for 236 portfolio companies and replaced the missing values with zero, because it was likely that they did not have a patent. Following Hsu, Hannan, and Kocak (2009), we included a binary variable indicating the zero replacement, which avoided a considerable reduction of the sample size. We also conducted a separate analysis using the count of patents without zero replacement; the results of this analysis were similar to those reported.

Dependent Variable (Time-to-Exit) and

7 Although it is not our theoretical focus, we checked the prevalence of “power source reverse” (A’s ownership advantage equals B’s status advantage) and found that it was extremely rare; only four rounds (our sample had 2,062 rounds in total) had this special case (each round had only one dyad experiencing the “reverse”).

8 One may speculate that the quality of patents is also important, and one possible approach to incorporate this is to use the number of citations made by subsequent
Model Specification

Although it would be ideal to measure the effectiveness of VC syndicates using the returns of VC funds, no exiting datasets provide historical return information (Hochberg et al., 2007). Therefore, we used time-to-IPO (initial public offering) or mergers and acquisitions (M&A) as a proxy for the effectiveness of VC syndication (Gompers & Lerner, 2000; Hochberg et al., 2007). In a separate analysis, we used multinomial logit models to examine whether the impact of power source match/mismatch on IPO would differ from that on M&A and did not find a significant difference, suggesting that it is appropriate to combine IPO and M&A in our context.

We estimated the hazard rate of a portfolio company’s exit using the instantaneous rate, \( r(t) \):

\[
r(t) = \lim_{\Delta t \to 0} \frac{q_i(t, t + \Delta t | \Delta t)}{\Delta t},
\]

where \( q_i \) is the probability of a company experiencing the exit event in the interval \( t, t + \Delta t \). To estimate the effects of our independent variables on the rate of exit, we used the piecewise exponential model. Assuming that the baseline transition rate is constant within a time period but can change in an unconstrained manner across periods, the piecewise exponential model does not require a strong assumption regarding the functional form of age dependence (Blossfeld & Rohwer, 1995; Stuart et al., 1999). We also tried the Cox proportional hazards model and obtained consistent results.

In our piecewise exponential model estimating the exit rates, the age range is split into \( k \) points \( (a_1, a_2, \ldots, a_k) \), which, with \( a_{k+1} = \infty \), creates \( k \) age periods: \( I_l = (t | a_l \leq t < a_{l+1}) \), \( l = 1, \ldots, k \). Constants (baseline failure rates) are estimated for each age period. Therefore, the piecewise exponential model takes the following form (Ingram & Baum, 1997):

\[
r(t) = \exp(\alpha_i M_i + \alpha_2 C_{ij} + \beta_1 \sum_j PM_{ij} + \beta_2 \sum_j OM_{ij} + \beta_3 \sum_j SM_{ij} + \beta_4 \sum_j FM_{ij} + \beta_5 \sum_j EM_{ij}) \exp(\delta_l),
\]

if \( t \in I_l \),

where \( M_i \) is a matrix of time-varying variables of environmental factors; \( C_{ij} \) is a matrix of time-varying variables of portfolio companies’ characteristics; \( PM_{ij} \) is a time-varying matrix of power source match in round \( j \); \( OM_{ij} \) is a time-varying matrix of ownership-dominated power source mismatch in round \( j \); \( SM_{ij} \) is a time-varying matrix of status-dominated power source mismatch in round \( j \); \( FM_{ij} \) is a time-varying matrix of familiarity in round \( j \); \( EM_{ij} \) is a time-varying matrix of entrepreneurial performance in round \( j \); \( \alpha_1, \alpha_2, \beta_1, \beta_2, \beta_3, \beta_4, \) and \( \beta_5 \) are coefficients to be estimated; and \( \delta_l \) is a constant coefficient associated with the \( l \)th age period.9

To accommodate the time-varying covariates, we divided the time periods into company-quarter spells. All of the time-varying variables were updated each calendar quarter. Each quarterly spell was treated as right-censored, except for the spell in which portfolio companies went to IPO or were acquired. We computed robust standard errors to account for the possible autocorrelation within each portfolio company (Lin, 1994). Among the 1,096 biotech companies in our sample, 256 made it to IPO, and 74 were acquired by the end of 2005. The remaining companies were treated as right-censored as of December 31, 2005.

