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**To Know and Be Known:  
Upper-Echelons Capital's Effects on IPO Performance  
with Evidence from Industries of Contrasting Levels of Uncertainty**

**Eric M. Jackson**

**Submitted in partial fulfillment of the requirements for  
the degree of Doctor of Philosophy  
under the Executive Committee of the Graduate School of  
Arts and Sciences**

**COLUMBIA UNIVERSITY**

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## ABSTRACT

To Know and Be Known:

### Upper-Echelons Capital's Effects on IPO Performance with Evidence from Industries of Contrasting Levels of Uncertainty

Eric Mitchell Jackson

In this dissertation, I seek to understand why some firms that undergo an initial public offering (“IPO”) achieve higher levels of valuation at IPO and higher post-IPO performance compared to others, using the theoretical lenses of upper-echelons, human capital and social capital. Previous empirical work on IPOs has found environmental, industry, and firm factors related to IPO valuation, as well as evidence of the long-term underperformance of IPO firms compared to more mature firms (Ritter, 1984; 1991; Stuart, Hoang, and Hybels, 1999). However, this study represents one of the first to explore *fully* how a firm’s management and board characteristics are linked to its IPO market capitalization *and* post-IPO performance. Based on upper-echelons theory, I argue that the firm’s long-term operational and stock performance depend on the substantive abilities of the members of the firm’s management team and board, measured as their combined human capital and social capital – what I call the firm’s *upper-echelons capital*. I further argue that market actors will notice the differential levels of upper-echelons capital possessed by different firms and build the quantity of this firm resource into their IPO valuations of the firms. A firm’s level of upper-echelons capital is also apparent to actors prior to its IPO; I propose that prestigious third-party actors, such as underwriters and venture capitalists, will be more likely to align themselves with a firm having a large stock of upper-echelons capital than one with a low stock. My model – based on upper-echelons, human capital and social capital theories – predicts a firm’s level of upper-echelons capital affects the prestige of the third parties associated with a firm at IPO, consequently affecting its IPO valuation and post-IPO performance. I also argue that the effect of upper-echelons capital on these two dependent variables is even stronger when a firm is operating in an industry that is characterized by a high degree of uncertainty. I test my propositions on a sample of firms from two industries of varying uncertainty (computer software – defined as computer integrated designs and computer programming services firms – and hotel and restaurant chains) from 1994 to 1998. I find general

support for my propositions positing a link between upper-echelons capital and short-term valuation and long-term firm performance – although different types of upper-echelons capital have differential performance effects. My propositions receive mixed support that there was a stronger link between upper-echelons characteristics and IPO valuation and post-IPO performance for firms from industries of greater uncertainty, depending on the type of upper-echelons capital. I find mixed support for my propositions of greater upper-echelons capital levels attracting prestigious third-parties which, in turn, positively influence short-term valuation and long-term performance. The most consistent upper-echelons capital characteristic that I find to affect IPO valuation and post-IPO performance is a top management team's amount of industry social capital. Although the upper-echelons capital characteristics do not universally predict higher IPO valuation and post-IPO performance, I find that they are highly significant predictors of these outcomes depending on certain threshold levels.

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**Dedication:**

This thesis is dedicated to my loving wife, Jennifer, without whose sacrifices and love my achievement would not be possible.

## **I. Rationale and Overview:**

### **I.I Rationale:**

The upper-echelons literature has long argued that the structure, composition, and processes of top management teams and boards affect organizational outcomes (Hambrick and Mason, 1984; Finkelstein and Hambrick, 1996). Much evidence has been amassed to support for this perspective, showing executive characteristics linked to definitions of complex business problems (Dearborn and Simon, 1958), organizational innovation (Hage and Dewar, 1973), organizational structure (Miller and Toulouse, 1986), organizational strategy (Boeker, 1989), organizational growth (Eisenhardt and Schoonhoven, 1990), effectiveness of strategy implementation (Gupta and Govindarajan, 1984), and organizational propensity to action (Hambrick, Cho, and Chen, 1996). Yet, most upper-echelons empirical studies have concentrated on the contexts of *Fortune 500* firms, which tend to be large and complex organizations, where the effects of executives and directors should be somewhat muted by other noise. Ironically, the settings where upper-echelons effects might be most pronounced – smaller, more entrepreneurial firms – have been understudied by scholars, probably because of difficulty accessing data.<sup>1</sup> One of the central purposes of this thesis is to improve on this gap in the upper-echelons literature by exploring the effects of entrepreneurial ventures' executives' and directors' combined human capital and social capital on their firms' abilities to attract other prominent actors and on their firms' short- and long-term performance.

This research also expands on several recent studies from the organizational theory and institutional ecology research streams that have focused attention on the factors critical to the success of entrepreneurial ventures (Stuart, Hoang, and Hybels, 1999; Higgins and Gulati, 1999; Baum, Calabrese, and Silverman, 2000). This interest is not new to organizational scholars. Stinchcombe's early writings (1965) argued that these new ventures had great difficulties surviving and thriving, in comparison to larger, more mature firms. Entrepreneurial firms are smaller and younger than more established firms and are, therefore, not as known or as trusted by key actors. As a result, these smaller firms can have difficulty acquiring the needed resources for their survival and growth (Aldrich, 1979; Kelly and Amburgey, 1991).

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<sup>1</sup> A notable exception is Eisenhardt and Schoonhoven (1990).

It takes time to build up these external relationships with buyers and suppliers, as well as to define internal roles for their employees. As Baum has reviewed (1996), there has been much debate recently about whether the challenges these ventures face are more properly termed liabilities of newness or liabilities of smallness. Yet, Baum and his colleagues (Baum, 1996; Baum, Calabrese, and Silverman, 2000) point out that one accepted position in this debate is that entrepreneurial ventures face the challenges delineated by Stinchcombe (1965) of scarce resources and tenuous nascent relationships with other actors.

While all entrepreneurial ventures face these difficulties, some firms are clearly more successful than others over time. Organizational scholars have been attracted to two related questions about differences in performance across entrepreneurial ventures: (1) how these firms overcome the great uncertainty and lack of resources at founding to both survive and enjoy long-term performance growth, and (2) how other actors determine whether these firms will survive and enjoy long-term performance growth. As Baum *et al.* (2000) observe, most research on the challenges facing entrepreneurial ventures has focused on firm survival as the dependent variable (e.g., Singh, House, and Tucker, 1986; Baum and Oliver, 1991). Yet, it is equally important to understand the key factors relating to these ventures' long-term performance and several recent papers have begun to pay closer attention to this type of firm outcome in the entrepreneurial firm context (e.g., Eisenhardt and Schoonhoven, 1990; Stuart *et al.*, 1999; Baum *et al.*, 2000).

In answer to the two fundamental questions raised in the last paragraph of how entrepreneurial ventures overcome the hazards of early organizational life to survive and flourish and how other actors distinguish between new ventures and their prospects for survival and success, several researchers have sought to demonstrate that a critical variable in this process is how a new venture positions itself within its social structure. Network theorists argue that an actor's prominence in a social network depends on the actor's centrality – which is the extent to which the actor is involved with others within the network (Knoke and Burt, 1983; Burt, 1992). Organizational scholars have taken this notion of an actor's prominence within a social network and used it to understand an organization's position within a network of other organizations (Podolny, 1993; Podolny, Stuart, and Hannan, 1996; Burton, Sorensen, and Beckman, 1999). An emerging literature on strategic alliance networks has suggested that organizations rich with alliances

enjoy greater access to resources and information (Teece, 1992; Gulati, 1998). Several recent papers have applied this rationale to an entrepreneurial venture context, arguing that new ventures can improve their chances for survival and attract interest of other actors through greater alliances with other prominent organizations (Stuart *et al.*, 1999; Baum *et al.*, 2000).

Stuart *et al.* (1999) suggested that young biotechnology firms who had strategic alliances with other prominent biotechnology or pharmaceutical firms would be faster to hold an initial public offering (“IPO”) and would enjoy a higher valuation at IPO. They found support for these hypotheses. Baum *et al.* (2000: 287) studied a sample of 142 Canadian biotechnology new ventures and found evidence that establishing alliances, configuring them into an efficient network that provides access to diverse information and capabilities with minimum costs of redundancy, conflict, and complexity, and allying with established rivals that provide more opportunity for learning and less risk of intra-alliance rivalry enhanced initial valuation.

This study aims to blend the upper-echelons theoretical lens with the organizational lens that pronounces the importance of firm ties to third parties as a signal of power and ability to attract resources to better understand how entrepreneurial firms operate to gain control over their environment. The context for my examining how entrepreneurial firms operate is the market for IPO firms. Several financial and organizational studies have already explored the IPO phenomenon with the goal of better understanding what firm or market factors predict how the market will value these new issues immediately and several years after an IPO. Firms undergoing IPOs (i.e., who sell a portion of their common equity to the public for the first time, thereby transforming themselves from private to publicly-traded firms) enjoy higher valuations when they are aligned with more prominent underwriters (Carter and Manaster, 1990; Higgins and Gulati, 1999), venture capitalists (Megginson and Weiss, 1991), and auditors (Beatty and Ritter, 1986). These firms’ stock prices also benefit in the aftermarket (i.e., when their stock trades following their IPO) when the firms are covered by prominent investment bank analysts (Bhushan, 1989; Rajan and Servaes, 1997; Mavrinac, 1999). These findings imply that who a firm is aligned with plays an important role in determining that firm’s survival and long-term performance, as well as how other actors perceive its status or quality. These results complement Podolny’s conclusion (1994) that, in times of uncertainty, third-party



actors align themselves with firms that they perceive as being of similar quality to themselves. Podolny's reasoning is that quality associates with like quality, and, once the key players in the IPO market – firms, venture capitalists, underwriters, and auditors – match up, the market is able to quickly and accurately assess the value (i.e., the quality) of each new issue.

What is missing from this reasoning, however, is an explanation for how third-party actors initially (i.e., before any other actors have indicated their assessment of a new venture's potential for the IPO market) assess the quality of a firm that is planning to go public. Stuart *et al.*'s (1999) argument suggests that strategic alliances with other high-quality firms signal a firm's quality in the IPO process. The Baum *et al.* (2000) argument suggests that alliances with strategic rivals and partners allow a new venture access to beneficial information and resources that allow them to achieve higher levels of performance, which presumably make them appear as a firm of higher quality if they went public at some point in the future. Yet, these arguments of the benefits of alliances to new ventures beg the question of why high-quality firms should deign to form a strategic alliance with one new venture over another. Presumably, their logic is that some new ventures have intrinsic resources that make them more attractive to potential alliance partners than other new ventures. This reasoning is similar to the "resource-based view of the firm" in seeing the new venture as a bundle of resources (e.g., Wernerfelt, 1984; Barney, 1991). Yet, what are these resource bundles inherent to the new venture that serve to attract other alliance partners?

