

CONSTRUCTING DEAL NETWORKS: BROKERS AS NETWORK "ARCHITECTS" IN THE U.S. IPO MARKET AND OTHER EXAMPLES

TIMOTHY G. POLLOCK
University of Maryland

JOSEPH F. PORAC
New York University

JAMES B. WADE
University of Wisconsin-Madison

We introduce the concept of the network architect to extend theory explaining how brokers create and manage structural holes in mediated markets. We argue that a broker's social resources and dependence on the market, along with exogenous deal conditions, influence the broker's motivations and willingness to make tradeoffs between long-term and short-term considerations when constructing deal networks. We develop our model and propositions in the context of the U.S. initial public offerings market and then generalize these arguments to other market contexts.

Over the last twenty years, scholars have become interested in how markets are socially constructed. Researchers have focused on the roles that cognition (e.g., Porac, Thomas, & Baden-Fuller, 1989; Porac, Thomas, Wilson, Paton, & Kanfer, 1995), institutional forces (e.g., Abolafia, 1996; Fligstein, 1996; Leblebici & Salancik, 1982), and social structure (e.g., Burt, 1992; Granovetter, 1985; Kenis & Knoke, 2002; Rao, Davis, & Ward, 2000; Uzzi, 1996; White, 1981) play in shaping market behavior. Within this literature, scholars have given transaction networks a considerable amount of attention (e.g., Baker, 1984; Granovetter, 1985; Larson, 1992; Uzzi, 1996; White, 1981). Their research has increased our understanding of how stable ongoing networks impact market outcomes, such as firm survival, terms of trade, and the exchange of information.

At the same time, however, researchers have paid little attention to the fundamental question of how a market network is actually constructed for the purpose of carrying out one or more transactions (Salancik, 1995). Salancik argues that a network theory of organizations should propose how networks of interactions achieve

collective and individual interests and how the inclusion or exclusion of different actors influences network functioning. Similarly, Portes and Sensenbrenner suggest that a theory of networks requires that "we must better specify how social structure constrains, supports or derails individual goal seeking behavior" (1993: 1325). Within the literature on market networks, there has been little research and theory on these issues.

Burt's (1992) notion of structural holes in network organization provides an important starting point for conceptualizing the strategic use of network building to advance a given set of interests. According to Burt, relational networks often contain missing links that can be considered holes in the flow of information. A structural hole between two parties exists when the parties do not attend to each other and, thus, do not exchange information in the course of social interaction. Burt suggests that the existence of structural holes creates opportunities for third parties to mediate the flow of information among disconnected actors. Burt (2000) reviewed a large amount of recent evidence showing that market advantages, such as increased profits, survival, and innovation, accrue both to the so-called informational brokers who bridge structural holes and to the individuals, groups, or organizations that they bring together in the

We thank Mason Carpenter, Anne Miner, former associate editor P. Devereaux Jennings, and three anonymous *AMR* reviewers for their helpful comments on previous versions of this manuscript.

course of their brokering activities. Burt's review highlights, in a convincing manner, the important role that structural holes—and the brokers who span them—play in market networks.

The informational role of the broker in market networks is perhaps most apparent in mediated markets, such as real estate transactions and the buying and selling of financial securities. In all such markets, buyers and sellers interact with each other through an intermediary market maker whose formal role is to bridge the buyer-seller informational interface (e.g., Abolafia, 1996; Baker, 1984; Finlay & Coverdill, 2000; Halpern, 1996; Khurana, 2002). Transaction intermediaries such as brokers, underwriters, and agents arise in markets where the search costs associated with identifying potential transaction partners are high, where opportunism can easily run rampant, and where buyers often require steep price discounts to compensate for the risks they must absorb by participating in a deal (Abolafia, 1996). Brokers help to manage these risks and, in return, capture a percentage of the resources that are exchanged in the form of commissions, brokerage fees, retainers, or even the opportunity to participate in a transaction themselves.

As Finlay and Coverdill (2000) note, however, while research on structural holes provides a solid foundation for theorizing about brokers, market mediators are more than bridging conduits that facilitate the flow of information between buyers and sellers through their advantaged network position. Not all structural holes are equivalent and equally attractive. They vary in a number of ways, and it is the job of the broker to respond to these variations by "packaging" viable configurations of network actors. Moreover, brokers often strategically create structural holes through the selective accumulation and exploitation of social resources. Thus, brokers are network "architects" who actively design, build, and maintain transactional networks through their own strategic and profit-driven activities. These activities extend the brokering role beyond a purely structural position and transform it into a complex and multi-dimensional market function (e.g., Finlay & Coverdill, 2000; Khurana, 2002).

Despite its theoretical and economic significance, this proactive and constitutive aspect of brokering has not been theorized adequately. Aside from the literature on structural holes,

existing studies of brokering consist mainly of descriptive accounts of broker activities in very specific market contexts, such as securities trading (e.g., Abolafia, 1996), employee recruiting (Finlay & Coverdill, 2000; Khurana, 2002), real estate (Halpern, 1996), leisure travel (Reimer, 1990), and cocoa exporting (Southall, 1978). These descriptive accounts have illustrated how the brokering role is complicated by and embedded within the idiosyncrasies of each market situation. The scholarly challenge is to develop theory that accommodates these idiosyncrasies, while still providing general principles for understanding the proactive and network-building role of brokers in mediated markets.

We suggest that three key factors are important in determining how the role of network architect plays out during the brokering process: (1) the stock of social resources the broker has accumulated from previously successful transactions that can be brought to bear on a current transaction, (2) the broker's dependence on the focal market as a source of profits, and (3) the various exogenous conditions in which a deal takes place. These three factors are interdependent, but each is vital in controlling the motivations of the broker in a mediated transaction. The exogenous conditions of the deal, including such factors as the current economic climate, availability of alternatives, and the quality of the assets offered for exchange, impact the initial favorability of the deal and, thus, influence how easy or difficult it is for the broker to recruit buyers and sellers into the transaction network. A broker's accumulated social resources affect the broker's motivational leverage in persuading, enticing, and/or cajoling buyers and sellers to consummate a deal. Finally, a broker's dependence on the focal market as a source of profits influences the broker's risk profile and relative focus on short- versus long-term trading considerations.

Our primary purpose in this paper is to extend theory on brokering by explicating the joint influence of these three factors on how brokers configure transactional networks in mediated markets. Because the conditions of brokering are so closely tied to specific market situations, it is difficult to theorize about brokering in the abstract. To help concretize our arguments, we situate our discussion within the context of the U.S. market for initial public offerings (IPOs), an important mediated market that controls the al-

location of billions of dollars each year. In the market for IPOs, the network structure of transactions changes from deal to deal, and the role of the broker, or network architect, is played by the lead investment bank underwriting each offering. Our key claim is that deal conditions, underwriter social resources, and underwriter dependence on the IPO market come together within individual stock offerings to shape how the lead underwriter adjusts the attributes of the transactional network that takes a company public. These latter network characteristics then help to determine important outcomes of the deal—specifically, the initial price of the shares offered for sale and their allocation among investors.

A secondary purpose of this article is to explore how social and economic motivations mutually shape the structure and functioning of market networks. These two categories of motivations are sometimes positioned in the literature as representing opposing logics of action that are mutually exclusive. However, the micro-processes of IPO brokering make it clear that economic and social motivations are intertwined in complex and interdependent ways. Brokers are effective when they strike an acceptable balance between the economic interests of buyers and sellers and their own profit objectives. Because preferences are often hard to decipher *ex ante*, and because there are inherent conflicts involved in most strictly distributive contexts, the task of brokering is neither easy nor programmable.

Much research suggests that, under conditions of market uncertainty, social variables such as actor status and familiarity provide useful information to market participants and lubricate exchange processes that could otherwise bog down in claims, counterclaims, and protective maneuvering (e.g., Geertz, 1978; Haunschild, 1994; Podolny, 1994; Powell, 1985; Uzzi, 1997). Mediated markets in general and the IPO market specifically are, thus, excellent venues for theorizing about how economic and social processes come together in the consummation of particular deals.

To accomplish these objectives, we first describe the general structure of IPO deal networks. Not all elements of these networks are controlled by the lead underwriter, and many participants act as background constraints that only indirectly influence an underwriter's bro-

kering activities. We label the portion of a deal network that is constructed by the lead underwriter the *deal network kernel*, and we enumerate the actors who are typically included within it.

We follow this discussion with the development of propositions explaining how underwriter dependence and underwriter social resources influence key attributes of deal network kernels under "typical" or "average" deal conditions. We then elaborate this argument by considering how positive and negative variations away from typical deal conditions are reflected in adjustments to deal kernels. This is followed by propositions that link the characteristics of IPO kernels to variations in an offering's price and share allocations.

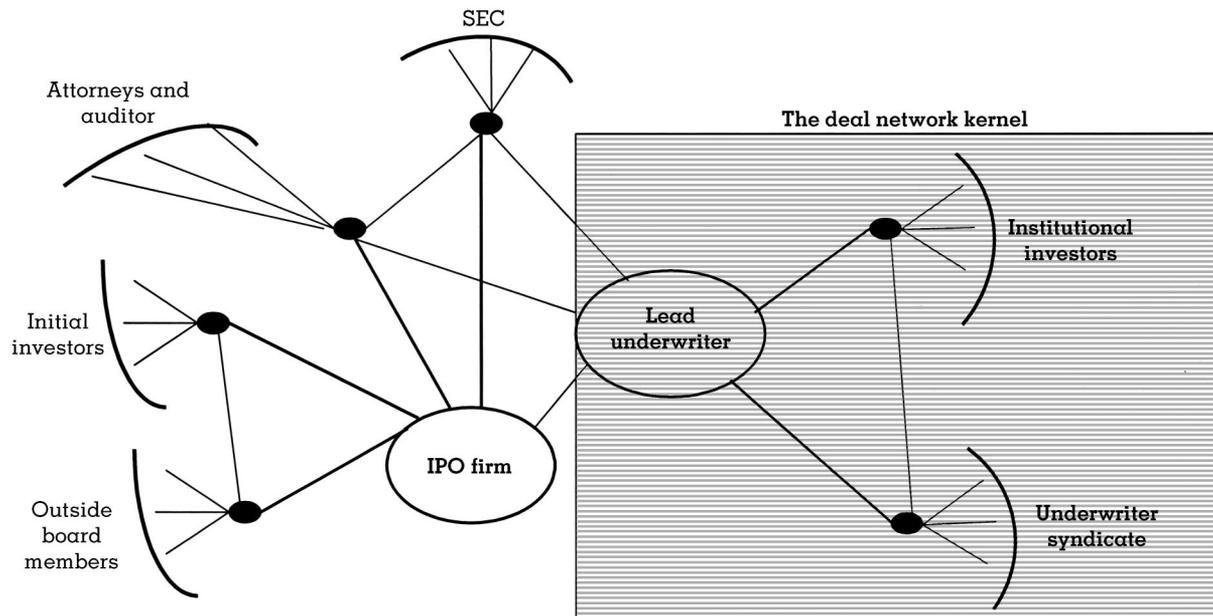
After describing these relationships in the IPO market, we then generalize our approach by discussing how each of these factors is important in the brokering processes of other mediated markets. In this way, we use the IPO market as a bridge linking the concepts of social resources, dependence, and deal conditions to brokering processes within mediated markets in general. We finish by suggesting potentially fruitful directions for future research on brokering in mediated markets.