Control Variables

We controlled for the average ownership and status, both of which were in their logarithmic form to treat the skewed distribution, and also controlled for the coefficient of variation of ownership and status and syndicate size, namely the number of participating VC firms (Dimov, Shepherd, & Sutcliffe, 2007; Guler, 2007; Hallen, 2008). We included deals with some rounds backed by a single

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9 We divided the age range at 480 days (approximately 1.3 years), 2,100 days (approximately 5.7 years), and 4,500 days (approximately 12 years) in our hazard-rate analysis. We chose these split points because the baseline hazard rate changed substantially at each split point (Kim, Kim & Miner, 2009).
VC firm and used a binary variable to set the effect of multiple-VC rounds apart from that of single-VC rounds. We added another binary variable indicating whether a syndication round was composed of two VC firms (= 1) because a two-member syndicate is idiosyncratic according to our measure of power source match/mismatch (e.g., one member’s ownership share equals one minus the share of the other).

We controlled for the effects of investment stages of the latest round by including two types of variables. We first included a binary variable indicating a later stage (earlier stage is used as the baseline; Sorenson & Stuart, 2001)\(^\text{10}\) and added dummies of the sequential number of each round, which could impact VC firms’ decision making (Guler, 2007). In addition, we added a variable representing the years elapsed since 1976 to control for time effects derived from the evolution of the industry (Rhee & Haunschild, 2006). We also included yearly dummies to incorporate time trend effects associated with changes in economic and industry environments (Stuart et al., 1999). To control for fast-changing financial market conditions, we added the number of biotech companies that had undergone an IPO or M&A during the prior quarter (Ball, Chiu, & Smith, 2011).

Endogeneity

Like many studies investigating the effects of the change of network properties over time on economic outcomes, our study may be susceptible to endogeneity, because certain features of VC firms or portfolio companies would influence both network formation and syndicate effectiveness. We considered two estimations that are known to overcome the problem: (1) a two-stage model incorporating instrumental variables (Heckman, 1979) and (2) a conditional fixed-effect logistic model (Allison & Christakis, 2007; Sørensen, 2007). However, a thorough examination suggested that neither was feasible for our analysis. The unique construction of power source match/mismatch makes it difficult to find a good instrument, which prevented us from using the first method. The conditional fixed-effect logistic model must drop the companies that did not exit to compose a matching dataset, which could severely distort our data.

Following Borgatti and Halgin (2011), we used the approach of adding control variables that would indicate the quality of VC firms and portfolio companies to treat the potential endogeneity effects (Groysberg, Polzer, & Elfenbein, 2011; Tortoriello & Krackhardt, 2010). We first controlled for the cumulative investment amount procured by a syndicate up to each round (in thousands USD), which would likely influence time-to-exit as well as tie formation. We transformed the variable using a logarithm to alleviate the skewness of its distribution. We included two variables representing two means by which VC firms demonstrate their capability to induce investments: the amount of VC funds (in millions USD) and the number of the VC funds that a VC firm had managed up to the point of each round (Rider, 2009). Both variables were summed at the syndicate level, and the amount of VC funds was logarithm-transformed as well. Because VC firms could enter or leave a syndicate after recognizing the prospective opportunities or challenges of the portfolio company, we also generated a mutually exclusive set of dummy variables to measure four modes of turnover in the latest round: (1) some incumbent members left and no new members joined; (2) no incumbent members left and some new members joined; (3) some incumbent members left and some new members joined; and (4) no incumbents left and no new members joined.