With an upper-echelons theoretical lens, I argue that prestigious actors are attracted to associate with some new ventures more than others because of the human capital and social capital of the managers and directors associated with that firm – what I call a firm's upper-echelons capital. One Menlo Park-based General Partner at a venture capitalist firm interviewed for this research explained the importance of a entrepreneurial venture's top management team and board to its corporate development this way:

We are looking at making bets in industries where the required domain knowledge is extensive. We have our technical people who can help kick the tires when we are doing our due diligence on a potential investment, but often our investment decision comes down to our comfort with the track record of the people involved. Have these people been successful in their prior endeavors? Have they led companies

that were of a significant size or were they part of “schmo” companies? Have they faced great technical challenges in their previous companies and overcome them? Do they have a rolodex of contacts for that industry they can start to mine from day one? Have they proven they know how to take a company from product development to mass distribution? And do they have the critical mass of requisite skills on the management team to make it happen?

To measure the various individual and combined qualities of managers and directors, I propose the concept of *upper-echelons capital*, which I define as the combined human and social capital of the top management team and board. I draw on upper-echelons, human capital, and social capital literatures to develop this concept. I propose that a new venture’s upper-echelons capital helps it in three important ways when it undergoes an IPO: (1) it helps a young firm signal its quality to prestigious third-party actors, such as underwriters and venture capitalists prior to the IPO, which translates into an enhancement of the firm’s reputation, (2) it helps a young firm signal its quality to the market at IPO, which translates into a higher IPO valuation, and (3) it helps a young firm make substantively better strategic decisions, which translates into higher operational performance after the IPO.

However, I argue additionally that upper-echelons capital is not a universal predictor of new venture IPO valuation and post-IPO performance. Industry context plays an important moderating role in determining the relative effects of upper-echelons capital. In industries characterized by greater uncertainty, because of greater stock price volatility, lower barriers to entry, or greater threats of substitute products, a new venture’s upper-echelons capital will be a stronger predictor of IPO valuation and post-IPO performance, because actors will have fewer tangible resources to focus on, compared to industries characterized by lesser uncertainty.

This study is unique in the degree to which it will examine characteristics of management team members and directors, but it is not the first to recognize the importance of an entrepreneurial firm’s management team and board of directors on its performance. Eisenhardt and Schoonhoven (1990) studied the effects of the founding management team’s size, industry tenure heterogeneity, and previous joint work experience on the sales growth of semiconductor new ventures between 1978 and 1985. Each independent variable showed strong positive effects on sales growth which actually grew in strength over time. Burton,

Sørensen, and Beckman (1999) argued that the prior career histories of a new venture's management team, which affect each top management team member's human and social capital, help to situate a new venture in its social structure. Those ventures with executives who came from prominent firms had been exposed to challenging work experiences, helping them to make substantively better decisions for their current firms: "Employers shape the personal networks of their employees, expose them to new ideas, endow them with valuable resources and confer implicit credentials upon them" (Burton *et al.*, 1999: 6). In their study of 173 high-tech new ventures from Silicon Valley, they found support for their hypotheses that a top management team with many members who had prominent prior employers were more likely to direct their current firms to an innovative strategy and receive external funding to develop the venture. Higgins and Gulati (1999) also propose that new ventures who have managers and directors with extensive social capital, based on their past employment ties and board ties, will be rewarded with greater resources and ties to other prominent firms. They study 295 biotechnology ventures that undergo an IPO between 1979 and 1996, finding that greater social capital ties among the senior team and directors helps firms attract prestigious underwriters to take them public. Both of these factors are linked to greater IPO valuations for the firm when they go public. What is unique in this current study is that it studies a range (rather than a selection) of management team and board characteristics in the same context across several dependent variables to provide a more complete view of when and why certain predictor variables matter.

I seek to answer three research questions in this dissertation: (1) how are a firm's officers' (i.e., its top management team members) and outside directors' human capital and social capital related to its IPO valuation and post-IPO performance?; (2) how does differing industry uncertainty affect the importance of officers and directors on firm IPO outcomes?; and (3) how does a firm's ties to prestigious actors (such as underwriters and venture capitalists) mediate the relationship between a firm's upper-echelons capital with IPO valuation and post-IPO performance?

Essentially, I argue that entrepreneurial ventures' management teams and boards of directors have a magnetic effect on their performance. The combined human and social capital of the executives and directors help broadcast to other actors within and outside their industry whether a particular new venture has the requisite skills and contacts to effectively compete. As entrepreneurial finance scholar William

Sahlman describes, new ventures with extensive upper-echelons human and social capital have a tremendous ability to attract resources to their firms because:

the founders *know* the industry for which they propose to raise capital and launch a venture – they *know* the key suppliers, the customers, and the competitors. They also *know* who the talented individuals are who can contribute to the team. At the same time, they are *known* in the industry: people can comment on their capabilities and can provide objective referrals to resource suppliers like professional venture capitalists. Suppliers, customers, and employees are willing to work with them in spite of the obvious risk of dealing with a new company (Sahlman, 1999b: 144; emphases added).

A new venture with an extensive stock of upper-echelons capital attracts other prominent actors, such as venture capitalists and underwriters when the firm goes public. These attracted resources and information serve to heighten the innate ability of the new venture embedded in the combined resources of its top management team and board, helping it enjoy a higher market valuation when it decides to go public and higher long-term stock and operational performance. I now turn to an overview of my research methodology used to test my arguments.

## **I.II Overview of the Research Methodology:**

The context for this study is two industries of varying uncertainty: computer software (measured as firms in the computer integrated designs and computer programming services industries) and restaurant and hotel chains. I chose these industries because of the frequency with which their firms went public over the time period studied, and their contrasting levels of industry uncertainty, defined as their industry unlevered betas (i.e., the covariation between all the securities' stock prices within a 4-digit SIC and the overall market from the CRSP database, controlling for differences in debt ratios across industries) over the time period (the computer software firms characterized by high industry uncertainty and restaurant and hotel chains characterized by low industry uncertainty). My sample includes all the firms from these industries that underwent an IPO between 1994 and 1998 (95 computer software firms, 50 restaurant chains, 25 hotel chains, for a total of 170 firms). All firms were coded for their differing levels of upper-

echelons capital. I was then able to determine the differential effects of upper-echelons capital on IPO valuation and post-IPO performance, with the mediating variable of prestigious third-party ties at IPO, and the moderating variable of uncertainty of the firm's industry.

### **I.III The Organization of this Study:**

I begin this thesis by explaining the IPO phenomenon, itself, and the corresponding empirical research existing for IPO valuation. In chapter three, I turn to the development of my theory and propositions. I will review the literature on upper-echelons (top management teams and boards) effects on organizational outcomes, human capital, and social capital. Based on these theories, I will propose a two-part scheme of "upper-echelons capital." This scheme will include a clear definition of its sub-components. The next section will describe my moderating variable: industry-based uncertainty. There are several relevant findings on the effects of industry-based uncertainty, which I will review, and then discuss how they apply to the IPO valuation and post-IPO performance of firms with differential upper-echelons capital. I will then turn to a discussion of my mediating construct: prestigious third-party ties at IPO. Previous research suggests underwriters, venture capitalists, and strategic alliance partners tend to signal the quality of a new issue to other actors, affecting an IPO firm's valuation. I will argue that these ties should also mediate the upper-echelons capital and IPO valuation relationship. In chapter four, I turn to the research and methodology that I will use to test my hypotheses. Chapter five discusses my results. Finally, in chapter six, I provide a review of my findings from this study, their limitations, and avenues for future research stemming from this study. I will now turn to a complete description of the initial public offering phenomenon, including its key players and the process. The next section also includes a thorough review of the empirical research completed so far on the key drivers of IPO valuation and the unanswered questions remaining about IPO valuation and post-IPO performance.

## **II The IPO Phenomenon and Prior Research on IPO Valuation:**

### **II.I An IPO: The Phenomenon and the Process:**

This chapter has two purposes and is divided accordingly into two sections. The first section provides a complete description of IPOs and the process by which they occur. The key players in the process and their roles are also described in detail. The second section reviews the prior research related to IPO valuation organized by class of independent variables and highlights the remaining unanswered questions about IPOs.

#### ***II.I.I Description of IPOs:***

An IPO is a significant event in the life of a firm. It represents a decision by the firm's officers, directors, and investors to sell a block of common equity shares for the first time to the public, which will be publicly-traded thereafter (Tinic, 1988; Ibbotson and Ritter, 1995; Lipman, 1997). Firms that go public are generally of two types: new ventures and spin-offs. New ventures are formed by a group of entrepreneurs apart from existing companies. At the time of IPO, these firms are generally still young with few employees, revenues, or profits, compared to more established firms. However, in a few cases, new ventures undertaking IPOs can be quite old or large, but decide that it would serve their interests to go public (such as the Goldman Sachs and United Parcel Service IPOs in 1999). New venture IPOs might have been funded by private investors and venture capitalists or have no major previous investors, having funded themselves through internal growth or "friends and family" investments. The other major type of IPO firm is the spin-off. This firm type, previously a subsidiary of another firm, is set up apart from the parent company with its own publicly-traded stock, although the parent often remains a major stockholder of the spin-off after the IPO. Examples of spun-off IPOs include Lucent Technologies from AT&T in 1996, Expedia from Microsoft in 1999, and Agere from Hewlett-Packard in 2000. This thesis will only examine new venture IPOs.

#### ***II.I.II Key Players in the IPO Process:***

There are several groups involved in the process of taking a firm public. This next sub-section will outline the different players and their roles.

#### *II.I.II.I The IPO Firm:*

The firm going public is at the center of the IPO process. An IPO is the sale of shares to the public for the first time. But the shares that are sold always exist privately prior to the IPO, owned by the firm and the firm's *insiders*. An insider is a firm manager, a director, an employee, a friend or family member of a manager, or an investor. The shares that are sold to the public come from the pool of existing shares owned by the firm (in its treasury) or the firm's insiders. When the shares owned by the firm are sold to the public, the firm itself, gains the proceeds from the sale. When insider shares are sold in the IPO, the insider selling the shares receives the proceeds. A firm's insiders are usually advised by the IPO underwriters not to sell their holdings in the offering, as their actions might be interpreted by the market as a signal of bad faith in the firm. For this same reason, the underwriters usually demand a *lock-up period* following the IPO, during which the firm's insiders are forbidden from selling any of their remaining stockholdings. This period usually expires 180 days following the IPO (Bank, 1999).<sup>2</sup>

#### *II.I.II.II Venture Capitalists and Private Investors in the IPO Firm:*

Often, a firm will have private investors and venture capitalists who own a number of shares in the firm at the time of its IPO. Venture capital firms invest in private companies that need capital to help fund their growth. In return for providing the capital, the venture capital firms or investors usually demand a sizable ownership stake in the firm and demand seats on the firm's board to exert control on the firm's strategic direction (Bygrave and Timmons, 1992). Venture capitalists invest in companies through individual funds they manage. These venture funds are similar to mutual funds except that venture funds are not required to publicly disclose their investments to the Securities and Exchange Commission in the way mutual funds must and have far fewer firms making up their portfolios. Venture capital firms raise capital for their funds from institutional investors, insurance companies, university endowments, pension funds, and high net-worth individuals, usually in the form of limited partnerships in a venture capital firm's

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<sup>2</sup> As a way of avoiding the potential for insiders to sell a large block of shares following the end of the lockup (and thereby driving down the stock's price), underwriters have recently become open to "piggyback" deals following the IPO. In these deals, a firm holds a follow-on offering as soon as 90 days after its IPO. In this offering, insiders are permitted to sell a block of their shares (McGee and Ewing, 2000).

fund (Perez, 1986; Barry, Muscarella, Peavy, and Vetsuypens, 1990; Kunze, 1990; Sahlman, 1990; Lerner, 1994; Gompers, 1995; 1996).