THE IPO DEAL NETWORK KERNEL

The IPO market is an often studied mediated market, and previous researchers have explored the role of various parties in shaping IPO outcomes. In addition to the underwriter (Carter & Manaster, 1990; Megginson & Weiss, 1995; Michaely & Shaw, 1994; Stuart, Hoang, & Hybels, 1999), researchers have examined the impact of auditors (Balvers, McDonald, & Miller, 1988; Beatty, 1989), venture capitalists (Brav & Gompers, 1997; Gompers, 1996; Lerner, 1994), and alliance partners (Higgins & Gulati, 2003; Stuart et al., 1999) on IPO valuation and performance. In all of these studies, researchers have relied primarily on signaling theory (Spence, 1974) to examine how the reputation of different participants in the IPO process can reduce information asymmetries between the offering firm and investors, and thus increase the price investors are willing to pay for an IPO stock.

A potentially more fruitful approach is to view IPOs as transient deal networks in which certain parties are brought together for a limited

FIGURE 1
The IPO Deal Network



period of time to take a company public.¹ With a few exceptions (e.g., Hanley & Wilhelm, 1995; Higgins & Gulati, 2003; Wolfe, Cooperman, & Ferris, 1994), scholars have not addressed how deal networks are actually constructed, and there has been little research on the brokering process through which the lead underwriter manages a transaction. The lead underwriter fills a critical role in an IPO deal network by recruiting investors and other underwriters to participate in the offering. It is this portion of the total IPO deal network that is directly within the underwriter's sphere of influence and that forms the core—the kernel—of an IPO deal network. Figure 1 depicts a hypothetical IPO deal network, and the shaded area represents the deal network kernel.

The lead underwriter is linked directly to some, but not all, of the investors participating in an offering. The vast majority of offerings are syndicated, which means that other investment banks are recruited to help distribute shares. The lead underwriter, thus, is also linked to other underwriters, who are connected to additional investors who similarly participate in the offering. Syndicates are used to reduce the risk

and cost of an offering by distributing shares over several investment banks. Although many underwriters today can absorb the cost and risk of IPOs, syndicates are still used to broaden the distribution of shares, ensure client access to shares of IPOs led by other banks, and allow the lead underwriter to take advantage of differences in the social resources of other banks so as to manage the outcomes of the offering more effectively.

Other actors outside the kernel, such as auditors, venture capitalists, and board members, are also important, but their relationships to the offering firm typically exist prior to retaining the lead underwriter. Although some of these non-kernel actors may influence the outcomes of an offering independent of the underwriter, they are not directly involved in the construction of the deal network kernel itself.

In addition, although individual investors form a small part of the investor network in a typical IPO, institutional investors purchase the overwhelming majority of IPO shares (Hanley & Wilhelm, 1995). Individual investor participation in multiple offerings is more ad hoc and has less impact than institutional investor participation. For these reasons, we focus only on an underwriter's recruitment of institutional investors into the network kernel, and we do not consider

¹ The appendix provides a detailed description of the process of taking a company public.

the roles that these other actors play in the IPO process.

By including or excluding investors and syndicate members with different sets of characteristics, the lead underwriter can alter the configuration of a network kernel and, with it, the course of a transaction. Prior research on markets (e.g., Baker, 1984, 1990; Carter & Dark, 1993; Carter & Manaster, 1990; Fombrun, 1996; Uzzi, 1996, 1999) suggests that four characteristics of deal network kernels are particularly important in shaping IPO outcomes: (1) the size of the network kernel, as defined by the number of investors recruited to participate in the deal; (2) the proportion of investors who have close and repeated ties to the lead underwriter or syndicate members; (3) the proportion of investors with a long-term investment horizon who are willing to retain a company's stock in the face of short-term performance downturns; and (4) the heterogeneity of the underwriting syndicate with respect to the syndicate members' social resources in the IPO market.

Each of these network attributes, singly and in combination, provides a lead underwriter with a series of tradeoffs in designing IPO network kernels. Large kernels, for example, are effective in spreading the risk of an offering across many investors and syndicate members, and they can also be used to build new relationships with investors and/or banks with whom the underwriter has had little prior experience. However, large kernels are harder to construct and manage, thus increasing transaction costs, as well as the possibility of buyer opportunism and/or stock price volatility.

In like fashion, kernels consisting of many investors who have close ties to the lead underwriter provide a measure of controllability to the underwriter, who can leverage past obligations to influence a current transaction. However, overreliance on past trading relationships increases information redundancy in the kernel, as well as the underwriter's dependence on a small set of regular customers. Understanding and managing tradeoffs such as these are important components of the lead underwriter's competence in taking companies public.

The specific choices that an underwriter makes determine the fate of a new offering by influencing the price the company receives for its shares and how the shares are allocated among investors. The initial pricing of the stock

determines the amount of capital the company receives from the offering to finance its continued growth and development. This price, as well as the price fluctuations that occur once the stock begins trading on the open market, also sends powerful signals to investors, customers, suppliers, and business partners about the strength and viability of the company (Benveniste & Spindt, 1989; Ibbotson & Ritter, 1995; Welch, 1989).

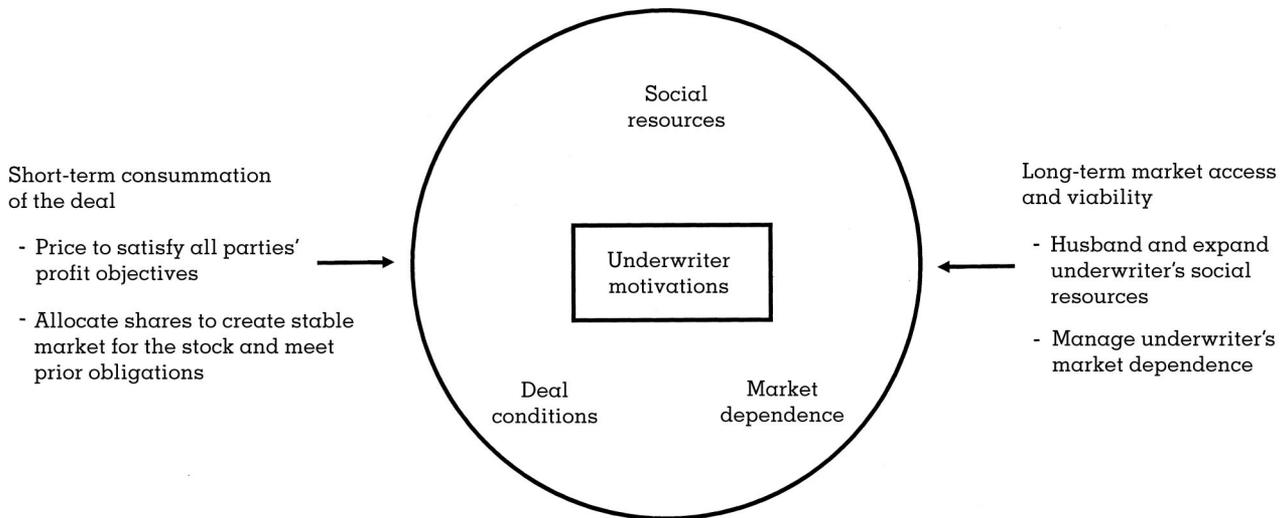
The allocation of shares is important, because the concentration of shares in the hands of few or many investors affects both investor influence over the firm and the ongoing stability of the stock price. Stock price volatility is an important signal to stakeholders, and independence from investors influences the company's relative focus on long-term and short-term performance (Bushee, 1998; Carter & Dark, 1993; Krigman, Shaw, & Womack, 1999). Given their impact on IPO outcomes, it is thus necessary to unpack the choices underwriters make in constructing deal network kernels and to detail the factors that influence these choices. It is to this task that we now turn.

CONSTRUCTING AN IPO DEAL NETWORK KERNEL

Since both IPO buyers and sellers are clients, the underwriter has a fiduciary responsibility to represent their opposing needs equally, although the underwriter retains broad discretion in determining how these needs are met. The underwriter's own motivations are important in this regard. As Figure 2 illustrates, the underwriter is faced with a tension between long-term and short-term considerations. Like buyers and sellers, the underwriter has a profit motive and seeks to reap higher commissions from an offering. Underwriting fees are a direct function of the selling price. However, underwriters also want to build and maintain a strong reputation and good relationships with the investor community so as not to impair their ability to successfully place offerings in the future (Abolafia, 1996). Thus, underwriters have long-term self-protective as well as short-term profit motivations.

Our key argument is that specific tradeoffs between an underwriter's long- and short-term motivations in a given deal will be a function of the social resources the underwriter has available for managing the deal, the underwriter's

FIGURE 2
Factors Impacting Underwriter Motivations



dependence on this market, and the favorability of the deal conditions. These tradeoffs are then manifested in specific design choices made by the underwriter in constructing a deal network kernel.