RESULTS

Table 1 presentsthe descriptive statistics and correlations for variables in our study. Because of the high correlation between logged average ownership and status, we orthogonalized the two variables (Golub & Van Loan, 1996). We performed a variance inflation factor (VIF) test to investigate multicollinearity. The VIF scores for each variable range from 1.01 to 7.05, all of which fell below the threshold of serious multicollinearity (typically 10). In addition, we did a condition index test of multicollinearity (Belsley, Kuh, & Welsch, 1980), and the condition index for models 1–6 reported in was 15.72, 17.32, 17.49, 18.11, 17.59, and 18.20, respectively. Belsley et al. (1980: 105) suggested that con-
| Variables                                      | Mean  | s.d.  | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   | 25   |
|------------------------------------------------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1. Number of exits in prior quarter           | 3.06  | 3.25  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 2. Elapsed year                               | 20.08 | 6.98  | -0.05|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 3. Stage dummy (later stages = 1)             | 0.24  | 0.43  | -0.16|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 4. ln (Cumulative investment)                 | 2.41  | 1.23  | -0.03|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 5. In (Amount of VC funds)                    | 13.39 | 3.11  | -0.04|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 6. Number of VC funds                         | 22.06 | 32.13 | -0.07|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 7. Team size                                  | 3.84  | 2.72  | -0.06|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 8. Single VC round dummy                      | 0.22  | 0.42  | -0.05|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 9. Two-member round dummy                     | 0.18  | 0.38  | -0.02|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 10. Dummy of investors that are not private VC firms | 0.59  | 0.50  | -0.04|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 11. Turnover dummy (some firms left, no firms joined) | 0.13  | 0.34  | -0.03|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 12. Turnover dummy (no firms left, some firms joined) | 0.17  | 0.38  | -0.01|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 13. Turnover dummy (some firms left, some firms joined) | 0.63  | 0.49  | -0.03|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 14. ln (Average ownership)                    | -1.74 | 0.64  | -0.01|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 15. In (Average status)                       | -1.74 | 0.56  | -0.01|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 16. CV of status                              | 1.60  | 0.49  | -0.01|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 17. CV of ownership                           | 0.77  | 0.42  | -0.14|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 18. CV of power source match                  | 0.30  | 0.34  | -0.03|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 19. CV of ownership-dominated mismatch         | 0.11  | 0.25  | -0.01|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 20. CV of status-dominated mismatch           | 0.18  | 0.30  | -0.01|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 21. Power source match                        | 0.29  | 0.37  | -0.02|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 22. Ownership-dominated mismatch              | 0.01  | 0.04  | -0.01|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 23. Status-dominated mismatch                 | 0.09  | 0.17  | -0.01|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 24. Familiarity                               | 1.12  | 2.29  | -0.01|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 25. Number of patents                         | 0.46  | 1.86  | -0.02|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 26. Patent dummy                              | 0.40  | 0.49  | -0.01|      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

* n = 12,118; values greater than .02 in correlation are significant at the p < .05 level (two-tailed tests). "CV" is the coefficient of variation. "VC" is venture capital.
dition indexes of 30–100 indicate moderate to strong multicollinearity problems; therefore, multicollinearity does not appear to be problematic in our analysis. We also performed a robustness check by mean-centering variables in the interactions (Aiken & West, 1991), the results of which were consistent with the noncentered ones that we report in Table 2.

Table 2 reports the results of our piecewise survival analysis. Model 1 includes control variables. In model 2, we added the main effects of power source mismatch, ownership-dominated power source mismatch, and status-dominated power source mismatch. Power source match significantly increased the rate of exit, such that each additional unit of power source match multiplies the rate of exit by a factor of 1.78 ($e^{-5.8x}$), supporting Hypothesis 1. Model 3 added the interaction term of power source match and ownership-dominated power source mismatch as well as that of power source match and status-dominated power source mismatch. Both of the interactive effects were significant, but in opposite directions. Figure 1 indicates that, as Hypothesis 2 predicts, the positive effect of power source match on time-to-exit was stronger when ownership-dominated power source mismatch was greater; by contrast, Figure 2 indicates that the association between power source match and time-to-exit could even become negative when status-dominated power source mismatch increased to one standard deviation above its mean value, supporting Hypothesis 3. In both figures, the x-axis ranges from 0–2, which is the actual range of power source match.