As most<sup>3</sup> venture capitalists are in business to make the greatest profit on their original investment, they want to ensure they will be able to *exit* (i.e., sell their ownership stake) from their investment at some point in the future, and so want their portfolio firms to ultimately go public or be acquired. With this end goal in mind, venture capital firms refer to their portfolio firms by their stage of development in relation to an IPO. The earliest stage of development for a firm is the “seed capital” stage, where firms are given only a limited amount of capital from their venture capitalists or angel investors to see how they develop. Firms might develop to a point where they reach a “first”, “second” or “third” stage of funding.<sup>4</sup> The final stage of development before a firm goes public that a venture capital firm would fund is the “mezzanine” or “bridge” stage. By limiting their investments to specific rounds that correspond to different stages of firm development, venture capitalists limit their downside risk, while maintaining their upside potential from their investments (Sahlman, 1999a). With each new round of financing, a venture capital firm expands its ownership of its portfolio firms and other equity holders in the firm see their holdings *diluted*.

Generally, venture capital firms specialize by industry and/or financing round. With the recent proliferation of venture capital available between 1998 and 2000 because of significant gains in the stock market, venture capital firms have had to find other ways, besides supplying capital, to differentiate their advantage vis-à-vis their competitors. It has become more common for venture capital firms to emphasize the prestige of their portfolio companies, their knowledge of guiding many start-ups around many obstacles on the road to the IPO, or their social connections.<sup>5</sup> The most prestigious venture capitalists carry an important certification of quality for a young firm that can enhance its ability to attract more capital and people.

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<sup>3</sup> Some venture capitalists affiliated with a company might have strategic investment goals that supercede financial goals. For example, Intel Capital (the investment arm of Intel Corporation) has traditionally invested in companies that will help stoke demand for Intel’s semiconductor chips as well as make a sound financial return, rather than only looking for investments that offer the greatest potential financial returns.

<sup>4</sup> Also known as ‘Series A’, ‘Series B’ and ‘Series C’ investments.

<sup>5</sup> For a more detailed description of how some venture capital firms try to differentiate themselves as more than just capital suppliers, see Henig (2000).



An example of how a venture capitalist's quality is an important signal to the market is the Internet women's Website *iVillage*. Two years before the firm made a splashy IPO debut in 1999, its colorful CEO, Candice Carpenter, was trying to build up the firm's image in the minds of the Internet and investment communities, while also negotiating several rounds of private financing to support the firm's development. Both of these goals were accomplished when she was able to get the prestigious Silicon Valley venture capitalist Kleiner Perkins Caulfield & Byers to invest \$12 million: "Carpenter had courted Kleiner not so much for the money – although *iVillage* clearly needed it – as for the prestige that its investment would confer on the company, and on her. The firm, headquartered in Menlo Park, has a reputation for picking big winners, from AOL [America Online] to Amazon, so its investment in a new company greatly reassures other investors" (Larson, 1999: 81).

#### *II.I.I.III The Securities and Exchange Commission:*

The Securities and Exchange Commission was set up by the federal government to act as a watchdog of the securities industry, protecting the general public from exploitation. Part of their charter is to monitor the truthful reporting of companies who have sold a portion of their common equity to the public (Afterman, 1995). To ensure this, the Securities and Exchange Commission requires all public firms to file certain documents describing their business activities and performance prior to and following their decision to go public pursuant to the Securities Act of 1933 (Zeune, 1993). The specific process and timetable that the Securities and Exchange Commission requires all firms to follow leading up to their IPO will be described in more detail later in this chapter.

#### *II.I.II.IV The IPO Underwriter:*

The IPO underwriters are the team of investment bankers who play an intermediary role between the IPO firm and the market. The underwriters agree to buy the IPO firm's securities and sell them to the open market. They make money on a spread between what they buy and sell the securities for. The group of investment bankers involved in this process is called the *syndicate*. By participating as part of a syndicate, each underwriter reduces its liability if a shareholder brings a suit against it, and lessens the risk that the lead underwriter will have to unload the entire *float* (i.e., the total amount of equity being issued to the public). The most prestigious underwriter in the IPO syndicate is the *lead underwriter* (Eccles and

Crane, 1988) because it most closely advises the firm on the IPO and it will be most closely linked to the IPO firm's aftermarket success or lack thereof. The lead underwriter also stands to make more in fees from the IPO than any other underwriter in the syndicate, because of controlling a majority of the shares being sold. Typically, the lead underwriter makes 7 to 8% of the gross amount raised by the IPO firm (Afterman, 1995).

Because the lead underwriter position can be so prestigious – and lucrative – underwriters compete fiercely for the business of IPO firms perceived to have the greatest potential. Prior to selecting a lead underwriter, high quality IPO firms invite several investment bankers to a *bake-off* or *beauty contest*, in which they argue for their merits for *leading the IPO*. There are clear status differences between investment banks, as has been discussed (Eccles and Crane, 1988) and empirically demonstrated by prior research (Podolny, 1993; Wolfe, Cooperman, and Ferris, 1994). Therefore, the most prestigious investment banks will have an advantage in winning the business of the most coveted IPO firms. Many institutional and retail investors weigh an IPO's lead underwriter as a seal of approval. Joseph Perella, head of Morgan Stanley's corporate finance department, explains it this way: "If Morgan Stanley has its name on it, investors assume it's better than Schlock Incorporated" (Cassidy, 1999: 58). As a result of status differences, five underwriters – Morgan Stanley (21%), Goldman Sachs & Co. (18%), Merrill Lynch (15%), Salomon Smith Barney (10%), and Crédit Suisse First Boston (8%) – led 73% of the initial public offerings between 1998 and mid-2000 (Mullaney, 2000: EB114). IPO firms recognize these status differences between underwriters and will seek out the most prestigious investment banks to take them public. In preparing for its recent IPO, Network Solutions' CFO, Robert Korzeniewski, tapped Morgan Stanley as the firm's lead underwriter for its IPO after initially giving Hambrecht & Quist the nod: "You ask yourself, how do we become a top-tier [technology] company?... Look at the top 25 [technology companies] and ask yourself how many are with Morgan and Goldman? It's a very high percentage" (Mullaney, 2000: EB114).

An increasingly-cited factor determining which underwriter an IPO firm selects is the investment bank's research analyst who will be *covering* (i.e., writing research reports on) the firm post-IPO (Cassidy, 1999; Mavrinac, 1999). Some analysts are more recognized, and therefore perceived as being more

persuasive, than others in a given industry at a given time. Annual “all-star” analyst rankings in the *Wall Street Journal* and *Institutional Investor* highlight the status rankings of different analysts. Having a popular analyst pay attention to a firm ensures that the firm’s story will get out to the broader market. For example, Priceline.com, an Internet seller of discount air tickets, hotel accommodations, and groceries, went public in April 1999, with Morgan Stanley as the lead underwriter, instead of Goldman Sachs. Its primary reason for selecting Morgan was that, following the offering, it would be covered by Mary Meeker – Morgan’s Internet analyst, who, at the time, was known as the “Queen of the ‘Net” on Wall Street (Cassidy, 1999) – a title she has since lost because of the technology market’s drop in 2000.<sup>6</sup> Brad Sinrod, president of the New York-based information Website IPO.com says, “If one of these big firms agrees to take you public, that in itself says something about the quality of your deal.... Having the support of a top research analyst – which these big banks have – can send your IPO flying” (Fryer, 2000: 108).

Once the lead underwriter is selected, it works with the IPO firm to draw up a preliminary prospectus – the document outlining the company’s business, financials, management team, and strategy, which is filed with the Securities and Exchange Commission before the firm is allowed to go public. The lead underwriter will also start conducting due diligence on the firm. If there is some hidden aspect of the company’s structure or background that is not fully disclosed in the IPO prospectus, investors can later bring a class action suit against the firm and its underwriters for not completely performing their due diligence responsibilities. In these early stages before the IPO, the lead underwriter also begins looking for potential investors in the firm. Investors who want to order a block of the firm’s shares at the offering express *indications of interest* in the firm, which are formal orders for a specific amount of stock. Knowing that many IPOs are oversubscribed, investors tend to ask for more shares of stock than they expect to receive. An underwriter notes these indications of interest in its order book, which it hopes to fill quickly at

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<sup>6</sup> Because of venture capitalists’ sizable gains between 1998 and 2000, Morgan Stanley and Goldman Sachs formed their own private equity groups to compete with venture capitalists for stakes in late-stage, pre-IPO firms. In essence, these prestigious investment banks are backward integrating into venture capital. Their competitive advantage versus more traditional venture capitalists is their prestigious name as an underwriter and prestigious analysts to cover firms post-IPO. “While ‘Chinese walls’ supposedly keep private equity groups independent from the corporate-finance sides of their respective houses, there’s little doubt that the investment bankers get an inside track to taking a company public when the firm’s venture capitalists are sitting on its board” (Veverka, 2000: 24).

the highest price possible. The most favorable outcome for an underwriter leading an offering is that the price it sets for the security is maintained or improved on after the stock begins trading. There remains a perception among market actors that it reflects poorly on the underwriter if an IPO's stock price falls after opening. In such a case, the underwriter is seen to have *misjudged the market*. Such a perception can inhibit its ability to take future firms public. Therefore, an underwriter seeks out IPO investors who will not "flip" the shares (i.e., sell them quickly after the IPO for profit) to try and avoid a drop in the stock's price.

One of the most difficult tasks for the lead underwriter is establishing the offering price for the stock. This has been described by many actors as a process that is more art than science (Sahlman, 1999b). The underwriter has a responsibility to the IPO firm to set the offer price as high as the market will bear to maximize the amount of money raised by the firm in the offering. However, by contrast, the underwriter also feels a responsibility to set the price at a slight discount to generate interest among those investors who receive allocations of the shares at the offer price because this group is made up predominantly of institutional investors who have strong ties to the underwriter (Altman, 1988). Ibbotson (1975: 264) has suggested that IPOs are underpriced to "'leave a good taste in investors' mouths' so that future underwritings from the same issuer could be sold at attractive prices." Letting these investors in on a highly demanded IPO helps cement a relationship that can lead to future business for the investment bank later on. After balancing the concerns of these two constituencies and estimating investor demand, the lead underwriter establishes an offering price range which they publish on the first page of the preliminary IPO prospectus sent to the Securities and Exchange Commission and distributed to potential investors. The range generally has a spread of \$2 to \$3. The final offer price may be above, below, or within the range, depending on investor interest.