Social Resources, Market Dependence, and Deal Conditions: Basic Definitions

Social resources. In prior research scholars have identified two social resources that are particularly valuable to actors for managing their position in a network: (1) actors' generalized reputations as reliable and competent network members (Benjamin & Podolny, 1999; Bromiley, 1993; Fombrun, 1996; Weigelt & Camerer, 1988; Wilson, 1985) and (2) the relationships that actors have accumulated over time with other network members via past interactions (Baker, 1984; Granovetter, 1985; Larson, 1992; Uzzi, 1996).²

² We recognize that underwriters possess other resources beyond their reputations and networks of relationships. The amount of financial capital they possess, for example, can be another powerful resource in market-making activities. However, the vast majority of IPOs are "firm commitment" offerings (i.e., the bank agrees to buy the entire offering from the company at the initial price, thereby absorbing any risk that the offering will not be fully subscribed); therefore, as long as the underwriter has the resources necessary to purchase the offering, its capital does not play a significant role in the portion of the process we discuss in this article. In addition, since the majority of offerings are syndicated, the lead underwriter generally does not bear the cost of pur-

With respect to reputation, the public reputation of investment banks has long played an important role in stabilizing transactions when investment uncertainty is high. Prior to the Securities Acts of 1933 and 1934, a successful securities offering of any significant size required the participation of a highly reputable underwriter (Chernow, 1997; Hayes, 1970). Since other information on the prospects of a company going public was generally unavailable, the willingness of the bank to risk its reputation was an important signal about the quality of the offering. Despite today's greater availability of financial information, recent research suggests that an investment bank's reputation still influences its ability to generate underwriting business and place offerings successfully (Carter & Dark, 1993; Eccles & Crane, 1988; Podolny, 1994; Stuart et al., 1999; Wolfe et al., 1994).

With respect to network ties, the number of embedded relationships the underwriter has to draw on is another important market-making social resource. Research suggests that market relationships vary along a continuum, from those that are instrumental and "arm's length" to those that are "embedded" in dense social interactions that promote trust and cooperation

chasing the shares alone. The capital strength of the underwriter is more important when considering the role the underwriter plays in supporting the stock in the secondary market (e.g., Ellis, Michaely, & O'Hara, 2000), but these activities are beyond the scope of our discussion.

(Granovetter, 1985). The degree to which relationships are either embedded or arm's length seems to depend on the frequency (e.g., Baker, 1984; Granovetter, 1985; White, 1981) and concentration (e.g., Baker, 1990; Larson, 1992; Uzzi, 1996) of past and current transactions between the actors involved. The greater the frequency and the larger the proportion of transactions that are concentrated within a set of actors, the more socially embedded the transactional relationships are. Evidence suggests that embedded relationships decrease opportunistic behavior (Uzzi, 1996, 1997), facilitate information transfer (Larson, 1992; Uzzi, 1996), influence the acquisition and use of power (Baker, 1990), reduce costs (Uzzi, 1999), build trust between the transaction partners (Uzzi, 1997), and reduce market volatility (Baker, 1984).

These reputational and relational resources can partially substitute for one another. Repeated interactions over multiple transactions provide valuable information about an actor's competence and trustworthiness as a transaction partner (Uzzi, 1996; Wilson, 1985). However, participants in a transaction do not always have prior experience working with one another. An actor's generalized reputation can serve as a valuable proxy for prior experience and reduce some of the uncertainties about the transaction (Bromiley, 1993; Fombrun, 1996).

If a bank has a strong reputation, an investor may be more willing to participate in the bank's offering and to accept claims the bank makes about the quality of the company, even if the investor has not transacted with the bank previously. In opposite fashion, if a bank does not enjoy a strong reputation in the IPO market but does have embedded ties with investors, perhaps through other types of deals, it can draw on these relationships to promote a particular stock.

These substitutabilities aside, higher combined levels of an underwriter's social resources afford the underwriter greater flexibility in managing the characteristics of investors and syndicate members within the deal network kernel. Whether underwriters choose to exploit this flexibility is another matter.

Market dependence. Prior research has shown that the number of different financial markets in which a bank participates can be useful in understanding variations in bank behavior (Eccles & Crane, 1988). As resource dependence theory

suggests, greater or lesser dependence on a particular resource in a bank's task environment has important implications for how the bank manages those resources (e.g., Baker, 1990; Pfeffer & Salancik, 1978). To the extent that a bank is financially dependent on the IPO market, it will be more sensitive to conditions that could cause long-term damage to the integrity of the offering process. It will also be more concerned with cultivating and expanding the social resources it has developed in the context of this market so as to become a more powerful player and, if not reduce its own dependence, increase the dependence of others on it.

The largest and most well-known investment banks, such as Morgan Stanley, Goldman Sachs, and Credit Suisse First Boston, are actively involved in a variety of markets, and IPOs represent only a small proportion of their revenues, even though they underwrite IPOs on a regular basis. Because their social resources and profits are generated in a wide range of financial markets, these banks are less dependent on IPO brokering than smaller banks that specialize in taking companies public. This latter group of underwriters includes such firms as Alex. Brown & Sons, Hambrecht & Quist, and Montgomery Securities.³ These banks derive a larger percentage of their profits from IPOs and have generated substantial social resources that are quite specific to their IPO underwriting activities. Finally, a third group of banks focuses on other types of financial transactions or serves primarily as retail stock brokers. These banks participate in the IPO market as lead underwriters the least frequently. Examples include A.G. Edwards, Piper Jaffray, and Pennsylvania Merchant's Group. Because such banks do not derive a substantial proportion of their social resources and revenues from the IPO market, they are less dependent than both the large and more specialized banks on IPO underwriting.

Deal conditions. An underwriter does not have complete freedom to broker IPO outcomes. Even

³ During the course of developing this article, several of the banks used as examples were acquired by larger entities and, in some cases, shut down after the IPO market crash in 2001–2002. We continue to offer these banks as examples because their names are still widely recognized in the IPO market context, and because any empirical research on the IPO market still needs to take these banks—and their characteristics as we have described them—into account.

though the brokering process is an attempt to balance interests across the deal network, each offering has exogenously determined characteristics that independently influence the final outcomes of a deal and make it easier or more difficult to sell the stock. These conditions impact the underwriter's brokering activities significantly. Under favorable deal conditions, the underwriter occupies an advantaged gatekeeper position, rationing a scarce and high-demand commodity to a large pool of willing investors. Under unfavorable deal conditions, however, the underwriter serves as an enthusiastic recruiter, convincing wary investors that it is worthwhile for them to participate in a transaction that may have certain undesirable properties. Two aspects of deal conditions that are especially important are the quality of the firm being taken public and the general market conditions present at the time of the IPO.

With respect to firm quality, current research on IPOs suggests that factors such as the involvement of a reputable venture capitalist (Jain & Kini, 2000), the presence of prominent board members (Stuart et al., 1999), and well-developed organizational practices for managing the firm's human capital (Welbourne & Andrews, 1996) enhance the value and quality of a new offering. Other factors such as an innovative product, an experienced management team, and a history of profitability also influence the desirability of an offering in the eyes of investors (Gutterman, 1991).

Although banks try to underwrite the best-quality companies they can, company quality is sometimes equivocal. For example, a bank may discover unanticipated problems with a company once it has already agreed to underwrite the offering. Or competitors may introduce a new product that threatens an IPO firm's prospects once the offering has begun. A bank also may agree to underwrite a less attractive offering if doing so leads to a future benefit. For example, a bank might agree to underwrite the IPO of a weaker company funded by a particular venture capitalist to increase the probability that the bank will attract future offerings of higher quality from the same financier.

Over and above the factors that determine firm quality, particular industries—and even the IPO market in general—can quickly go in and out of favor with investors (Ibbotson & Jaffe, 1975; Ritter, 1984). When conditions are favor-

able, researchers have shown that companies are taken public at higher valuations, and companies of more uncertain quality are brought to market more easily (Ritter, 1984). When markets cool, however, many IPOs are postponed or withdrawn, and only the strongest offerings are pursued. Recent examples of such changes in market conditions can be found in the downturn between July and October of 1998 and the crash in the internet IPO segment that began in April 2000. In both cases, otherwise robust IPO markets came to a screeching halt when market conditions and investor preferences shifted. Even promising companies can have poorly performing IPOs if market conditions change unexpectedly.

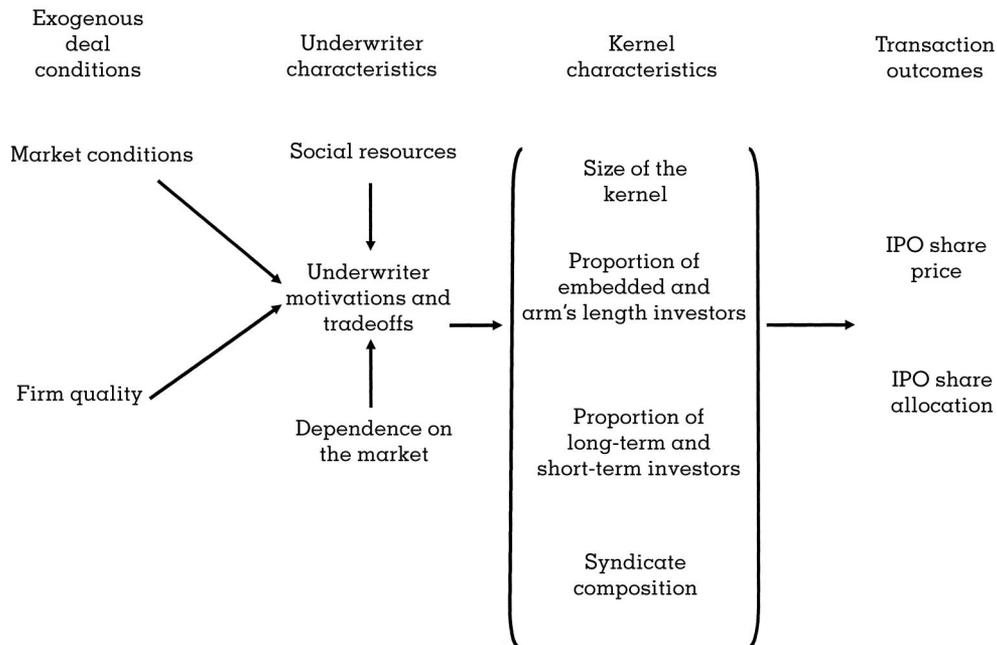
An underwriter's social resources and dependence on the IPO market, as well as the favorability of deal conditions, all impact the design of the deal network kernel. Figure 3 summarizes the key causal influences in network kernel design. An underwriter manages the construction of the deal network kernel by pursuing a particular combination of kernel size, proportions of long-term and embedded investors, and heterogeneity of the underwriter syndicate. The lead underwriter then recruits investors with the desired characteristics, as well as underwriter syndicate members who have access to these particular types of investors. By including or excluding investors with different sets of characteristics, the underwriter shapes the deal network kernel and, with it, influences the valuation of the offering and the allocation of shares. We now turn to developing propositions that account for variations in kernel design and transaction outcomes.