In model 4, we added the three-way interaction of power source match, status-dominated power source mismatch, and familiarity, which had a positive significant effect and is consistent with Hypothesis 4. Figure 3 presents two different scenarios of familiarity among VC firms. When none of the VC firms in a syndicate had ever previously collaborated, status-dominated power source mismatch diminished the positive effect of power source match on time-to-exit. However, as familiarity increased, the positive effect of power source match became stronger, revealing that familiarity relieved damages caused by status-dominated power source mismatch.

Model 5 included the three-way interaction of power source match, status-dominated power source mismatch, and entrepreneurial performance, which also had a positive significant effect, lending support for Hypothesis 5. Figure 4 presents two different scenarios of entrepreneurial performance in terms of the number of patents of a portfolio company, indicating that when the portfolio company did not have any patents, status-dominated power source mismatch diminished the positive effect of power source match on time-to-exit. Once the portfolio company obtained two patents, the positive effect of power source match became stronger, implying that entrepreneurial performance considerably dampened the negative interactive effect of power source match and status-dominated power source mismatch. Model 6 is the full model including both three-way interactive effects, which were consistent with those we tested in models 4 and 5.

**DISCUSSION**

We began this study with the belief that power remains crucial for organization theory, and that it is important to reinvigorate the inquiry of interorganizational power relations (Pfeffer & Salancik, 1978/2003). We agree with Russell (1938) that the attempt to treat one form of power in isolation can only be partially successful, and we extend French and Raven’s (1959) typology of multiple bases of social power to explore how the mismatch between multiple power sources influences the impact of power source match on the effectiveness of interorganizational relations.

We identified the mismatch between two major power sources in interorganizational relations: ownership and status. Whereas ownership-dominated power source mismatch may complement the orderly interaction arising from power source match, status-dominated mismatch hinders it due to potentially conflicting interaction orders (ownership vis-à-vis status). Furthermore, by incorporating higher-level moderators for the interaction between power source match and status-dominated power source mismatch, we demonstrated two mechanisms that relieved the damages caused by status-dominated power source mismatch: familiarity between VC firms and entrepreneurial performance. The familiarity effect echoes the analysis of interorganizational trust relations (e.g., Gulati, 1995), and the impact of entrepreneurial performance sheds light on the connection between two sets of interdependent power relations: those among VC firms of a syndicate and those between the VC syndicate and entrepreneurs. Taken together, we investigated multiple sources of power, multiple forms of power source mismatch, and
<table>
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<tr>
<th>Variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
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<td>−0.06</td>
</tr>
<tr>
<td>Single VC round dummy</td>
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<td>−0.27</td>
<td>−0.32</td>
<td>−0.26</td>
<td>−0.30</td>
<td>−0.23</td>
</tr>
<tr>
<td>Two-member round dummy</td>
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<td>−0.30</td>
<td>−0.30</td>
<td>−0.30</td>
<td>−0.32</td>
<td>−0.31</td>
</tr>
<tr>
<td>Dummy of investors that are not private VC firms</td>
<td>0.34*</td>
<td>0.37*</td>
<td>0.37*</td>
<td>0.37*</td>
<td>0.37*</td>
<td>0.37*</td>
</tr>
<tr>
<td>Turnover dummy (some firm left, no firms joined)</td>
<td>0.32</td>
<td>0.28</td>
<td>0.30</td>
<td>0.32</td>
<td>0.30</td>
<td>0.32</td>
</tr>
<tr>
<td>Turnover dummy (no firms left, some firms joined)</td>
<td>0.14</td>
<td>0.15</td>
<td>0.16</td>
<td>0.18</td>
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<tr>
<td>Turnover dummy (some firms left, some firms joined)</td>
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<td>0.21</td>
<td>0.24</td>
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<tr>
<td>Average ownership</td>
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<td>−0.11</td>
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<td>Average status</td>
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<td>−1.26*</td>
<td>−1.21*</td>
<td>−1.21*</td>
<td>−1.20*</td>
<td>−1.22*</td>
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<tr>
<td>CV of status</td>
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<td>−0.24</td>
<td>−0.24</td>
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<tr>
<td>CV of ownership</td>
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<td>−0.18</td>
<td>−0.18</td>
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</tr>
<tr>
<td>Familiarity</td>
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<td>0.05*</td>
<td>0.08</td>
<td>0.05*</td>
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<tr>
<td>Number of patents</td>
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<td>−0.21</td>
<td>−0.20</td>
<td>−0.21</td>
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<tr>
<td>CV of power source match</td>
<td>−0.24</td>
<td>−0.10</td>
<td>−0.08</td>
<td>−0.13</td>
<td>−0.11</td>
<td>−0.11</td>
</tr>
<tr>
<td>CV of ownership-dominated mismatch</td>
<td>−0.44</td>
<td>−0.52</td>
<td>−0.55</td>
<td>−0.52</td>
<td>−0.52</td>
<td>−0.55</td>
</tr>
<tr>
<td>CV of status-dominated mismatch</td>
<td>−0.13</td>
<td>−0.08</td>
<td>−0.11</td>
<td>−0.10</td>
<td>−0.10</td>
<td>−0.14</td>
</tr>
<tr>
<td>Power source match</td>
<td>0.58*</td>
<td>0.58*</td>
<td>0.60*</td>
<td>0.58*</td>
<td>0.59*</td>
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</table>
multiple parties (VC firms and entrepreneurs) seeking interdependence and control, offering a holistic picture of interorganizational power relations.