When a lead underwriter judges there is insufficient interest in a planned IPO or when the underwriter fears that market conditions have changed to lower the potential amount of money to be raised in an offering, it can elect to postpone or withdraw the IPO. It usually takes another six months before the IPO firm and its bank will reschedule another IPO date (Taulli, 1999). Some actors interpret a postponed or withdrawn IPO as a sign of lower quality. However, postponed IPOs do not always lead to disasters.

Goldman Sachs, for example, enjoyed a substantial post-IPO stock price gain after postponing its IPO, due to the “Asian Flu” market downturn of 1998.

#### *II.I.II.V Institutional Investors:*

The institutional investors are the primary purchasers of the IPO firm’s stock at the offer price from the underwriter. Because most offerings are oversubscribed (i.e., there is more demand than supply), those institutional investors who receive blocks of IPO stocks tend to be those that have close ties to the underwriter (Altman, 1988; Useem, 1996). These investors are less interested in the long-run performance of the IPO firm’s stock price, as they do not have any direct ties to the firm. These investors tend to be motivated by the *free money* potentially available in owning an IPO stock that shoots up in price after opening, because they can *flip* the stock for a quick profit. This is certainly not always the case however. Many IPOs will see their stock price immediately drop below its IPO offer price if there is insufficient demand for it. Although the lead underwriter tries to limit the amount of post-IPO flipping through screening the buyers with whom they place the IPO stock, there is a recognition among underwriters that a certain amount of flipping is going to take place by the institutional investors. This system of IPO price setting and placement has been criticized as being too *clubby*, where underwriters and institutional investors with whom they have close ties enjoy excess profits. Attempts to develop alternative methods of pricing and placing IPO stock have been made<sup>7</sup> -- and the Internet makes such attempts more viable today than in the past -- but to this point IPO firms still seek out the most prestigious underwriters because of their desire to share in that prestige.

#### *II.I.II.VI Other IPO Actors:*

There are several other actors who participate in the going public process. They also charge the IPO firm high fees. Auditors, attorneys, printers, public relations firms, and transfer agents/registrars, who handle that transfer of stock certificates for every stock transaction, are all involved in the IPO process.

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<sup>7</sup> For example, the “dutch auction” method developed by W.R. Hambrecht & Co. is an open bidding system that sets the IPO offer price at whatever level the market will bear.

### *II.1.III The IPO Process:*

The process by which a firm goes public is determined in large part by two federal laws governing sale of stock. The first federal law affects the process leading up to the IPO: the Securities Act of 1933 states that, before any stock is sold to the general public, the security must be registered with the Securities and Exchange Commission. This registration occurs through a prospectus being filed with the Securities and Exchange Commission which must contain no misstatements and be accepted by the Securities and Exchange Commission. The second federal law affecting the post-IPO process is the Securities Exchange Act of 1934, which requires that a registered public company make periodic disclosures and prohibits insider trading of securities except under certain circumstances.

Once an IPO firm has selected a lead underwriter, the underwriter engages in *due diligence*, investigating the firm through visiting the offices, interviewing management, analyzing financials, and talking to auditors, customers, and suppliers. The underwriter does this to minimize its liability, in case some investors later feel it made misstatements in the IPO prospectus. Once due diligence is completed the IPO firm signs a *letter of intent* with the underwriter. This letter of intent outlines the terms of the relationship, such as the percentage of ownership to be kept by the firm, the minimum/maximum amount of money to be raised, counsel for the underwriter, and compensation for the underwriter.

Next, the underwriter begins to set the offer price range for the new firm. To do this, the underwriter will study the valuations of *comparable* firms to the focal firm that have gone public recently. It will look at how venture capitalists and private investors have valued the firm in prior rounds of financing. It will examine the stature of the IPO firm in its industry and the stature of its industry by comparing the firm's financials to similar public firms and talking to clients who are industry observers. It will weigh any proprietary technologies or large market share that would add to the firm's valuation. It will talk to potential investors to gauge the level of interest in the offering. Finally, underwriters usually try to slightly underprice a new issue, to further stimulate interest in the IPO (Ibbotson and Jaffe, 1975). Because the underwriter agrees to buy all shares in the offering from the issuing firm and resell them to investors, it wants to be sure it can sell all the shares.

With an understanding of the new firm's business, financials, and an estimated offer price range in mind, the underwriter drafts and files a registration statement with the Securities and Exchange Commission, so that, once approved, it can set a date for the IPO. There are two parts to the registration statement: (1) the prospectus, used to sell the offering to investors when the road show begins (see below) and (2) additional information not central in the minds of potential investors in the IPO, including summaries of expenses, insurance for officers and directors, and the underwriting agreement. There are two types of registration statements that can be filed. The first and most common is form S-1. The S-1 can be used as the registration statement by any company going public. Typically, it is used by firms raising millions of dollars (i.e., the more prestigious IPOs). The S-1 must include the firm's last 3 years' balance sheets, income statements, shareholders' equity, and changes in financial condition. It must also include a detailed description of the business, its management and director biographies and compensation, a description of its facilities, and its risk factors. The second type of registration statement is form SB-2. This form is typically used by firms who expect to raise less than \$10 million in the offering, and, with some exceptions, only requires the firm to release information from the past two years (Taulli, 1999).

- The registration statement is filed with the Securities and Exchange Commission and the National Association of Security Dealers for approval, which can take from six weeks to several months. The IPO firm might have to answer several questions from the Securities and Exchange Commission or National Association of Securities Dealers before approval is granted. While the registration statement is being approved, the firm enters a *quiet period* in which it can only release information to the public that is contained in its prospectus. Designed to protect potential investors from a barrage of publicity from the firm that might sway investors' perceptions of the firm's quality, this quiet period does not end until 25 days after the stock begins trading. The firm is subject to fines and other penalties by the Securities and Exchange Commission if it violates this quiet period.

Once the registration statement has been filed with the Securities and Exchange Commission and National Association of Securities Dealers, and the IPO firm is reasonably assured it will be approved, it can begin what is called a *road show*, where it markets itself to investors in meetings which are closed to the general public and, hence, do not violate the quiet period. For 2 to 3 weeks, senior managers from the

IPO firm, as well as their underwriters, travel to major brokerage firms and institutional investors to make a presentation about their offering and answer questions. The general public is not allowed to attend these presentations. At the time of the road show, a *red herring* – the preliminary prospectus that has been filed with the Securities and Exchange Commission but is not yet finalized – is distributed to potential investors. Underwriters must provide copies of the red herring to investors who show an interest in the IPO before they can even talk to them about the IPO. If an investor is interested in the IPO, he/she signs an *indication of interest*; the sale, however, does not become final until the day of the offering.

In these pre-IPO days, a company must choose where to list. Most often this decision falls between the New York Stock Exchange (“NYSE”) and the National Association of Securities Dealers Automated Quotations (“NASDAQ”) market. NYSE has, traditionally, been the most prestigious exchange on which to be listed. It claims to offer greater visibility for a listing firm, which translates into greater trading volume and therefore the opportunity for greater increases in stock prices. NYSE is a physical trading exchange. Its listing requirements are that a firm have pretax earnings of \$2.5 million, \$18 million in assets, 1 million shares outstanding, and, at least, 2000 shareholders.<sup>8</sup> It is home to most of the larger and older firms in the S&P 500 (e.g., Ford, General Electric, and AT&T). NASDAQ is a virtual exchange, with trades executed through computers. The NASDAQ National Market requires firms who list on it to have \$4 million in net assets and, at least, 400 shareholders. NASDAQ has developed a reputation as being the first choice for listing top-tier technology firms (e.g., Microsoft, Intel, and Cisco).

The offering is finalized when the Securities and Exchange Commission and National Association of Securities Dealers grant approval for the IPO. The date of their approval is referred to as the *IPO effective date*. A firm can hold its IPO any time after the effective date. The final agreement between the IPO firm and the lead underwriter is signed on the day of the offering. The final stock price and number of shares to be issued is set on the night before the offering. A final prospectus is printed in time for the IPO

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<sup>8</sup> These stringent requirements rule out many of the high technology new issues, which opt to list on NASDAQ. Some of these technology stocks, such as Qwest, decide to migrate to the NYSE when they become more prominent – although many prominent technology stocks (e.g., Microsoft) have stayed put on NASDAQ. In a recent paper, Rao (1999) explores the reasons why firms relocate from NASDAQ to NYSE.



and distributed to all investors in the IPO at the offer price. Once trading of the IPO firm's stock begins, it is referred to as trading in the *aftermarket*.

#### *II.I.IV The IPO Prospectus:*

The final IPO prospectus follows a standard format, although there is some minor variation. (For an example of a recent IPO prospectus, see Appendix M.) The front page contains basic company reference information, the registration type, the share price at offering, the number of shares being offered by the firm, a description of the *over-allotment option* (i.e., instructions for what will happen if the offering is oversubscribed), and how many shares are being sold by founders, officers, and directors. The next section contains basic information about the company, including a description of the firm's products and services, the estimated market size for these products and services, and the state in which firm is incorporated. There is a section providing a summary of consolidated financial data about the company. A section describing the risk factors facing the company is included and made as complete as possible, to avoid future litigation should some of the risks come to pass. Examples of the kinds of risk factors mentioned in this section are as follows: technology risk, limited history of profitable operations, competition, history of loan default, negative gross margins, recent transition to a new business, any past or ongoing legal proceedings, prior unsuccessful offerings, an inexperienced management team, product concentration, or a small market and customer base (Taulli, 1999).<sup>9</sup> Companies must disclose their intentions for using proceeds raised from the offering. They must state their intended dividend policy. For unprofitable companies, a discussion must be included about the company's *burn rate* (i.e., the rate at which it is spending cash each month on the firm's operational expenses), as well as the areas in which the company is spending its cash. There is always a management's discussion and analysis of financial condition and results of operation, similar to what appears in a public firm's 10-K filing or annual report.

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<sup>9</sup> There has been anecdotal evidence that the size of the risk factor section included in the IPO registration statements has increased from a few pages 5 years ago to an average around 10 to 12 pages today, especially for technology IPO filings. Many suspect this balloon in risk factors corresponds with two factors: (1) the Securities and Exchange Commission's demands for more and clearer disclosure about risks, and (2) increased investor tolerance of risks inherent in these firms. In one of the bluntest admissions of risk facing an IPO firm, San Diego-based software concern Websense recently included the following risk factor in its IPO filing: "We have a history of losses and, because we expect our operating expenses to increase in the near future, we may never become profitable" (Ewing, 2000: C1).

A detailed biography of the company officers (i.e., senior managers) and directors follows, with their work history, educational background, and current board ties. Private investors and venture capital firms who have funded the company's development prior to the IPO must be listed, as well as the principal stockholders prior to the IPO. Usually, a section is included that discusses the shares eligible for future sale. In this section, there is a description of the *lock-up provision* – a restriction on company insiders from selling their shares in the open market for a certain length of time after the IPO (usually 180 days). Lock-up provisions are not required by law, but investment banks insist on them as a standard way to reassure outside investors about management's belief in the future performance of the IPO firm (Bank, 1999).