The Impact of Social Resources on Deal Network Design⁴

Who holds a company's stock and how long they hold it influence the success of an IPO. Successful offerings are those that do not result

⁴ It is not surprising that underwriters possessing the greatest amounts of social resources will have more embedded ties in their deal networks, on average, than underwriters with fewer social resources. We therefore do not develop propositions about this relationship in this section but, rather, view the relationship as a background assumption. We do, however, develop propositions about embedded ties when discussing market dependence and deal conditions.

FIGURE 3
Underwriter Interests and the Construction of the IPO Deal Network Kernel



in wild gyrations in stock price but, rather, lead to steady price increases over time (Gutterman, 1991; Krigman et al., 1999). In order to achieve this outcome, it is important for underwriters to sell shares of stock to investors who will hold the stock rather than “flip” it to capture a short-term gain. Krigman et al. (1999) found that IPOs with low flipping rates enjoyed abnormal returns of 1.5 percent a month for the first six months of trading. Heavy trading increases stock price volatility and, thus, increases its perceived investment risk. This risk, in turn, can limit a company’s ability to raise additional capital through a subsequent offering (Benveniste, Erdal, & Wilhelm, 1998; Welch, 1989). Although some short-term investors are necessary to ensure the liquidity and price appreciation of an offering, placing stock in the hands of long-term investors is an important brokering strategy for increasing market perceptions of the quality of both the IPO and its underwriter.

Long-term investors are valuable and scarce customers, however, and not all underwriters have equal access to them. Underwriters with larger stocks of social resources enjoy greater access to long-term investors, because their prior dealings in the IPO market afford them many opportunities for developing close rela-

tionships with such investors. In addition, their generalized positive reputation as underwriters acts as a signal for the long-term viability of an offering.

The signaling effect of underwriter reputation has been shown to be especially important in recruiting long-term investors (Gulati & Higgins, 2003). Carter and Dark (1993), for example, observed that highly reputable underwriters led offerings with less short-term flipping. One can infer from this result that the highly reputable underwriters in their sample were more able to recruit long-term investors into their deal network kernels. We therefore suggest the following proposition.

Proposition 1: The greater the social resources of the lead underwriter, the higher the proportion of long-term investors included in a deal network kernel.

The underwriting syndicate is another mechanism that the lead underwriter uses to manage the types of investors included in the deal network kernel. The key motivation for using a syndicate of other banks is to broaden the distribution of shares to ensure a mix of long-term and short-term investors, as well as investors with

ties of varying strength to the underwriters. Completely homogenous networks are usually poor design choices because, at one extreme, they constrain market liquidity and, at the other extreme, generate excessive pricing volatility. Establishing relationships with varied investors takes time and resources, however, and even the most reputable and largest banks do not have complete coverage of the market. This makes underwriting syndicates useful in constructing the deal network kernel. Different kinds of investment banks have different portfolios of clients, and by including a range of investment banks in a deal kernel, the lead underwriter can adjust the characteristics of the kernel in ways appropriate for a given deal.

At the same time, underwriters vary in their ability to recruit syndicate members, and an asymmetry exists in this regard between banks with high and low social resources. While all underwriters will be able to recruit syndicate members with low social resources, banks with higher social resources have more degrees of freedom in syndicate construction. Lead underwriters prefer to include at least some banks of similar or higher social resources in their syndicates. Podolny (1994), for example, found that deals in the bond market involving high-status banks reduce uncertainties, enhance the lead underwriter's own reputation, and provide greater access to desirable offerings. Thus, underwriters can benefit both socially and financially by including banks with substantial social resources in their deal networks.

Underwriters with limited social resources would also prefer to include such banks in their deal networks for these same reasons. They are unlikely to do so, however, because their position at the periphery of the IPO market constrains their ability to recruit high-status banks. The underwriting syndicates for banks with low social resources will therefore consist primarily of other similarly resource-constrained banks.

Proposition 2: The greater the social resources of the lead underwriter, the greater the social resource heterogeneity of the underwriting syndicate.

The Impact of Market Dependence on Deal Network Design

An underwriter's dependence on the IPO market as a source of profits influences its willing-

ness to exploit investors in this market for short-term gains. An important consideration for the underwriter is whether to include investors in a deal network with whom it has done substantial business in the past or to include new investors with whom it has only an arm's length relationship (Granovetter, 1985). Even though there are a number of benefits associated with constructing highly embedded deal network kernels (e.g., Baker, 1984; Uzzi, 1996, 1997), such networks can also make it difficult to gather new information from the environment (Burt, 1992; Uzzi, 1996, 1999). In addition, working exclusively and repeatedly with the same investors increases an underwriter's dependence on those investors and weakens the underwriter's ability to negotiate effectively (Baker, 1990; Pfeffer & Salancik, 1978). Finally, because of the positive expectations that surround embedded relationships, any negative outcomes from a deal may be amplified and communicated throughout the market, thus detracting from a bank's reputation as a reliable and trustworthy intermediary between buyers and sellers.

An underwriter's dependence on the IPO market impacts the tradeoffs it makes regarding these concerns. Since dependent underwriters do not possess the diverse range of profit sources that a presence in multiple markets provides, they will be more risk averse when it comes to constructing their IPO deal network kernels. It is to the dependent bank's advantage to have greater variety in the types of relationships composing its IPO deal networks and to be more aggressive in recruiting new institutional investors into its deals, even though doing so increases the risk that arm's length investors will act opportunistically.

In prior research on strategic alliances, Rowley, Behrens, and Krackhardt (2000) found that strong ties are beneficial to performance when the environment demands a high degree of exploitation, whereas weak ties are beneficial for exploration purposes. Extrapolating this reasoning to the IPO context suggests that dependent underwriters who feel greater pressure to engage in exploration for new network resources include a greater proportion of arm's length ties in their deal networks than less dependent underwriters, who are content to make use of their current network resources. In order to minimize the risks associated with having a higher proportion of arm's length ties in the deal network,

dependent underwriters also construct larger deal networks in terms of both investors and syndicate members so that they reduce their exposure to opportunistic behavior by any one investor (Baker, 1990).

Proposition 3: The greater the lead underwriter's financial dependence on the IPO market, the lower the proportion of embedded ties in a deal network kernel.

Proposition 4: The greater the lead underwriter's financial dependence on the IPO market, the greater the size of a deal network kernel.

Taken together, these two propositions can be used to derive an important implication of underwriter dependence on deal network kernels. Large and diversified banks such as Goldman Sachs and Credit Suisse First Boston are involved in a wide variety of financial markets and tend to lead IPOs selectively (Beatty & Ritter, 1986; Wolfe et al., 1994). Propositions 3 and 4 suggest that these banks approach the IPO market with less concern for expanding their relational base and spend less time recruiting new investors into their deals than more dependent specialist underwriters, such as Hambrecht & Quist and Alex. Brown & Sons. Consequently, the deal network kernels of large and diversified banks will generally be more compact than specialist kernels, and include a higher percentage of investors with whom the banks have developed long-standing relationships. Paradoxically, then, our arguments imply that while larger and diversified underwriters are less dependent than specialists on the IPO market as a source of profits, they become more dependent on a smaller set of investors to place their IPOs.

This paradox between global and local dependence is a double-edged sword for IPO brokering processes. As noted above, compact and embedded networks have consequences that vary in their desirability. A small portfolio of close and regular investors provides a ready-made outlet for the diversified underwriter interested in creating a favorable market for an offering. However, strongly embedded network kernels propagate expectations and opportunities for reciprocity that can lead underwriters and investors to lose their bargaining objectivity over time and, in the extreme, to stretch in-

stitutional rules that have been enacted to ensure fair play and impartiality. They also create greater potential for opportunistic behaviors by the underwriter as the embedded investors become more dependent on the bank. This may explain why some large and diversified banks engaged in self-serving behaviors such as so-called tying arrangements and investor kickbacks of profits from IPOs during the late 1990s, and why specialized banks were less likely to follow suit (Labate & Luce, 2001; SEC vs. Credit Suisse First Boston, 2002).

Both large underwriters and specialists possess the substantial social resources necessary to engage in these activities. However, our arguments suggest that, because of their dependence on the IPO market, specialists are less likely to risk their social capital by engaging in potentially exploitive behaviors that enhance their short-term profits, even when market conditions make this sort of behavior possible.

The Impact of Deal Conditions on Deal Network Design

Propositions 1 through 4 describe IPO deal networks for "average" firm and market conditions. However, variations in either firm quality or market favorability significantly influence the difficulty of building a deal network kernel. They also influence the underwriter's motivation to protect and grow its social resources (Bromiley, 1993; Wilson, 1985). For both of these reasons, deal conditions are an important exogenous influence on a lead underwriter's brokering activities, making it more or less likely that the underwriter recruits embedded transaction partners, long-term investors, and different kinds of syndicate members as participants.

When IPO deal conditions are favorable, an offering is an opportunity to expand an underwriter's social resources through allocations of shares to desirable long-term investors with whom the underwriter has not transacted in the past. Given the likelihood that an attractive offering will perform well over the long term, an underwriter generates goodwill with new long-term investors, thus making it more likely that the investor will participate in the underwriter's future deals. At the same time, these positive effects enhance the underwriter's reputation (Hayes, 1970; Wilson, 1985). Finally, IPOs that are attractive to investors are also going to be at-

tractive to other underwriters who would like to gain access to the offering for their own clients. The lead underwriter will therefore use the opportunity afforded by favorable deal conditions to recruit more underwriters with substantial social resources into their deal networks. Doing so not only enhances the performance of the offering but also creates obligations that can provide the underwriter with access to the shares of attractive IPOs led by the other banks. Thus, highly favorable conditions lead to larger deal network kernels with larger proportions of long-term investors, smaller proportions of embedded ties with investors, and less underwriter syndicate heterogeneity.