**Theoretical Contributions**

In response to organization theorists’ call for tapping the unrealized potential of resource dependence theory (Casciaro & Piskorski, 2005; Pfeffer, 2003; Santos & Eisenhardt, 2009), we initiated an important line of research on power source mismatch to examine interorganizational power relations, underlining that resource dependency along one dimension may inhibit resource dependency along another dimension. Power source mismatch sheds light on a central theme of power relations: the tension between autonomy and interdependence (Emerson, 1962; Pfeffer & Salancik, 1978). While low-status organizations with ownership advantage engage higher-status affiliates to gain attention and status, they may not be cognizant of the fact that the status-based affiliation could constrain their autonomy. If their ownership advantage is substantial enough to absorb this status constraint, the advantages of power source match may be amplified; if the ownership advantage is too limited to absorb the status constraint, disorderly interaction may hamper the effectiveness of the interorganizational relation.

The moderating effects of familiarity and entrepreneurial performance illustrate two mechanisms that help mitigate the problems caused by status-dominated power source mismatch. Familiarity is a form of “embeddedness” (Granovetter, 1983), which has been rarely linked to power relations in organization theory (for exceptions, see Baker [1990] and Pollock [2004]). We suggest that “embeddedness” not only reduces transaction costs (Granovetter, 1985; Uzzi, 1996), but also helps economic actors form a coherent interaction order by absorbing the “overflow” of status constraint. The moderating effect of entrepreneurial performance reveals that power dynamics in one domain (the interaction between a VC syndicate and entrepreneurs) may shield the focal organization (the portfolio company) from problems in another domain (interactions among VC firms in the VC syndicate). To gain a more comprehensive understanding of