#### *II.1.V Benefits and Drawbacks of Going Public:*

There are several benefits to the firm from going public (Taulli, 1999): (1) the proceeds generate cash for the firm's ongoing operations, often needed to fuel its continued growth (e.g., making additional hires in sales, building new facilities or funding research and development), (2) it allows early investors in the firm to exit their investment, (3) it enables the firm to use its public stock as currency with which to make acquisitions instead of cash, (4) the firm usually basks in greater prestige and media coverage that comes with being a listed firm on a major stock exchange, (5) it is believed to raise the firm's prominence in the eyes of Wall Street analysts and institutional investors, and (6) the firm's stock can be used to attract employees with stock options. Of course, company founders and management are often attracted to take their firm public because their stock holdings usually increase in value and become liquid following the end of the lock-up provision.

But going public is not without its drawbacks to the firm (cf. Ritter [1987] for a more detailed discussion of the costs of going public). Such drawbacks can include: (1) less flexibility on the part of management to run the firm in the manner they see fit, because of Securities and Exchange Commission disclosure rules regarding the firm's financials, strategy, customers, and executive compensation, (2) a cultural change that usually comes with transforming the firm from a private firm into an instrument of its shareholders, (3) the expense of going public, including fees to underwriters, the Securities and Exchange Commission, the National Association of Securities Dealers, the stock exchange being listed on, the state (*blue sky fees*), lawyers, accountants, and printers, and (4) greater ongoing administrative costs, resulting

from the necessity of an investor relations department and constant communication with the Securities and Exchange Commission.

With benefits and drawbacks associated with going public, firms appear to go public when they perceive it in their best interests, economically and socially, to do so. A recent example from the business pages helps to illustrate firms' reasoning for pursuing IPOs at different times. For many years, United Parcel Service ("UPS") executives were not interested in an IPO because of worries that it would dilute their culture (Blackmon, 1999: C26):

Mr. Kelly [UPS' CEO when the firm went public on November 10, 1999] and other top UPS executives [many of whom are former drivers who have risen through the ranks] feared an IPO would ruin the culture of their 92-year-old company. In the 1950s, UPS founder James Casey wrote that the company 'believed it inadvisable to broadcast all our business affairs to the world. In building this privately owned company for the benefit of all of us, we have found that it pays to mind our own business and keep on sawing wood.'

Eventually, UPS decided that an IPO would help the firm, but not because it would add to the firm's coffers: "When they looked at possible acquisitions, UPS executives were finding that the sellers sometimes wanted stock rather than cash. Though UPS didn't need to raise money – it had more than \$3 billion in cash – members of the management committee began thinking the company might need publicly traded stock to pursue such deals" (Blackmon, 1999: C26). UPS concluded that its decision to go public would help it compete more effectively against others, such as Federal Express, through acquiring other companies, without damaging its existing service to customers. It became one of the largest IPOs in history, raising over \$3 billion for the UPS coffers.

#### *II.I.VI Assessing IPO Performance:*

How successful a firm's IPO and post-IPO performance is depends on the perspective of the different parties involved in the process, making it difficult to find a general metric for IPO performance that each IPO stakeholder follows. Each one uses its own set of criteria for judging a firm's IPO success and I will now review these criteria for each. The first IPO actor to consider is the firm *per se* going public.

To the focal firm, IPO performance is best measured as the net proceeds it receives (after paying the underwriter fees and other administrative costs of going public) from the offering. The firm's insiders (managers and directors) might judge the IPO's performance by the value generated through selling their shares in the offering at the offer price, as well as the value of their remaining shareholdings (and unexercised options) which depend on the post-IPO share price. Of course, insiders are restricted by underwriter covenants from selling their remaining shares post-IPO until a holding period has expired. Although many firms see their share price enjoy a run-up in the first few days after the IPO, most will see their prices swoon subsequently (Ritter, 1991). Although IPO performance has most often been operationalized in empirical studies as a change in a firm's share price in the first day or week after IPO, insiders might judge the IPO's performance by how much their remaining shareholdings are worth after the holding period, as well as what they earned in selling their shares at IPO. Insiders might also judge their IPO performance by whether their firm's stock price subsequently drops below its offer price (i.e., becomes a *broken IPO*, which is described below), simply because so many other actors use this as a measure of performance.

The underwriters judge an IPO's performance by the total fees they generate from the transaction. But this is not the only factor they consider. *Broken IPOs* are firms whose share price has fallen below its offer price in the post-IPO. Such an outcome reflects poorly on the lead underwriter that brought the firm public. For an illustration of a broken IPO, consider the case of 1-800-Flowers.com. This new issue went public in early August 1999, seemingly at the height of a *dot.com* IPO bonanza. It also had Goldman Sachs as its lead underwriter. When it appeared in the days leading up to the IPO that investor demand was high, Goldman aggressively raised the offer price \$3 above the upper bound of its anticipated offer range to \$21 a share. Chairman and CEO of 1-800-Flowers.com, James McCann, warned his employees: "Don't get carried away if the stock price skyrockets" (White, 1999: B1). Yet the stock stumbled, falling to \$13.50 two days after the opening, and remaining stuck below the offer price for months after. The stock's performance ended up being an embarrassment to Goldman Sachs, because it misjudged the market at opening. One *dog* IPO does not ruin an underwriter's reputation, but it is certainly not counted as a success. Not only are the institutional investors who bought from the underwriter upset, but the poor

performance makes it unlikely that the firm will be able to return to the markets soon for a follow-on offering, denying the underwriter the opportunity to generate more in fees.

Venture capitalists use other measures of IPO performance. They gauge IPO performance in terms of the value of their shareholdings when the firm goes public as a multiple of their original investment in the firm pre-IPO -- their internal rate of return. Like underwriters, venture capitalists hate it when one of their portfolio firms falls *under water* (i.e., trades below its offer price) immediately after IPO. But a portfolio firm's share price, although under water, might still be a hefty multiple of the venture capitalist's original investment and, therefore, be considered a success.

Institutional investors use another measure of IPO performance. These are the investors who are "good clients" of the IPO underwriter and given preference in the allocation of the IPO firm's shares at the offer price (cf. Pollock [1998] for a more detailed discussion of their role in the IPO process). These clients might judge an IPO firm's performance by the difference between the offer price and the stock price in the first few days of trading, when these investors can quickly unload their holdings for an immediate profit. These investors are allowed to "flip" their shares immediately after the IPO firm begins trading. This allows them to cash in quickly if the new issue begins trading above the offer price.

Institutional investors who are not able to secure a number of the IPO firm's shares at the *offer price*, as well as retail investors, must buy the new issue at the *market price* when it begins trading. Sometimes, the opening market price will be above the offer price. Therefore, these investors might judge IPO performance by the difference after the first day or two of trading and the market price.

For a better understanding of how IPO performance can be measured differently by the different participants involved in the process, consider the case of the second most "successful" IPO ever, in terms of its first-day gain. TheGlobe.com went public on November 13, 1998 with an offer price of \$9 a share. However, within the first few minutes of trading, the stock price rose to \$97 a share. The stock closed its first day at \$63 a share, a 705% gain on its offer price. Yet, one month later that stock had plunged to \$22 a share. Six months after its IPO, when its lock-up period ended and insiders were permitted to sell their shareholdings, the stock was at \$28 a share -- still up 300% from its offer price, but not as high as at the end of its first day. On August 3, 2001, before the third anniversary of its IPO, TheGlobe.com announced it

would cease operations, after it failed to raise adequate financing to continue and its stock price down 99% from its all-time high. On this roller coaster ride, only the venture capitalists, institutional investors, and retail investors who managed to unload their shares in the first six months of trading would consider this firm an IPO success. The drop of the firm's stock price so quickly after the initial run-up would reflect poorly on TheGlobe.com and its underwriter.

Because of these various avenues to measure IPO performance, I deliberately chose to measure IPO performance as IPO valuation (i.e., its market capitalization at IPO) for greater clarity around exactly how upper-echelons were having an effect on the firm at IPO.

## **II.II Prior Research on IPO Valuation:**

### ***II.II.I Introduction:***

The empirical research on the valuation of IPO firms has focused on seven different classes of independent variables over the last 25 years. The seven independent constructs examined in research on IPOs are as follows: IPO firms versus non-IPO firms, environmental factors, IPO firm underpricing, firm factors, agency theory-based variables, ties to prestigious third parties, and top management team/board characteristics (see Table 1). The research emerges from the financial economics and organization literatures, with organizational scholars focusing predominantly on the last two variable classes. This second section of this chapter will describe the findings of each major study in these different variable classes and summarize the remaining unanswered questions left regarding IPO valuation that this current study aims to address.

### ***II.II.II IPO Firms vs. Non-IPO Firms as Dichotomous Independent Variable:***

Several financial scholars have proposed and found evidence that IPO firms in the first days of trading behave in markedly different ways compared to mature securities. For example, Aggarwal and Rivoli (1990) examined 1,598 IPO firms that went public between 1977 and 1987. They compared these firms' post-IPO performance to the NASDAQ index and found that the IPO firms produced abnormally-positive returns for 1, 2, 20, and 100 days after their offering compared to the broader market. However, the IPO firms showed a lower price appreciation 1 year after they began trading compared to the

NASDAQ. The authors suggest the IPO firms enjoy an initial popularity that is akin to a fad with investors.

Ritter (1991) performed a similar study over a longer time horizon in which he looked at 1,526 IPO firms from between 1975 and 1984 and matched them, according to industry and size, with 1,526 mature issues from the same time period. He then observed the differences in total shareholder returns (“TSR”) between the two firm types over three years following the IPO date and found the mature issues significantly outperformed the IPO firms.

Loughran (1993) uses an even larger sample than Ritter (1991) to come to a similar finding. Loughran (1993) looked at 3,656 NASDAQ IPO firms from between 1973 and 1991 that were less than six years out from their IPO and then matched each issue (again by industry and size) to comparable NASDAQ or NYSE mature firms. He compared monthly TSR at various points in time between one and six years post-IPO and found the IPO firms significantly underperformed the older firms.

Loughran and Ritter (1995) found that, among 4,753 IPO firms from between 1970 and 1990 matched with another mature firm according to similar market capitalization, TSR were lower for the new issue firms five years post-IPO. Loughran and Ritter explain their findings here, and in their earlier papers, as confirming Miller’s (1977) hypothesis that greater uncertainty about a stock’s future performance will lead to greater variance in the prices paid for the stock. IPO firms seem to be incorrectly valued initially by investors, who bid up prices in the first few days of trading, but then lose interest in the issues in the later trading. The authors suggest that new issues’ stock prices begin to behave similarly to more mature firms’ stock prices after about five years of trading in the market.

#### *II.II.III Environmental Factors as Independent Variables:*

The second group of studies investigates the effects of environmental factors on a firm’s IPO valuation. In one of the first studies of IPOs, Ibbotson and Jaffe (1975) hypothesize that a “hot” IPO market can affect the likelihood of a private firm going public and its valuation when it does go public. They looked at 128 IPO firms from between 1960 and 1970 and found evidence that the number of IPOs in a given year positively predicted the initial returns for other firms going public in that year. However, neither the hot market, nor the prior performance of the broader market, predicted the price volatility of the

IPO firms' stock price. Market efficiency scholars searched for a more elegant reason to explain the positive initial returns of IPO firms compared to the market.