Brokering dynamics are substantially different for unfavorable deal conditions, although the resulting deal network size and embeddedness are similar to those observed in highly favorable deal conditions. Underwriters perceive unfavorable deal conditions as a threat to their market-making resources. Rather than recruit long-term investors with whom they have embedded relationships, underwriters are more likely to involve short-term and arm's length investors who are of less interest to them as future transaction partners. Since these investors are not part of their ongoing deal networks, underwriters are less concerned about any damage to the relationship from a poorly performing IPO.

At the same time, short-term, arm's length investors are risky and potentially volatile in their trading behavior. Lead underwriters expand the size of the deal network to minimize this risk by increasing the number of short-term investors and by including more banks with fewer social resources in the underwriting syndicate. The above reasoning suggests a number of interactive causal relationships.

Proposition 5: Lead underwriters will construct larger deal network kernels when deal conditions are highly favorable or highly unfavorable, compared to average deal conditions.

Proposition 6: Lead underwriters will include a higher proportion of investors with whom they have arm's length relationships in their deal network kernels when deal conditions are highly favorable or highly unfa-

avorable, compared to average deal conditions.

Proposition 7: Lead underwriters will include a higher proportion of long-term investors in their deal network kernels when deal conditions are highly favorable, and a higher proportion of short-term investors when deal conditions are highly unfavorable, compared to average deal conditions.

Proposition 8: Lead underwriters will decrease underwriter syndicate heterogeneity when deal conditions are highly favorable, and will increase syndicate heterogeneity when deal conditions are highly unfavorable, compared to average deal conditions.

While the above effects are general tendencies evident across a variety of deal conditions, they do not apply to all lead underwriters equally. In fact, the influence of deal conditions on IPO deal network kernels is complicated by a bank's social resources and market dependence, and banks can be arrayed along these two dimensions by their sensitivity to deal conditions. This differential sensitivity is important because it influences a bank's tendency to adjust network kernel properties in response to variations in deal quality. This is clearest in the case of banks such as Pennsylvania Merchants Group and Whale Securities who possess limited social resources in the IPO market and who act as lead underwriters for IPOs only infrequently. Because these banks have fewer social resources at risk when a deal goes awry, and because they are not highly dependent on IPOs as a source of profits, they are less responsive than other banks to deal conditions. Consequently, the deal network kernels constructed by these banks exhibit less systematic variation across deal conditions than those constructed by either large diversified or specialist underwriters.

Similarly, large diversified banks are less dependent on the IPO market than specialists, and they rely on a smaller portfolio of regular investors to place their offerings. Thus, the deal network kernels constructed by large diversified banks will typically exhibit less variance from deal to deal than those constructed by specialists.

In short, different combinations of market dependence and social resources serve to amplify or dampen sensitivity to deal conditions. Because of their unique combination of high market dependence and substantial social resources, specialist underwriters are most likely to use their degrees of freedom to adjust kernel designs in response to the quality of an offering.

IPO Transaction Outcomes

Two transaction outcomes are most affected by the structure of an IPO deal network kernel: (1) the initial "primary market" price set for the stock by the underwriter and the IPO firm and (2) the initial allocation of shares among investors. Once an IPO stock begins "secondary market" trading on a national exchange, the associated performance outcomes, such as underpricing, trading volume, and stock price volatility, are influenced by a variety of exogenous factors that are outside the direct influence of the lead underwriter. A lead underwriter's ability to impact secondary market outcomes is largely a function of the initial conditions it establishes in the primary market.

In presenting the model depicted in Figure 3, it is not our intent to imply that the four characteristics of the deal network kernel we discuss are the only factors that influence initial share pricing and allocation decisions. The size and asset base of the company, its record of profitability, the availability of alternative offerings, and so forth also have a direct impact on these outcomes. Within the constraints imposed by these other factors, however, we argue that variations in the characteristics of the deal network kernel will shape IPO transaction outcomes in predictable ways. While all four characteristics are important, in this section we focus specifically on the impact of embedded and long-term investors in the deal network. We do not develop propositions about the impact of deal network kernel size, because its impact on the IPO (i.e., the larger the deal network kernel, the lower the concentration of shares is likely to be) is theoretically unremarkable. We also do not develop specific propositions about the relationship between underwriting syndicate heterogeneity and transaction outcomes, because we have suggested that the underwriting syndicate is used as a mechanism to manage the proportions of long-term and embedded investors in the deal

network. The impact of syndicate heterogeneity on IPO transaction outcomes, thus, is mediated by these other deal network characteristics.

Research directly examining the relationship between investor embeddedness with underwriters and IPO valuation is sparse, although recently scholars have suggested that investors who participate regularly in an underwriter's deal networks (Hanley & Wilhelm, 1995), and who provide the underwriter with information during the price-setting process (Cornelli & Goldreich, 2001), benefit from underwriter share allocation decisions. The trust and information sharing that exist between embedded underwriters and investors reduce investor uncertainties and increase their willingness to pay more for the stock. Underwriters can prevail on investors with whom they have embedded relationships to pay a slightly higher price for the stock as a "favor" to the bank, with the implicit understanding that the favor will be reciprocated via larger allocations of more desirable offerings in the future.

Even though all investors receiving initial allocations pay the same price for a stock, Welch (1992) has shown that once a few investors participate in an offering at a particular price, other investors will do so as well, creating a cascade effect in the market. Thus, if a deal network includes a larger proportion of embedded network ties, the underwriter can use embedded relationships with investors to prime the market and fully subscribe a less attractive offering at a higher price.

This sort of pricing reciprocity is not likely when an offering is oversubscribed. An offering is oversubscribed when there are more requests for shares than there are shares available. In highly anticipated offerings, especially during hot markets, requests for shares may be several times greater than the number of shares available (Cornelli & Goldreich, 2001). Adjusting prices downward for high-demand offerings to benefit embedded transaction partners places an underwriter in direct conflict with the interests of the sellers. Also, since all buyers must pay the same price for an offering, underwriters do not have the same flexibility to reward participation via price adjustments as they do via share allocations. As a consequence, when an IPO is oversubscribed, reciprocal behaviors on the part of the investment bank must take the form of share allocations rather than pricing

adjustments (Benveniste & Spindt, 1989; Cornelli & Goldreich, 2001). Embedded relationships with investors are therefore likely to have little effect on pricing for oversubscribed offerings.

Proposition 9: Increasing the proportion of embedded investors in a deal network kernel increases the valuation of lower-demand offerings but has no effect on the valuation of high-demand offerings.

As noted previously, underwriters prefer to place a significant proportion of the shares in an offering with investors who possess long-term time horizons and who can be relied on not to flip the stock (Carter & Dark, 1993; Krigman et al., 1999). This objective can be accomplished by recruiting institutional investors who possess the desired investment perspective and time horizon and/or by recruiting investors with whom the underwriter has an embedded relationship. Because they can be expected to hold their shares, underwriters will grant long-term and embedded investors larger share allocations. If an underwriter has lower proportions of embedded and long-term investors in its deal network, it will disperse shares more widely by giving smaller allocations to each investor so that opportunistic flipping of the stock by any one investor will have less of an impact on the volatility of the stock's price.

Proposition 10: The greater the proportion of embedded investors and long-term investors in the deal network, the more concentrated the allocation of shares is likely to be.

When considered together with Propositions 1 through 8, these last two propositions suggest that large diversified underwriters will generate the highest prices and most concentrated share allocations for their IPOs. Smaller and more specialized underwriters will price their offerings more conservatively and allocate shares more broadly than the diversified banks because of the concerns borne out of their greater dependency on the market; their IPOs should also provide the greatest variation in pricing and share allocation from deal to deal because of their sensitivity to deal conditions. The IPOs led by more peripheral banks will have the lowest prices and share allocation concentrations; they also will reflect the most consistency in deal

network design from deal to deal, because they are the least likely to be affected by variations in deal conditions and have the least ability to respond to changes in deal conditions.

THE PROCESS OF MANAGING STRUCTURAL HOLES: GENERALIZING TO OTHER MARKETS

The IPO brokering processes we described above have their roots in Burt's (1992) suggestion that brokers bridge structural holes in transaction networks. The theory of structural holes provides an important basis for conceptualizing the role of brokers in market dynamics. At the same time, we argued that the theory focuses primarily on the opportunities created by bridging holes in an existing social structure and, thus, does not fully account for how brokers actively create and manage structural holes or for the role that broker interests and motivations play in this process (Finlay & Coverdill, 2000). Brokering is a complex and multidimensional activity, and information transmission is only one component of the broker's role in consummating a deal.

A *structural* analysis of brokers thus requires supplemental theorizing about the brokering process. Our conceptualization highlights the proactive and network-building role of brokers in mediated markets. Indeed, our model makes it clear that the role of brokers in mediated markets is a constitutive one and that it is difficult to separate the characteristics of deal networks from the choices that brokers are making in response to a variety of social and economic forces operating at the time of a transaction. Although we have used the applied context of the U.S. IPO market to illustrate how brokers design, build, and manage transaction networks, our arguments are generally applicable to any number of markets in which transactions are mediated by a third party.