### TABLE 2 (Cont’d)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
<th>Model 6</th>
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<tr>
<td>Ownership-dominated mismatch</td>
<td>1.41</td>
<td>0.54</td>
<td>0.48</td>
<td>0.50</td>
<td>0.44</td>
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<tr>
<td></td>
<td>(1.31)</td>
<td>(1.29)</td>
<td>(1.30)</td>
<td>(1.30)</td>
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<td>Status-dominated mismatch</td>
<td>0.85</td>
<td>1.07</td>
<td>1.18</td>
<td>1.03</td>
<td>1.14</td>
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<tr>
<td></td>
<td>(0.59)</td>
<td>(0.59)</td>
<td>(0.60)</td>
<td>(0.61)</td>
<td>(0.62)</td>
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<tr>
<td>Power source match × ownership-dominated</td>
<td></td>
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<tr>
<td>mismatch</td>
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<tr>
<td>Power source match × status-dominated mismatch</td>
<td>−9.73*</td>
<td>−13.79*</td>
<td>−11.42*</td>
<td>−15.91**</td>
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<td>(4.76)</td>
<td>(5.74)</td>
<td>(5.11)</td>
<td>(6.06)</td>
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<td>Power source match × familiarity</td>
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<tr>
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<td>(0.27)</td>
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<tr>
<td>Status-dominated mismatch × familiarity</td>
<td>−1.49</td>
<td>−1.52</td>
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<tr>
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<td>(0.99)</td>
<td>(0.99)</td>
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<tr>
<td>Power source match × status-dominated mismatch</td>
<td>15.22*</td>
<td>15.80*</td>
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<td></td>
<td>(6.96)</td>
<td>(7.05)</td>
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<tr>
<td>Power source match × number of patents</td>
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<td></td>
<td>0.07</td>
<td>0.06</td>
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<tr>
<td></td>
<td>(0.29)</td>
<td>(0.30)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Status-dominated mismatch × number of patents</td>
<td></td>
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</tr>
<tr>
<td>Power source match × status-dominated mismatch</td>
<td>6.13*</td>
<td>6.75*</td>
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</tr>
<tr>
<td></td>
<td>(2.79)</td>
<td>(3.05)</td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

* Robust standard errors are in parentheses. Year dummies and round sequence number dummies are not reported in the table. “CV” is the coefficient of variation.

* p < .05
** p < .01
Two-tailed tests.
resource dependence, organization theorists should pay attention to both multiple power sources and their mismatch, and the interaction between different power domains (Cook, 1977; Markovsky, Willer, & Patton, 1998).

Because ownership and status reflect two forms of social structure, our inquiry into power source mismatch echoes organization theorists’ increasing interest (Burton & Beckman, 2007; Zuckerman, 2004) in exploring the impact of social structural incoherence on organizational action. The notion of power source mismatch adds a new angle of power relations to the framework of incongruence, which has fascinated social psychologists (cognitive dissonance; Festinger, 1957), sociologists (status inconsistency; Berger, Norman, Balkwell, & Smith, 1992; Lenski, 1966), and organization theorists (incoherence of market structures; Zuckerman, 2004). In addition, our study responds to Pfeffer’s (2003) call for linking resource dependence theory (Pfeffer & Salancik, 1978/2003) with status inquiry (Podolny, 2005), suggesting that status-based dependency may inhibit ownership-based dependency.

Our inquiry into power relations also echoes the reemergence of scholarly interest in power in social psychology (Keltner et al., 2003; Magee & Galinsky, 2008; Tjosvold & Wisse, 2009). In spite of this interest, contemporary scholars (Guinote & Vescio, 2010) share classical authors’ concern (Cartwright, 1959) that power is one of the most ambiguous concepts awaiting theoretical and empirical clarification. Our analysis suggests that a promising direction for such study would be to differentiate between multiple sources of power and examine their incongruence. As we incorporate insights from social psychologists (Emerson, 1962; French & Raven, 1959) to develop theories about interorganizational power relations (Cook, 1977; Pfeffer & Salancik, 1978/2003), we demonstrate that power is a common mechanism linking micro and macro dynamics, and we hope that future inquiry into interpersonal power source mismatch will benefit from our investigation of interorganizational power dynamics.

Our analysis of power relations also highlights the potential impact of organization theory on financial economics. We note financial economists’ emerging interest in social dynamics (e.g., Hochberg et al., 2007; Hong & Kacperczyk, 2009) and emphasize that although venture capitalists intend to be highly rational, it is unlikely for them to fully discern the consequences of complex patterns of
interaction among syndicate members. We suggest that financial economists not only address the relationship between investors and entrepreneurs but also examine in greater depth the interaction among investors themselves, a topic that is currently missing from research in financial economics.