Rock (1986) theorized that, because of greater risk of trading against private information, it should be the case that the level of interest by uninformed investors in an IPO positively predicts the degree of first-day gains by an IPO firm's stock price -- this gain is what finance theorists refer to as the *underpricing phenomenon*. Ritter (1984) found empirical evidence for Rock's *winner's curse* theory (1985) by looking at 1,028 IPO firms from between 1977 and 1982. In this sample, he compared natural resource firms, which experienced a "hot market" between January 1980 and March 1981 to non-natural resource firms. He found evidence that an IPO firm's risk regarding its post-IPO price positively predicted an IPO firm's underpricing at the end of its first day of trading.

In a study of the institutional effects on IPO valuation, Tinic (1988) looked at 70 pre-Securities and Exchange Commission IPO firms from between 1923 and 1930 and compared them to 134 post-Securities and Exchange Commission IPO firms from between 1966 and 1971, predicting that the advent of the Securities and Exchange Commission had created greater legal liabilities for the issuing firms and their underwriters.<sup>10</sup> Such a threat, Tinic argues, would make IPO underpricing more likely today than before the creation of the Securities and Exchange Commission. Indeed, he finds evidence for this prediction; the prediction is even stronger among those IPOs handled by high-prestige underwriters, presumably because they have more to risk from a class-action suit brought by disgruntled shareholders in an issue that has dropped *under water*.

Also interested in the phenomenon of IPO underpricing, Chemmanur (1993) theorized that a hot IPO market and amount of private information investors had access to would affect the degree of IPO underpricing. He proposed that the number of IPO bidders, the lack of public information available for an IPO firm, and the IPO firm's intent to return quickly to the markets for a follow-on offering all positively predict an IPO firm's underpricing (i.e., how much its price would grow in the initial days of trading). Chemmanur also theorized that the perceived quality of an IPO firm and gross proceeds it expects to raise

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<sup>10</sup> The Securities and Exchange Commission was created pursuant to the Securities Act of 1933.



both are negatively linked to IPO firm underpricing, because of more private information about a new issue's quality being available to the public.

Hanley (1994), in addition to being interested in an IPO firm's initial return, also looked at what environmental factors determined an IPO firm's revision in its offering price and number of shares offered. She found evidence, in a sample of 1,430 IPO firms from between 1983 and 1987, that the absolute change in market during an IPO firm's quiet period, the width of the IPO firm's offering price range, the market share of the IPO firm's underwriter, and the percentage of institutional investors in the IPO firm one month post-IPO all positively related to the absolute change in IPO offering price. The change in the broader market and institutional investor post-IPO holdings also positively related to the change in the number of shares offered. Interestingly, she found the size of the IPO offering and the market share of the underwriter were negatively related to the IPO's initial return; however, the absolute change in the market prior to the IPO was a positive predictor of initial IPO return. These findings point to the strong environmental effect of the broader market on the fate of IPOs.<sup>11</sup>

The "hot market" effect on IPO valuation is especially strong in studies that focus within an industry. In studying 350 private venture-backed biotechnology firms between 1978 and 1992, Lerner (1994) detected that a hot market positively related to whether or not a private firm went public. This result was even stronger for those biotech firms who were venture-backed, compared to those without venture funding. Lerner explains this finding as due to the venture investors pushing their portfolio firms to go public, so that the venture capitalists can exit their investment, as well as due to the increased credibility the venture investors bring to their firms in the eyes of the equity market.

Finally, Wolfe, Cooperman, and Ferris (1994) studied, for a given year, the environmental effects of stock market volatility and the general IPO market activity on the number of prestigious underwriters involved in the IPO market. Using a reputational capital and risk theory-based argument, they examined 1,192 IPO firms from between 1977 and 1988. They found their two "hot market" independent variables negatively related to the number of prestigious underwriters involved in that market gauged by Carter and

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<sup>11</sup> For a discussion of how the late-1999 and early-2000 IPO market seemed to defy this finding, by outperforming the broader market, see Hennessey (2000).

Manaster's (1990) ranking. They also found the speculative nature of an IPO firm negatively related to the prestige of that firm's underwriter. These findings suggest that the prestigious investment banks are not inordinately involved in hot IPO markets. Wolfe *et al.* suggest that this type of market brings out many undesirable firms that a prestigious underwriter would not want to associate with, for fear of losing some of its reputation.

Overall, these studies suggest that there are occasionally hot markets for IPOs generally, as well as within particular industries. At these times, the firms going public will tend to experience bigger jumps in their initial prices compared to other times. Often, the IPO firms and their underwriters will respond to these market conditions by raising their offer prices. The largest IPOs, however, will not see as great an appreciation in their stock price in the initial days of trading. These hot markets also attract firms of lower quality to go public that might not otherwise, apparently trying to enter before the *IPO window* shuts. Because of this, prestigious underwriters will be very selective about who they associate with to protect their reputations.<sup>12</sup>

#### *II.II.IV IPO Firm Underpricing as an Independent Variable:*

The underpricing of IPO securities refers to the documented observance of the abnormal returns to an offering firm's stock on the first day of trading (Titman and Trueman, 1986; Miller and Reilly, 1987; Balvers, McDonald, and Miller, 1988; Carter and Manaster, 1990; Hanley, 1994; Loughran and Ritter, 1995). Different studies have found that underpricing of an offering firm's stock ranges from 15.3% (Ibbotson and Ritter, 1995) to 20.25% (Ibbotson, Sinclair, and Ritter, 1988). This phenomenon has received much attention in the financial literature, in part, because it violates efficient market assumptions. Explanations for underpricing usually argue that it occurs because of an underwriter's desire to reward close institutional investor clients (Rock, 1986; Benveniste and Spindt, 1989; Tinic, 1988) or because of a firm's desire not to signal its true value to the market in order to have subsequent offerings at higher stock prices (Welch, 1989; Grinblatt and Hwang, 1989; Allen and Faulhaber, 1989; Chemmanur, 1993).

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<sup>12</sup> It would be interesting to review the Internet bubble period of 1998 to 2000 to see whether prestigious investment banks relaxed this rule, because of the hype surrounding technology firms at the time.

IPO firm underpricing has been studied as an independent variable, as well as a dependent variable. Several papers have theorized on what effect an increase in an IPO firm's stock price in the first few days has on its subsequent performance, interested in information asymmetry and firms signaling their quality in the IPO market; however, only one paper has studied this empirically to this point. Allen and Faulhaber (1989) proposed that firms underprice their IPO when they desire to return quickly to the equity market post-IPO to raise more funds. According to these authors, firms want to "leave a good taste in IPO investors' mouths" from the increase in the firm's stock price post-IPO to entice investors to buy more stock in follow-on offerings. Beneveniste and Spindt (1989) propose that IPO firm underpricing is negatively related to (1) the *ex ante* value of investors' information about the firm, (2) the level of pre-IPO sales, and (3) the level of pre-IPO interest in the firm. Their argument assumes that when information asymmetry between the firm and market is high, the firm uses underpricing as a means to attract investors. Grinblatt and Hwang (1989) also examine IPO underpricing. Using a signaling firm quality argument, they theorize that an IPO firm's value will positively predict its degree of underpricing. They go on to suggest that IPO firm value and IPO firm underpricing will be positively related to the IPO firm's remaining fractional holdings in the firm. Thus, the firm underprices and retains a high degree of ownership in itself to signal its confidence in its future prospects.

In the only empirical paper in this group, Beatty and Ritter (1986) used a reputational capital model to examine how underpricing potentially affects an IPO firm's underwriter's reputation. Using a sample of 1,082 IPO firms from 1977 to 1982, they argued and found evidence that the *ex ante* uncertainty about an IPO firm's value leads to IPO firm underpricing, which corresponds with market efficiency theorists' maxim that additional risk must be compensated for by providing additional reward. Beatty and Ritter go on to propose that prestigious underwriters will tend to be penalized, in terms of damage to their reputations, if they underprice too much or too little their IPO firms. They find support for this hypothesis, in terms of underwriters' loss of market share. This finding corresponds with the Wolfe *et al.* (1994) conclusion that prestigious underwriters are not attracted to represent riskier IPO firms, fearing damage to their reputations from volatile trading post-IPO.

These papers using IPO underpricing as an independent variable in a model of IPO valuation obviously require more theoretical development. They offer suggestions about why firms might want to underprice and what consequences such underpricing might have, but there are many remaining problems with this research stream. One problem is that none of these studies suggests the long-term effects of underpricing on the stock's performance. Another major problem with the underpricing concept is that it can only be determined *ex post* if an IPO firm is underpriced. Thus, underpricing is a difficult concept with which to build a model of how firms signal their value to the market. Surveys of executives' assessments of firm quality pre-IPO or reasoning for selecting a particular offering price would better gauge how firms come to set their IPO prices. Such explorations for alternative measures of IPO underpricing would be fruitful for developing a better understanding of how the market responds in the short- and long-term to new issues.

#### *II.II.V Firm Factors as Independent Variables:*

Besides environmental effects on a firm's IPO valuation, many scholars have examined firm-level effects on valuation. Ritter (1987) looked at the differences between IPO firms who used a *best efforts* method of going public versus ones who used a *firm commitment* method on the IPO firm's post-IPO volatility in stock price change. The former method does not require that the IPO firm's underwriter sell all the designated firm shares in the offering, while the latter method does. Thus, the best efforts approach creates more uncertainty for the IPO firm. Arguing that IPO underpricing should be less severe for more uncertain new issues, Ritter finds that the best-efforts method *does* lead to greater volatility in the post-IPO on a sample of 926 IPO firms between 1977 and 1982.

Young and Zaima (1988) explore how firm age affects an IPO firm's performance. Looking at 312 "small business" IPO firms from between 1980 and 1984, these authors do find a positive relationship between firm age and post-IPO performance. Interestingly, they also tested for industry effects on post-IPO performance and found no significant differences between industries.

Welch (1989) develops a theoretical argument for how firm quality explains IPO firm underpricing and IPO returns. He proposes that higher quality firms are already known by actors and do not need, therefore, to set their offer prices at a lower level to attract interest. Because of this, high-quality

firms should be associated with less underpricing. However, over a longer time horizon, Welch suggests the higher quality firms should enjoy greater returns compared to lower quality firms that are underpriced in their IPO.

There have been a couple of organizational studies of IPO valuation using a firm-level factors lens. Welbourne and Andrews (1996) develop a population ecology/liabilities of newness model of the firm effects on IPO valuation. They studied 136 nonfinancial IPO firms that went public in 1988, arguing that the value a firm placed on its human resources – measured as whether or not it had a top management team member with a human resources title – and whether or not it had organization-based rewards should have a positive effect on firm valuation. They measured valuation as (1) the firm's perceived market potential – the price premium paid for the stock above its book value<sup>13</sup> – (2) the firm's Tobin's Q (i.e., its market value-to-book value ratio), and (3) the firm's survival. However, their findings differed from what they expected. The two independent variables positively predicted firm survival; yet having a human resources executive on the management team was not significantly related to the firm's perceived market potential or its Tobin's Q; and having organization-based rewards was *negatively* related to perceived market potential and Tobin's Q.