Studies of mediated markets can be found scattered throughout a variety of literature in sociology, anthropology, and management. Table 1 presents selected studies from this literature. Each mediated market is shaped by a particular purpose, an institutional context, and a set of governance procedures that create a unique venue for brokering activities. For example, the desirability of recruiting investors with long-term investment horizons as a way of stabilizing the market for an IPO seems particu-

TABLE 1
Applicability to Other Studies Examining Brokers in Mediated Markets

Study	Broker and Market Context	Social Resources	Dependence	Deal Conditions
Abolafia (1996)	Specialists on the New York stock exchange	Linking buyers and sellers, central position in the flow of information	Single specialist responsible for trading in each stock; shift from focus on desires of specialists to desires of the member firms created shift in specialists' priorities and values	Economic conditions, political environment, rise of institutional and computerized large block trading
Finlay & Coverdill (2000)	Headhunters in the employee placement market	Embeddedness with client firms and reputation	Headhunters serve different subsegments of the market; embeddedness creates dependence on clients	Opportunities for reciprocal opportunism and poaching, availability of most placeable clients, characteristics of the job, hiring conditions
Halpern (1996)	Real estate agents in the residential real estate market	Reputation, friendship relations	Experienced realtors more concerned with long-term social structural aspects of building and using friendships	Tight or loose housing markets affect the competitiveness of interactions
McIntosh & Zey-Ferrell (1986)	Bankers in agricultural technology purchases by farmers	Reputation and experience fill key gap between suppliers and customers as source of capital	Farmers dependent on banks for credit; percentage of loans made for agricultural purposes by bank can impact risk perceptions and solvency concerns	Lending officer autonomy, economic conditions, reputation and creditworthiness of farmers, lending laws in the state
Reimer (1990)	Tour operators in the Canadian tourism market	Ties with destination and transportation purveyors, knowledge of local market	Tour operators vary in their knowledge of and access to desirable destinations	Shifts in economic climate, exchange rates, and customer preferences
Southall (1978)	Middlemen in the Ghana Gold Coast cocoa purchasing and exporting market	Link between farmers in the interior and merchant firms, ability to build subnetworks of other middlemen, status and power	Different levels of market involvement by different types of brokers	Climatic conditions, world political and economic conditions, local political conditions

larly bound up with the idiosyncrasies of the stock market. Similarly, the nuances of syndicate design seem especially dependent on the existence of specific types of underwriters, such as large and diversified investment banks, specialist banks, and peripheral dealers.

Nevertheless, whether it is the cocoa market in Ghana (Southall, 1978), the Canadian tourism market (Reimer, 1990), the market for employee talent (Finlay & Coverdill, 2000), the residential real estate market (Halpern, 1996), the New York stock exchange (Abolafia, 1996), or purchases of agricultural technology (McIntosh & Zey-Ferrell, 1986), our model of the brokering process summarized in Figure 3 suggests that the network architect's situation can be described as a set of background forces that influence the broker's motivations and capabilities as a market mediator, a set of deal network attributes over which the broker can exert at least some control, and a set of transaction outcomes that are partially determined by the broker's network design choices. As described in Table 1, within the boundaries of a broker's situation, the broker's accumulated social resources, the broker's dependence on the market as a source of profits, and the exogenous properties of the deal, such as the desirability of the assets being exchanged, are important in influencing how the broker goes about building and managing a given transaction network. Abstracting from our IPO propositions, we can derive three generalizations about the influence of these variables on brokering processes.

First, a broker's ability to balance the competing interests of participants in a deal network is heavily bound up with the social resources that the broker has accumulated via past transactions. Previous theorizing about the role of social capital in market exchange (e.g., Baker, 1990; Uzzi, 1997, 1999) has emphasized how social resources lubricate *existing* exchange relationships by facilitating the transmission of information among transaction partners. While information exchange is also an important consideration in market mediation, our model of brokering supplements the existing literature by suggesting that social resources are important in market *making* as well. *Generally speaking, the greater a broker's social resources, the more flexibility the broker has in building and managing a given deal network.*

By deploying social resources to adjust the mix of participants in a deal, a broker exerts control over transaction outcomes. Greater social resources afford the broker more choices in recruiting deal participants and, thus, assist the broker in striking appropriate tradeoffs among participant objectives. At the same time, when taken to the extreme, social resources can also induce the broker to lose bargaining objectivity and to favor some market participants over others. Collusive behavior in mediated markets sometimes occurs outside of accepted trading practices and can be detrimental to the integrity of the market as a whole. Such collusion is another "dark side" of embedded social relationships that has not been given much attention in the existing literature.

The importance of social resources for brokering activities is certainly evident in the literature on mediated markets. Broker reputation, the ability to develop embedded ties, and the broker's role as a crucial conduit of resources between one group and another are recurrent themes in the literature.

For example, in their study of corporate headhunters, Finlay and Coverdill focus on the "idiosyncratic and personalized characteristics of the exchange relationship—the degree of loyalty, trust and dependence between the headhunter and client" (2000: 378) and the significant role that these factors play in determining how and where headhunters focus their efforts. Finlay and Coverdill suggest that a headhunter's reputation and ability to gain repeat business are keys to his or her success in creating and filling structural holes between clients and potential job candidates.

Halpern (1996) describes how friendships among real estate agents influenced their behavior during real estate transactions. She found evidence suggesting that when the agents representing the buyer and seller were friends, the transaction was closed more quickly and the transaction process was viewed as a more positive experience. Halpern also found that building a reputation as an honest and competent agent was a long-term interest often outweighing an agent's shorter-term interests in increasing the commissions from a sale.

Southall's (1978) study of middlemen in the Ghana cocoa industry is a rich description of the complicated subnetworks of cocoa dealers of varying status. Major dealers used these con-

nections, as well as their ties to producers and European merchants, not only to bridge structural holes but to keep these holes open even when the merchants attempted to circumvent the brokers and reduce their power.

Reimer (1990) discusses the importance of tour operator ties to the service providers at vacation destinations, and McIntosh and Zey-Ferrell (1986) highlight the role that reputation and experience in the agricultural market played in shaping bankers' recommendations and loan decisions supporting the purchase of new agricultural technologies by farmers.

Second, a broker's motivational orientation toward a deal is largely controlled by the broker's dependence on that market as a source of financial or nonfinancial resources. *Generally speaking, the greater a broker's dependence on a particular market for resources, the more likely the broker will balance short-term and long-term considerations in the consummation of a deal.* We have suggested that nondependent brokers are more short-term oriented, less concerned with expanding their social resources within that market, and potentially more exploitative of the market when short-term profit opportunities arise. In contrast, dependent brokers use each deal not only to extract short-term profits but also to expand the social resources that will enhance their brokering flexibility in the future.

Southall (1978), for example, notes that different cocoa brokers varied in their involvement in brokering as a line of business. Some brokers were farmers who engaged in part-time cocoa trading on a very limited scale, whereas other brokers were larger operators with national scope. Part-time brokers had very locally embedded relationships and tended to sell their products to larger brokers who sold exclusively to European merchants. Southall's description implies that the part-time brokers were much less dependent on brokering for their livelihoods and, thus, engaged in little activity to expand their relationships beyond their local community.

In another example of varying dependence, Halpern (1996) describes how realtors who were more established in their market had more at stake in maintaining their broker position. As a result, established brokers demonstrated concern for preserving and enhancing their social relationships. Halpern notes that experienced realtors focused more on building and leverag-

ing friendships with other agents than newer agents, who instead placed a greater emphasis on mastering the technical aspects of real estate transactions. Halpern quotes one experienced broker: "There's no need to be highly technically skilled. There's always someone during a transaction that knows what they're doing—the other agent, a broker. The people part is more important" (Halpern, 1996: 1536).

Research also suggests that the concept of market dependence can be expanded fruitfully to include not only the broker's dependence on a set of buyers and sellers but also the dependence of the buyers and sellers on the broker. In some markets, dependence on the broker is relatively low, because alternative brokers are available and broker competition can be orchestrated (Finlay & Coverdill, 2000; Reimer, 1990). In others, dependence on brokers for information or resources is relatively high (Abolafia, 1996; Halpern, 1996; McIntosh & Zey-Ferrell, 1986; Southall, 1978), thus placing brokers in the position of managing this dependence for their own advantage.

Southall (1978) provides a fascinating account of buyer and seller dependence in his discussion of the actions taken by cocoa brokers to preserve their profits. When cocoa producers halted sales in 1930 in response to concerted efforts by merchants to lower prices, brokers successfully worked on behalf of the merchants to end the stoppage, because it threatened their own ability to earn profits. However, the same brokers actively supported a later producer holdup in 1937–1938. In the period between the two holdups, the merchants' dependence on brokers had grown, along with the commissions they paid to the brokers for their services. The merchants tried, unsuccessfully, to reduce costs by using their monopoly buying power to force reductions in the excessive commissions paid to brokers. Southall notes that "the difference between the earlier failure and the latter success [of the production holdups] can be largely explained by the role of the brokers" (Southall, 1978: 206).

Abolafia's (1996) description of the actions of market-making specialists on the New York Stock Exchange (NYSE) during the 1930s further illustrates how brokers sometimes leverage participant dependencies for their own benefit. Concerned with the growing power of specialists in the governance of the NYSE and its po-

tential for abuse, then SEC chairman William O. Douglas met with exchange leaders in 1938 to discuss greater regulation of NYSE activities. When Douglas suggested separating the specialists' agent and dealer⁵ functions—an issue of great importance to the specialists—the exchange president responded, "That's fine. We're not opening on Monday" (Abolafia, 1996: 110).

It is interesting to note that as others' dependence on the brokers increased and the brokers became more powerful, the brokers acted in an increasingly opportunistic fashion to bolster their own profits without considering the long-term consequences of their actions on the market. This pattern is similar to the behaviors of some large and diversified underwriters discussed previously. It also illustrates the context-dependent nature of self-interest and how social context can shift an actor's focus between long-term and short-term concerns (e.g., Abolafia, 1996).

Third, exogenous deal conditions provide a slate of important contextual factors to which a broker must be sensitive and respond accordingly by adjusting the characteristics of the deal network kernel in appropriate ways. Halpern (1996), for example, found that in "looser" markets realtors tended to be less competitive and focused more on using friendship contacts than in "tighter" markets, where housing was scarce and demand was high. Finlay and Coverdill (2000) found that deal conditions influenced whether headhunters engaged in "reciprocal opportunism" by poaching employees from one client company and placing them with another. Deal conditions were also found to impact headhunters' decisions regarding whether to accept an assignment, and how much effort to expend on the search. Moreover, if a headhunter had a particularly competent and desirable candidate—known as a "most placeable candidate"—the headhunter would make unsolicited marketing calls on companies that had not explicitly engaged the headhunter but with whom he or she wished to establish a new relationship.

⁵ Specialists can act both as "dealers," trading shares for their own account, and "agents," buying and selling shares for others. Serving these dual roles creates a potential conflict of interest whereby the specialists use information about the other orders to self-deal and "front run" customers' orders, buying or selling shares for their own accounts before fulfilling customers' requests.