Limitations and Avenues for Future Research

Due to the limitations of our data, we were unable to collect some information related to power relations. For example, board membership reflects not only the power split between VC firms but also that between VC investors and entrepreneurs (Kaplan & Stromberg, 2004); therefore, it may be worthwhile to incorporate this factor into the analysis of power source mismatch. Each VC firm typically assigns one or more professionals to handle a syndicated deal, such that the interaction between VC firms in a syndicate may also be influenced by the individual characteristics of these professionals. For instance, will similar educational backgrounds among VC professionals facilitate their interaction and relieve the damage caused by status-dominated power source mismatch? Will the prestige of individual VC professionals or entrepreneurs have a moderating effect on different types of power source mismatch? The combination of interorganizational and interpersonal analyses will exhibit a more comprehensive picture of the dynamics of power source mismatch.

Similar to prior research on power imbalance/asymmetry (Casciaro & Piskorski, 2005; Gulati & Sytch, 2007), we used continuous ownership and status scores to index power source match/mismatch. Alternatively, a categorical ranking method (e.g., first, second, etc.) may be used if quantitative differences in ownership and status do not matter. In our case, if a syndicate has four members—A, B, C, and D—and their status scores are 0.05, 0.1, 0.15, and 0.7, respectively, the categorical ranking difference between A and B would be the same as that between C and D. However, the measure cannot indicate the fact that D’s status advantage over C (0.55) is much greater than B’s advantage over A (0.05); thus, the categorical ranking method is not the most appropriate one for our context.

It is also possible that VC syndicates may take actions to solve the interaction problems caused by status-dominated power source mismatch. In a post-
hoc analysis, we used a multinomial logit model to examine the impact of power source match/mismatch on multiple types of syndication turnover and found that a syndicate with greater status-dominated power source mismatch was more likely to draw new members with no incumbent members.

FIGURE 3
Interaction of Power Source Match, Status-Dominated Mismatch, and Familiarity

(A) Familiarity (number of prior ties = 0)

(B) Familiarity (number of prior ties = 1)
leaving the syndicate. The result implies that VC syndicates may invite new members to alleviate problems caused by status-dominated power source mismatch, and we suggest that future researchers explore the association between power source match/mismatch and group restructuring.

Our theory may be generalized to other forms of financial management that concern both ownership
and status, such as securities underwriting (Eccles & Crane, 1988) and joint ventures (Eisenhardt & Schoonhoven, 1996; Gulati, 1995). The investigation of power source mismatch in these contexts will extend the contextual scope of our theory. In addition to ownership and status, there may also be other power sources (e.g., brokerage) that may extend the conceptual scope of our analysis. An important benefit of familiarity is trust, which may also originate in other sources (e.g., referral); consequently, it would be worthwhile to investigate the moderating effects of multiple forms of trust on the interactive effect of power source match and status-dominated power source mismatch.

Conclusion

We anchor our theory on one of the most fundamental subjects of social sciences, the problem of order (Wrong, 1994), suggesting that disorderly interaction may hinder the effectiveness of interorganizational relations. We highlight a contingency view of resource dependence in light of social structural incoherence, showing that different types of power source mismatch may result in dramatically different consequences, and that the detrimental status-dominated power source mismatch may be moderated by other social forces. We believe that power source mismatch is an important approach to reinvigorate the inquiry of interorganizational power relations, and we hope that future researchers can join us in bringing this line of inquiry back to the forefront of organization theory.

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Dali Ma (dalima@drexel.edu) is assistant professor of management at Drexel University. He received his Ph.D. in sociology from the University of Chicago, and his primary interests are cognitive and economic sociology, status and identity dynamics, social networks, entrepreneurship, and transitional China.

Mooween Rhee (mooween@hawaii.edu) is Shidler Distinguished Professor of Management at the University of Hawaii. He received his Ph.D. from Stanford University. His current research interests revolve around organizational learning, corporate reputation, social networks, and Asia-based theories of organizations.

Daegyu Yang (daegyu@khu.ac.kr) is assistant professor of management at Kyung Hee University, Seoul. He received his Ph.D. in management from the University of Hawaii. His current research interests include organizational learning, social networks, and corporate strategies.
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