Deeds, DeCarolis, and Coombs (1997) used a resource-based view to model various firm assets as predictors of how much capital net of its underwriter's fees is raised by an IPO firm. This study focused on 92 biotech firms that went public between 1982 and 1992. They found evidence of a location effect, where biotech firms clustered nearer to other biotech firms seemed to be more successful when they went public. They also found that the number of new products in development at these firms, as well as the credibility of the firm's scientists (based on their citation count in scientific journals), were positively linked to capital raised at IPO. The amount of the firm's research and development expenditures and its number of patents held were not significantly related to IPO valuation. These mixed results demonstrate the difficulty in being sure that one has adequately captured an organizational resource in a particular measure.

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<sup>13</sup> This measure of performance of IPO performance was first discussed here, but has been subsequently used by other organizational scholars, such as Andrews (1995) and Pollock (1998). Yet more recent organizational papers relating to IPOs (e.g., Higgins and Gulati, 1999) have opted to follow the IPO market valuation measure used by Stuart *et al.* (1999).

A final study in this group, by Rajan and Servaes (1997), examines how firm factors affect the amount of coverage a firm receives post-IPO by major investment bank research analysts. It has been observed that the amount of analyst coverage – as well as the prestige of analyst coverage – can positively influence a firm's stock price (Mavrinac, 1999). These authors argue that IPO market activity, a firm's size (measured by its sales), and the degree to which a firm is underpriced should all positively influence the number of analysts following the firm 3 years post-IPO. Their argument is based on an assumption that analysts tend to be optimistic when studying the future potential of a group of IPO firms. In a sample of 1,410 IPO firms from between 1975 and 1987, they find support for all their hypotheses, with the exception of IPO market activity.

Altogether, these papers demonstrate that several firm-level factors, such as firm size, age, geographic location, and particular firm resources, like products in development and the credentials of the people involved, are positively related to firm IPO valuation. These effects are strong and stable over a number of years. Building on Welbourne and Andrews' work (1996), for example, future research should explore how different reward systems (especially stock options) are linked to IPO valuation, rather than focusing on only one kind. In taking steps like this, we will come to a better understanding of what kinds of and when firm resources matter to IPO valuation.

#### *II.II.VI Agency Theory-Based Independent Variables:*

Agency theory provides a way of understanding the behavior of managers under different incentive contracts. One of the basic beliefs of agency theory is that managers will always act in their personal interests. There have been two papers examining how the incentives of an IPO firm's management can affect its valuation. McBain and Krause (1989) looked at various firm-based effects on firms' post-IPO price-to-earnings ratio. One of the independent variables they study is the post-IPO percentage of shares owned by insiders. In looking at 759 IPOs between 1978 and 1985, these authors find a positive relationship between shares owned by management and a higher price-to-earnings ratio. Of the other independent variables looked at in their study, McBain and Krause found no relationship with post-IPO price-to-earnings ratio and the firm's debt-to-equity ratio, and a negative relationship for the amount paid out by the firm in dividends, the firm's growth in earnings, and the underwriter's spread in the IPO.

Jain and Kini (1994) decided to study how the dilution in management ownership at IPO and various three-year post-IPO changes in performance. They assumed that lower levels of ownership in the firm by management would result in a drop in firm performance because of a lack of incentives. This hypothesis was borne out in a study of 682 IPOs between 1976 and 1988, as dilution in ownership led to lower return on assets, lower cash flow, a lower price-to-earnings ratio, and lower earnings per share. The only increase in performance following a dilution in ownership by management was in sales. Agency theory could be utilized more in the study of IPO valuation, especially when looking at the effects of boards.

#### *II.II.VII Ties to Prestigious Third Parties as Independent Variables:*

The ties between the IPO firm and prestigious third parties have shown persistently strong effects on IPO valuation. Researchers have found that firms with ties to prestigious underwriters, venture capitalists, strategic alliance partners, and auditors all enjoy higher valuations when they go public compared to those without such ties. Titman and Trueman (1986) were among the first to theorize that such ties (to prestigious underwriters and auditors) should affect a firm's IPO valuation, because such ties demonstrate a certification of the firm's quality to the market by respected third parties.<sup>14</sup>

Finance scholars responded to Titman and Trueman's paper (1986) with a number of empirical tests of the importance of prestigious third-party ties to IPO firms. Balvers, McDonald, and Miller (1988) looked at the ties of 1,182 IPO firms from between 1981 to 1985 with underwriters and auditors. They found that IPO firms with prestigious underwriters also tended to have prestigious ("Big Eight") auditors. Additionally, their results showed that when firms had prestigious underwriters, prestigious auditors, or both, they also tended to have less IPO underpricing. Balvers *et al.* argue that the reason for this finding is

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<sup>14</sup> The importance of a prestigious underwriter has long been understood by young firms with IPO aspirations. A company called Countryland Wellness Resorts recently filed a registration statement with the Securities and Exchange Commission to go public, listing its underwriters as Morgan Stanley Dean Witter, Donaldson Lufkin & Jennrette, and Salomon Smith Barney. Yet, when contacted, each of the supposed underwriters denied knowing this company, much less agreeing to act as its underwriter in any future IPO. When the editors of *Barron's* contacted the lawyer for the IPO firm and enquired about the apparent falsehood, he "stressed that no agreement had yet been consummated with Morgan Stanley. When asked if the company was in the process of negotiating an agreement, he replied, 'I think we are.' Asked why Morgan Stanley denied any connection with the offering, he noted that 'they are a big outfit'" (Abelson, 1999: 6).

that the IPO firms with such third-party ties tend to be of higher quality, and, therefore, do not have to offer their shares at a discount to generate investor interest.

Beatty (1989) also explored the effect of auditor prestige on IPO underpricing. His sample was of 2,567 IPO firms from between 1975 and 1984. Using an information asymmetry argument, similar to Balvers *et al.* (1988), he proposed that firms with prestigious auditors should have to underprice their new issues less than “lower quality” firms. His results, however, were mixed; although he did find evidence that the premium charged by auditors was negatively related to underpricing.

An important contribution to the IPO valuation literature was Carter and Manaster’s paper (1990). In it, they examined the effects of underwriter prestige on IPO underpricing (measured as the IPO firm’s first day run-up in stock price and the variance of this first day run-up). The paper is cited more for its measure of underwriter prestige, than for its hypotheses and results. Rather than using a measure of performance as a proxy for underwriter prestige (such as volume or dollar value of IPO deals handled in recent years), Carter and Manaster constructed a measure of prestige based on underwriter’s positioning in “tombstone ads” run in newspapers such as the *Wall Street Journal*, announcing various stock offerings handled by different investment banks. The higher the positioning in the ad, the higher the underwriter’s prestige. This measure of underwriter prestige has been used in subsequent studies of IPO valuation (e.g., Pollock, 1998; Higgins and Gulati, 1999). As for their empirical results, these authors found a negative relationship between underwriter prestige and their two measures of IPO underpricing on a sample of 501 IPOs from 1979 to 1983.

In a follow-up study, Carter, Dark, and Singh (1998) updated Carter and Manaster’s (1990) measure of underwriter prestige, using more recent tombstone ads, and revisited the impact of underwriter prestige on IPO valuation. Here, they examined 2,292 IPOs from between 1979 and 1991 and also found a negative effect of underwriter prestige on an IPO firm’s first day performance. However, underwriter prestige was positively related to the firm’s three year post-IPO total shareholder returns (i.e., the appreciation in the firm’s stock price over this time period). This additional finding suggests that prestigious third parties are able to discern which firms are higher quality and this quality is confirmed over the coming years, or that the prestigious third parties help to create a self-fulfilling prophecy about the IPO



firm through altering others' perceptions of the firm which contribute to its future success, perhaps in attracting additional resources.

Venture capitalists and other private investors have also been studied for their effects on their IPO firms. Megginson and Weiss (1991) looked at a matched sample of 320 venture capitalist-backed IPOs with 320 non-venture capitalist-backed IPOs from between 1983 and 1987. Using a certification argument, they found that the venture capitalist-backed firms were more likely to have prestigious underwriters and auditors and more institutional investors following the offering. These firms were also more likely to have larger IPOs and receive more net proceeds from the offering. The venture capitalist-backed firms were also younger when they went public, had lower IPO costs, and had lower IPO underpricing. These results suggest that actors believe that having any venture capitalist perform due diligence on a firm and still decide to invest is a testament to a firm's quality.

Gompers (1996) built on these findings to try and understand whether different venture capitalists backing an IPO firm, according to their prestige, made a difference to its offering valuation. Gompers used venture capitalist age as a proxy measure of prestige, looking at 433 venture capitalist-backed IPOs between 1978 and 1987 and 67 venture capital funds between 1983 and 1993. Gompers argued that younger venture capital firms have less of a track record and, thus, lower prestige compared to more established firms. Because of this, he suggests, younger firms need to "grandstand" – make a name for themselves – and push their firms to go public sooner because it enhances the venture capital firm's reputation. His findings demonstrate that older venture capitalists have older portfolio companies that go public in larger offerings than younger venture capitalists. Older venture capitalists also tend to wait longer before taking their portfolio companies public, presumably because they do not need to rush, in order to build their reputation. On some other measures of IPO valuation, venture capital firm age is positively related to the prestige of the IPO underwriter and negatively related to the portfolio firm's IPO underpricing. Gompers found there was no relationship between venture capital firm age and the percentage of equity held in its portfolio firms at IPO. Taken together, these findings suggest that actors distinguish between venture capitalists. The most prestigious venture capitalists certify the quality of their

portfolio firms, helping attract other prestigious actors (such as underwriters) and benefiting the portfolio firm's IPO valuation.

Recently, several organizational scholars have become interested in the effects of third-party ties on IPO valuation, partly because it offers an excellent example of the effects of social networks in organizations. In his dissertation thesis, Pollock (1998) investigated how underwriter prestige and institutional investor ownership were linked to IPO firm valuation using a social networks and embeddedness focus on a cross-sectional sample of 246 IPOs from 1992. Following Welbourne and Andrews (1996), he measured IPO valuation as the price premium paid per share offered (above book value), and he also measured stock ownership concentration post-IPO, and underwriter commissions from the IPO. His findings show that a firm's investment potential (a composite measure he created of a firm's previous year's sales, previous year's net income, number of board outsiders, average top management team tenure, insider selling, offering size, and risk factors listed in the IPO prospectus) and the underwriter's embeddedness with the institutional investors who held the IPO stock post-IPO (which was measured as how often in the past institutional investors had bought new issues from this underwriter) positively predicted the IPO firm's price premium per share. Counter to Pollock's prediction, however, underwriter reputation is negatively related to price premium per share and two other independent variables were not related. This mixture of findings suggests that price premium per share might not be an adequate measure of an IPO firm's initial valuation<sup>15</sup>; because it is tied to a firm's book value of assets, it is an especially troublesome measure when examining industries in which firms have few tangible assets, such as computer software. Institutional investor capitalization, underwriter reputation, underwriter embeddedness with institutional investors, and underwriter embeddedness with venture capitalists were all found to be positively related to the ownership concentration of a firm's stock post-IPO. The firm's investment potential and whether or not it was venture-backed were negatively related to its underwriter's commissions, suggesting the firm had more leverage to negotiate favorable terms in these cases. These latter findings suggests that the prestige of third parties involved in an IPO helps to ensure its success, through access to their network of relationships with institutional investors who purchase the stock.