Not all brokers are equally sensitive to deal conditions, however, either because they lack the motivation to adjust deal kernels in response to deal conditions or because they do not have the ability to do so. *Generally speaking, the greater a broker's social resources and dependence on the market, the more likely the broker will adjust deal network characteristics in response to changes in the favorability of deal conditions.* This generalization is an important supplement to a purely structural analysis of brokering, because it suggests that brokers are often placed in the position of having to package particular configurations of participants in response to deal conditions—configurations that are dependent on a broker's motivations and abilities to generate interest in the transaction. Brokers play a constitutive role in mediated markets, and, as a consequence, such markets cannot be fully understood without considering the unique contributions and characteristics of the brokers who design and manage them.

FUTURE RESEARCH DIRECTIONS

Adopting a network perspective offers a powerful lens for exploring how social resources are deployed in market transactions. Many important contributions have been made by scholars who have explored how network structures influence market functioning and outcomes (e.g., Baker, 1984; Burt, 1992; Granovetter, 1985; Uzzi, 1996; White, 1981). This article extends this literature by focusing on how transaction networks are actually constructed in order to facilitate the objectives of the network architect in mediated markets, and how various attributes of deal networks influence transaction outcomes. Our discussion illustrates the complex ways that social resources and dependence interact with the motivations of key actors, environmental conditions, and transaction-specific characteristics to shape the way transaction networks are built and managed. Moreover, we have drawn theoretical concepts and empirical support from the management, finance, and sociological literature and have attempted to integrate, rather than counterpose, their implications.

One of the benefits of theorizing market construction processes in the context of IPOs is the wealth of publicly available data about an offering (Marino, Castaldi, & Dollinger, 1989). Methods and measures for capturing the repu-

tation of key participants in the process are well developed (e.g., Bushee, 1998; Carter, Dark, & Singh, 1998; Podolny, 1994), and it is possible to construct network measures from several secondary sources, such as SEC disclosures of institutional investor holdings, IPO prospectuses, and offering tombstones. In-depth qualitative studies, both of companies going through the IPO process and investment banks as they underwrite offerings, can also yield important insights that cannot be captured through the use of archival data alone (e.g., Eccles & Crane, 1988; Malone, 1991).

However, the arguments presented in this article also can be extended in important ways by conducting comparative studies that cross market boundaries. As we noted previously, mediated markets vary in idiosyncratic ways, and the interaction of broker social resources, market dependence, and deal conditions is likely to play out in subtly different ways, depending on the market context. Three market characteristics seem to be especially important in shaping these interactions: (1) the extent and nature of the institutional governance structures present in a particular market (Abolafia, 1996), (2) the opportunities for social enforcement of trust (Portes & Sensenbrenner, 1993), and (3) the existence of competition among multiple network architects (Finlay & Coverdill, 2000). Comparative studies examining how these three factors shape brokering processes in different markets seem to be especially desirable.

Formal regulatory institutions (e.g., governmental agencies, industry associations and boards of conduct, etc.) often have a significant impact on the way brokers design and manage deal networks. While the IPO market is regulated by the SEC and the national exchanges on which IPO stocks are listed, other markets, such as the bond trading market (Abolafia, 1996), are more self-regulating. Still others, such as the employee placement market, are not subject to much regulation of any kind (Finlay & Coverdill, 2000). On the one hand, Abolafia (1996) suggests that brokers in more regulated markets may be somewhat less apt to engage in self-serving and opportunistic behaviors than brokers in unregulated markets, implying that different governance structures create different perceived tradeoffs between short-term and long-term benefits and costs. On the other hand, formal market regulations might simply create new

possibilities and incentives for broker opportunism. Future theorizing and research examining the linkages between market regulatory institutions and broker behavior would be useful.

Even when formal institutional structures are weak, trust can be promoted and opportunism curtailed through social sanctions—what Portes and Sensenbrenner (1993) call *enforceable trust*. When market transactions take place within close-knit social groups, such as Dominican and Cuban neighborhoods (Portes & Sensenbrenner, 1993), rotating credit societies in Asian communities (Geertz, 1962), or Jewish diamond merchants in New York (Coleman, 1988), the threat of social ostracism from the community is generally sufficient to curb opportunistic behavior. Brokers serving as network architects in these dense social contexts are likely to face different sets of motivations and concerns, and different brokering tradeoffs, than network architects in less tightly bound social environments. Further research exploring the role of enforceable trust and relational density in brokering processes would be desirable.

Finally, competition among brokers often creates dynamics that make it easier or more difficult for brokers to control their deal network kernels. Competition does not play a significant role in the IPO market, since competition to be selected as the lead underwriter occurs prior to the construction of the deal network kernel. As Finlay and Coverdill (2000) point out, however, not all mediated markets operate in this fashion. In the employee placement market, for example, the client firm will usually contact multiple headhunters for an engagement and encourage them to compete throughout the placement process. Explicating how competition among brokers impacts deal network construction could also be a fruitful direction for future theorizing and empirical research.

Following these research leads should go a long way toward fleshing out a generalized theory of brokering processes. Comparative research on mediated markets will permit the simultaneous appreciation of the idiosyncrasies of each market context, while also calling attention to the interaction of the key underlying variables of broker social resources, market dependence, and deal conditions in shaping the tradeoffs made by brokers when designing and managing deal networks. We believe that our choice to focus on the details of the IPO market

in conjunction with generalizations that apply to other mediated markets is a useful first step in this direction. Our hope is that our combined approach encourages additional comparative endeavors by scholars interested in understanding the social construction of markets.

APPENDIX: THE PROCESS OF TAKING A COMPANY PUBLIC

Within an IPO deal network, the offering firm's auditor, attorneys, and underwriter provide the first line of fiduciary assurance that all material information affecting the performance of the company in the near future has been included in the prospectus. The SEC provides the second line of fiduciary assurance by verifying the information included in the prospectus prior to granting the company the right to issue stock. Other key participants in the network are early investors in the company and the institutional and individual investors who purchase the stock at the initial share price.

The first step in going public is drafting the registration statement to be filed with the SEC (Husick & Arrington, 1998). Drafting a registration statement is a group activity combining the efforts of the company's executives, the underwriters, both outside counsels, and the auditors (Husick & Arrington, 1998). In conjunction with the SEC filing, a "red herring" prospectus is prepared for distribution to potential investors. The red herring prospectus includes all relevant information about the offering except the initial price of the stock and the number of shares to be offered. Filing with the SEC also triggers the firm's "quiet period," which expires twenty-five days after the effective date of the offering (Husick & Arrington, 1998). During this period, the company is not permitted to grant interviews or to otherwise promote the company in any way. If the SEC feels that the company is promoting its stock during the quiet period, it may object to or even postpone the offering. The company is permitted, however, to conduct "road shows" around the country, in which the underwriters and top management team meet with investors, analysts, and potential members of the underwriting syndicate. The company is prohibited in these meetings from presenting information not included in the prospectus, but it may clarify

issues raised in the prospectus and respond to audience questions.

It is during the registration period that the underwriter must determine the offering price of the stock (Benveniste & Spindt, 1989). The underwriter first contacts various institutional investors and determines the number of shares these investors are willing to purchase at various price levels. The underwriter then uses this information to assess how the market initially values the company and to identify potential investors. Once the SEC is satisfied that all relevant information about the company has been presented in a clear and accurate way, the company is permitted to file a final pricing amendment that includes the stock's price, the number of shares to be sold, the underwriter's commission, and the effective date on which the company has the right to offer its stock to the public. The company signs the underwriting agreement with its investment bank twenty-four hours before the effective date and sets the offering price of the stock. The company's stock is offered to the public shortly after the IPO goes effective.

REFERENCES

- Abolafia, M. Y. 1996. *Making markets: Opportunism and restraint on Wall Street*. Cambridge, MA: Harvard University Press.
- Baker, W. E. 1984. The social structure of a national securities market. *American Journal of Sociology*, 89: 775-811.
- Baker, W. E. 1990. Market networks and corporate behavior. *American Journal of Sociology*, 96: 589-625.
- Balvers, R. J., McDonald, B., & Miller, R. E. 1988. Underpricing of new issues and the choice of auditor as a signal of investment banker reputation. *Accounting Review*, 63: 605-622.
- Beatty, R. P. 1989. Auditor reputation and the pricing of initial public offerings. *Accounting Review*, 64: 693-709.
- Beatty, R. P., & Ritter, J. R. 1986. Investment banking, reputation, and the underpricing of initial public offerings. *Journal of Financial Economics*, 15: 213-232.
- Benjamin, B. A., & Podolny, J. M. 1999. Status, quality and social order in the California wine industry. *Administrative Science Quarterly*, 44: 563-589.
- Benveniste, L. M., Erdal, S. M., & Wilhelm, W. J., Jr. 1998. Who benefits from secondary market price stabilization of IPO's? *Journal of Banking and Finance*, 22: 741-767.
- Benveniste, L. M., & Spindt, P. A. 1989. How investment banks determine the offer price and allocation of new issues. *Journal of Financial Economics*, 24: 343-361.
- Brav, A., & Gompers, P. 1997. Myth or reality? The long run underperformance of initial public offerings: Evidence

- from venture and nonventure capital-backed companies. *Journal of Finance*, 52: 1791–1821.
- Bromiley, D. B. 1993. *Reputation, image & impression management*. New York: Wiley.
- Burt, R. S. 1992. *Structural holes*. Cambridge, MA: Harvard University Press.
- Burt, R. S. 2000. The network structure of social capital. *Research in Organizational Behavior*, 22: 345–423.
- Bushee, B. J. 1998. The influence of institutional investors on myopic R&D investment behavior. *Accounting Review*, 73: 305–333.
- Carter, R. B., & Dark, F. H. 1993. Underwriter reputation and initial public offers: The detrimental effects of flippers. *Financial Review*, 28: 279–301.
- Carter, R. B., Dark, F. H., & Singh, A. 1998. Underwriter reputation, initial returns, and the long-run performance of IPO stocks. *Journal of Finance*, 53: 285–311.
- Carter, R. B., & Manaster, S. 1990. Initial public offerings and underwriter reputation. *Journal of Finance*, 65: 1045–1067.
- Chernow, R. 1997. *The death of the banker*. New York: Random House.
- Coleman, J. S. 1988. Social capital and the creation of human capital. *American Journal of Sociology*, 94(Supplement): S95–S120.
- Cornelli, F., & Goldreich, D. 2001. Bookbuilding and strategic allocation. *Journal of Finance*, 56: 2337–2369.
- Eccles, R. G., & Crane, D. B. 1988. *Doing deals: Investment banks at work*. Boston: Harvard Business School Press.
- Ellis, K., Michaely, R., & O'Hara, M. 2000. When the underwriter is the market maker: An examination of trading in the IPO aftermarket. *Journal of Finance*, 55: 1039–1074.
- Finlay, W., & Coverdill, J. E. 2000. Risk, opportunism and structural holes: How headhunters manage clients and earn fees. *Work and Occupations*, 27: 377–405.
- Fligstein, N. 1996. Markets as politics: A political-cultural approach to market institutions. *American Sociological Review*, 61: 656–673.
- Fombrun, C. 1996. *Reputation: Realizing value from the corporate image*. Boston: Harvard Business School Press.
- Geertz, C. 1962. The rotating credit association: A "middle rung" in development. *Economic Development and Cultural Change*, 10: 240–263.
- Geertz, C. 1978. The bazaar economy: Information and search in peasant marketing. *American Economic Review*, 68(2): 28–32.
- Gompers, P. A. 1996. Grandstanding in the venture capital industry. *Journal of Financial Economics*, 42: 133–156.
- Granovetter, M. S. 1985. Economic action and social structure: The problem of embeddedness. *American Journal of Sociology*, 91: 481–510.
- Gulati, R., & Higgins, M. C. 2003. Which ties matter when? The contingent effects of interorganizational partnerships on IPO success. *Strategic Management Journal*, 24: 127–144.
- Gutterman, A. 1991. Marketing the initial public offering: Strategic planning analysis—Part II. *Securities Regulation Law Journal*, 18: 422–432.
- Halpern, J. J. 1996. The effect of friendship on decisions: Field studies of real estate transactions. *Human Relations*, 49: 1519–1547.
- Hanley, K., & Wilhelm, W. J. 1995. Evidence on the strategic allocation of initial public offerings. *Journal of Financial Economics*, 37: 239–257.
- Haunschild, P. R. 1994. How much is that company worth? Interorganizational relationships, uncertainty and acquisition premiums. *Administrative Science Quarterly*, 39: 391–411.
- Hayes, S. L. 1970. Investment banking: Power structure in flux. *Harvard Business Review*, 49(2): 136–152.
- Higgins, M. C., & Gulati, R. 2003. Getting off to a good start: The effects of upper echelon affiliations on underwriter prestige. *Organization Science*, 14: 244–263.
- Husick, G. C., & Arrington, J. M. 1998. *The initial public offering: A practical guide for executives*. New York: Bowne.
- Ibbotson, R. G., & Jaffe, J. F. 1975. Hot issue markets. *Journal of Finance*, 30: 1027–1042.
- Ibbotson, R. G., & Ritter, J. R. 1995. Initial public offerings. In R. Jarrow, V. Maksimovic, & W. Ziemba (Eds.), *Handbook in operations research and management science*: 993–1016. London: Elsevier.
- Jain, B. A., & Kini, O. 2000. Does the presence of venture capitalists improve the survival profile of IPO firms? *Journal of Business Finance and Accounting*, 27: 1139–1176.
- Kenis, P., & Knoke, D. 2002. How organizational field networks shape interorganizational tie-formation rates. *Academy of Management Review*, 27: 275–293.
- Khurana, R. 2002. Market triads: A theoretical and empirical analysis of market intermediation. *Journal for the Theory of Social Behavior*, 32: 239–262.
- Krigman, L., Shaw, W. H., & Womack, K. L. 1999. The persistence of IPO mispricing and the predictive power of flipping. *Journal of Finance*, 54: 1015–1044.
- Labate, J., & Luce, E. 2001. Too hot to handle: Dotcom shares sparked a public feeding frenzy. *Financial Times*, May 7: 10.
- Larson, A. 1992. Network dyads in entrepreneurial settings: A study of the governance of exchange relationships. *Administrative Science Quarterly*, 37: 76–104.
- Leblebici, H., & Salancik, G. R. 1982. Stability in interorganizational exchanges: Rulemaking processes of the Chicago Board of Trade. *Administrative Science Quarterly*, 27: 227–242.
- Lerner, J. 1994. Venture capitalists and the decision to go public. *Journal of Financial Economics*, 35: 293–316.
- Malone, M. S. 1991. *Going public: MIPS Computer and the entrepreneurial dream*. New York: Harper Collins.
- Marino, K. E., Castaldi, R. M., & Dollinger, M. J. 1989. Content analysis in entrepreneurship research: The case of ini-

- tial public offerings. *Entrepreneurship Theory and Practice*, 14: 51–66.
- McIntosh, W. A., & Zey-Ferrell, M. 1986. Lending officers' decisions to recommend innovative agricultural technology. *Rural Sociology*, 51: 471–489.
- Meggison, W. L., & Weiss, K. 1991. Venture capitalist certification in initial public offerings. *Journal of Finance*, 46: 879–903.
- Michaely, R., & Shaw, W. H. 1994. The pricing of initial public offerings: Tests of adverse-selection and signaling theories. *Review of Financial Studies*, 7: 279–319.
- Pfeffer, J., & Salancik, G. R. 1978. *The external control of organizations: A resource dependence perspective*. New York: Harper & Row.
- Podolny, J. 1994. Market uncertainty and the social character of economic exchange. *Administrative Science Quarterly*, 39: 458–483.
- Porac, J. F., Thomas, H., & Baden-Fuller, C. 1989. Competitive groups as communities: The case of Scottish knitwear manufacturers. *Journal of Management Studies*, 26: 397–416.
- Porac, J. F., Thomas, H., Wilson, F., Paton, D., & Kanfer, A. 1995. Rivalry and the industry model of Scottish knitwear producers. *Administrative Science Quarterly*, 40: 203–227.
- Portes, A., & Sensenbrenner, J. 1993. Embeddedness and immigration: Notes on the social determinants of economic action. *American Journal of Sociology*, 98: 1320–1350.
- Powell, W. W. 1985. *Getting into print: The decision making process in scholarly publishing*. Chicago: University of Chicago Press.
- Rao, H., Davis, G. F., & Ward, A. 2000. Embeddedness, social identity and mobility: Why firms leave the NASDAQ and join the New York Stock Exchange. *Administrative Science Quarterly*, 45: 268–292.
- Reimer, G. W. 1990. Packaging dreams: Canadian tour operators at work. *Annals of Tourism Research*, 17: 501–512.
- Ritter, J. R. 1984. The "hot issue" market of 1980. *Journal of Business*, 57: 215–240.
- Ritter, J. R. 1991. The long-run performance of initial public offerings. *Journal of Finance*, 46: 3–27.
- Rowley, T., Behrens, D., & Krackhardt, D. 2000. Redundant governance structures: An analysis of structural and relational embeddedness in the steel and semiconductor industries. *Strategic Management Journal*, 21: 369–386.
- Salancik, G. R. 1995. Wanted: A good network theory of organization. *Administrative Science Quarterly*, 40: 345–349.
- SEC vs. Credit Suisse First Boston. 2002. *SEC complaint*. <http://www.sec.gov/litigation/complaints/complrl17327.htm>.
- Southall, R. J. 1978. Farmers, traders and brokers in the Gold Coast cocoa economy. *Canadian Journal of African Studies*, 12: 185–211.
- Spence, M. 1974. *Market signaling: Informational transfer in hiring and related processes*. Cambridge, MA: Harvard University Press.
- Stuart, T. E., Hoang, H., & Hybels, R. C. 1999. Interorganizational endorsements and the performance of entrepreneurial ventures. *Administrative Science Quarterly*, 44: 315–349.
- Uzzi, B. 1996. Embeddedness and economic performance: The network effect. *American Sociological Review*, 61: 674–698.
- Uzzi, B. 1997. Social structure and competition in interfirm networks: The paradox of embeddedness. *Administrative Science Quarterly*, 42: 35–67.
- Uzzi, B. 1999. Embeddedness in the making of financial capital: How social relations and networks benefit firms seeking financing. *American Sociological Review*, 64: 481–505.
- Weigelt, K., & Camerer, C. 1988. Reputation and corporate strategy: A review of recent theory and applications. *Strategic Management Journal*, 9: 443–454.
- Welbourne, T. M., & Andrews, A. O. 1996. Predicting the performance of initial public offerings: Should human resource management be in the equation? *Academy of Management Journal*, 39: 891–919.
- Welch, I. 1989. Seasoned offerings, imitation costs, and the underpricing of initial public offerings. *Journal of Finance*, 44: 421–450.
- Welch, I. 1992. Sequential sales, learning and cascades. *Journal of Finance*, 47: 695–732.
- White, H. C. 1981. Where do markets come from? *American Journal of Sociology*, 87: 517–547.
- Wilson, R. 1985. Reputations in games and markets. In A. E. Roth (Ed.), *Game-theoretic models of bargaining*: 27–62. London: Cambridge University Press.
- Wolfe, G. A., Cooperman, E. S., & Ferris, S. P. 1994. An analysis of underwriter selection process for initial public offerings. *Journal of Financial Research*, 17: 77–90.

Timothy G. Pollock is an assistant professor in the R. H. Smith School of Business, University of Maryland. He received his Ph.D. from the University of Illinois at Urbana-Champaign. His research explores the roles reputation, networks, legitimacy, and power play in shaping corporate governance activities, strategic choice, and the IPO market.

Joseph F. Porac is a professor of management at New York University's Stern School of Business. He received his Ph.D. from the University of Rochester and has previously been on the faculties of the University of Illinois and Emory University. He studies the cognitive bases of organizations and markets.

James B. Wade is an associate professor in the School of Business at the University of Wisconsin-Madison. He received his Ph.D. in organizational behavior from the University of California at Berkeley. His research interests include organizational ecology and top management team issues.

Copyright of Academy of Management Review is the property of Academy of Management and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.