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<sup>15</sup> The results might also indicate that the theory used is incorrect for this setting.

The ability of prestigious third-party actors helping to ensure an IPO firm's success has been called evidence of a self-fulfilling prophecy or "Matthew Effect." First cited by Merton (1973) to describe the building of academic reputation, the Matthew Effect refers to a line from the Gospel according to St. Matthew that reads: "For unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken away even that which he hath." Mavrinac (1999) found strong evidence of the Matthew Effect in IPO markets, studying the effects of underwriter prestige on various measures of post-IPO performance. She studied 631 IPOs from between 1986 and 1989 and found that a firm's underwriter prestige was positively related to the amount of analysts covering the firm post-IPO, the post-IPO trading volume, the amount of post-IPO institutional investors, and the likelihood that the firms returned to the market to hold a follow-on offering.

Finally, Stuart, Hoang, and Hybels (1999) found evidence that the prestige of a firm's strategic alliance partners influenced its valuation in the IPO markets. In a study of 121 biotech firms that went public between 1978 and 1991, they also used a social networks argument to test the effects of the prominence of a firm's strategic alliance partners, owners (i.e., private investors), and underwriter on the rate at which it goes public, as well as its market capitalization when it goes public. However, their findings use several different measures of their independent variables, which leads to mixed results for the effects of the strategic alliance partners' prominence and owners' prominence on IPO market capitalization; only underwriter prominence shows an unequivocal positive relationship. Owners' prominence is positively related to the rate at which these firms go public; and strategic alliance partners' prominence shows no significant relationship. However, Stuart *et al.* go on to test the effects of these three parties' prominence, under conditions of uncertainty about the IPO firm's quality, assuming, as Podolny (1993) argued, that actors pay more attention to others' prominence within an industry at times of great uncertainty. The authors find that each independent variable is positively related to the IPO firm's market capitalization, although the results are mixed for predicting the rate at which the biotech firms go public.

These studies that focus on the effects of prestigious third-party actors on IPO valuation are compelling, especially the effects of prominent underwriters. Mavrinac's assertion (1999) that IPO markets exhibit the Matthew Effect at work is hard to dispute. Yet, this research stream fails to suggest the

conditions under which the prestigious ties are set. Do environmental- or firm-level factors better explain why prestigious underwriters, venture capitalists, and auditors are attracted to some firms and not others? What are these factors specifically and what theoretical reason is there for them attracting such third parties? Another problem with this group of studies is that, with the exception of Carter, Dark, and Singh (1998), little attention has been paid to the longer-term performance of new issues firms. It is not clear how durable are the effects of prestigious third-party ties on IPO firms.

### *III.II.VIII Top Management Team/Board Characteristics as Independent Variables:*

The final group of studies of IPO valuation use independent variables which are top management team- or board-related characteristics. These studies draw on the literature describing top management team and board effects on organizations. In her dissertation thesis, Andrews (1995) argued that independent and prestigious outside directors (which she measured as whether someone was a company president elsewhere) should help firms be seen as more legitimate when they held IPOs. In examining a cross-sectional sample of 136 IPOs from 1988, she looked at three measures of IPO performance: IPO firm valuation (price premium per share; cf. Welbourne and Andrews, 1996), increase in sales and profitability post-IPO, and firm survival 5 years post-IPO. However, the only significant relationship she found was that the number of independent directors on the IPO firm was positively related to the firm's price premium per share at IPO. These findings are disappointing, but perhaps indicate difficulties with her board characteristic measures, which might be too coarse to pick up the actual effects of board members' backgrounds and connections on firm performance.

Finkle (1998) also examined board effects, as well as some CEO effects, on IPO performance. He focused on 125 firms in the biotech industry and, using a resource dependence theory and agency theory, he argued that the backgrounds of directors and the CEO should influence a firm's IPO outcomes. He measured IPO performance as the IPO firm's net proceeds from the offering, its 1-year post-IPO risk-adjusted return, and its 2-year post-IPO risk-adjusted return. However, like Andrews (1995), Finkle had difficulty finding significant results. None of his independent variables was found to be related to his two risk-adjusted return variables. The IPO firm's net proceeds were positively related to the number of directors from a prestigious venture capital firm, the number of directors from a prestigious underwriter,

whether or not the firm's CEO was a former university scientist, and whether or not the firm's CEO had a financial background; neither board size, nor the number of directors who were university scientists, was significantly related to the IPO firm's net proceeds. The findings are difficult to interpret, as the effects of directors from prestigious third parties likely indicate that those prestigious third parties are involved in the offering. It is difficult to understand, for example, if actors judge how fit a firm is to face the biotech industry by how many university scientists they have on their board, why it would only matter to them that the CEO had such a background and not other directors.

Nelson (1998) focused on the effects of founder CEOs on IPO performance in her dissertation thesis. Like Andrews (1995) and Pollock (1998), she used a cross-sectional sample of 234 IPOs from 1991 (which raises some questions about the generalizability of her findings because this year fell at the apex of the last economic recession). She examined several dependent variables: (1) the proportion of insider holdings at IPO, (2) the number of directors at IPO, (3) CEO duality (i.e., the separation of the roles of CEO and Chairman) at IPO, (4) the price premium per share at IPO, and (5) three-year post-IPO firm survival; arguably, only the last two relate to IPO performance. She also has difficulties finding significant results. The equity holdings of the CEO are found to be positively related to the proportion of insiders at IPO, and negatively related to the number of directors at IPO, as well as the likelihood of CEO duality. She also finds that having a founder CEO at IPO is positively related to the proportion of insiders at IPO. However, the only significant predictor of IPO performance is that having an active founder at IPO is positively related to the firm's three-year post-IPO survival. This lack of results again raises questions about whether the price premium per share is the most appropriate for IPO valuation. It also suggests that her independent variables are too unrefined to capture the effects of underlying backgrounds and connections of firm leaders on their firms' performance or that the theory suggesting manager or director effects in this context is simply wrong.

Zimmerman (1998) also studied the effects of managers and directors, among other firm characteristics, on an IPO firm's performance from a legitimacy point of view. She argued that firms with characteristics displaying legitimacy should enhance their performance in the IPO market. She argued the following independent variables are signs of a firm's legitimacy: favorable endorsements by the major

business press, affiliations with prestigious underwriters and venture capitalists, the number of board ties of its directors, CEO duality, research and development intensity, board independence, and firm manager credentials (measured as years of education and whether or not a manager has industry experience). Her sample consisted of 121 computer software firms that held IPOs between 1993 and 1996. Her two measures of IPO performance were firm total shareholder returns two years post-IPO and firm sales growth two years post-IPO. Prestigious underwriter ties were found to be positively linked with total shareholder returns, but prestigious venture capitalist ties were not. And firm managers' software industry experience was found to be positively linked with total shareholder returns, but their amount of education was not. Also, only press endorsements and research and development intensity were related to sales growth. All other relationships were not significantly related. Zimmerman's attempt to discern the underlying factors that cause actors to perceive some IPO firms as more legitimate than others was unsuccessful. Although it is interesting to note the relationship between press endorsements and sales growth, one cannot be assumed to be the cause of the other. Similarly, the relationship between research and development intensity and sales growth might be a result of many firms with very limited revenues at IPO seeing a modest growth in subsequent revenues. However, Zimmerman's study is important because it found a relationship between firm managers' software industry experience and post-IPO growth in stock price. This represents the first study in this group that has measured underlying characteristics of the senior management or directors which might allow them to make substantively better decisions or carry a certain amount of prestige to attract the attention of other actors.

Higgins and Gulati (1999) attempted to further this development in the literature by exploring three different aspects of the "IPO team's" (i.e., the top management team and board) social capital as it relates to IPO valuation. They theorized IPO teams' social connections translate into substantively better information with which they can make decisions to aid their firms, as well as enhance buying (or acquiring resources) from and selling to others in the value chain. The authors measured upstream, downstream, and intraindustry social capital, which they defined as social connections (through prior work experiences and board ties) to firms backward in the value chain, forward in the value chain, or within their industry, respectively. They studied 295 biotech firms that went public between 1979 and 1996, predicting that the

greater the amount and range (i.e., heterogeneity) of IPO team social capital, the greater the underwriter prestige at IPO and the IPO valuation – using the Stuart *et al.* (1999) measure of IPO market valuation. Of the three social types, only upstream and downstream social capital was found to be positively related to underwriter prestige at IPO, and only downstream social capital was positively related to the IPO firm's valuation. However, the range of the three social capital types was positively related to both dependent variables. Such results provide encouragement for further studies on how different aspects of social capital relate to IPO firm valuation, especially for the separate effects of the top management team and board. But social capital is not the only characteristic of senior managers and directors that should be examined. To this point, no studies have completed a comprehensive test of the effects of the educational and work experiences of firm top management teams and boards on IPO valuation.

Welbourne and Cyr (1999) recently published a study of the effects of having a human resources management executive on the top management team – a proxy measure for how much a firm values its workers – on firm IPO valuation. They collected data on 476 firms that went public in 1993, predicting, as Welbourne and Andrews (1996) did before, that firms who valued their human resources would enjoy higher valuation than firms who did not. Their measures of IPO valuation were three-year post-IPO total shareholder returns and three-year post-IPO change in earnings per share. The latter measure is highly flawed and results for it should be ignored, as the authors do not provide any control for a change in the firm's number of shares in the three years since its IPO. There was no significant effect on their post-IPO total shareholder returns for firms with human resources management executives on their top management teams. The authors proceed to interact their human resources management variable with firm growth and firm size. There is a positive relationship between total shareholder returns and the human resources management variable interacted with firm growth, suggesting that firms experiencing rapid growth following their IPO can benefit from having an human resources management executive on their top management team. The authors surmise that such an executive can help with staffing issues that can be chronic for rapidly-growing firms (cf. Hambrick and Crozier [1985] for a more complete discussion of the challenges facing firms undergoing rapid growth).

This literature stream focusing on the effects of top management teams and boards on their firms' IPO valuation is in its early stages. Some of the first papers in this group have attempted to measure these effects with the most easily-coded data, such as counts of board ties or whether or not a director is a company president. These approaches have not produced significant results. Higgins and Gulati's paper (1999) provides the best evidence, to date, that there is, indeed, a top management team and board effect on IPO outcomes, when top management team and board characteristics are measured in more sophisticated ways. Future studies need to continue to use refined measures of upper-echelons backgrounds and connections, with several different kinds of IPO valuation measures to provide a clearer picture of how and when these executives and directors matter.

#### *II.II.LX Unanswered Questions in this Research Stream:*

To review the conclusions of the entire literature stream on IPO valuation thus far, it is apparent that there are many powerful effects on IPO valuation. We know that a hot market for IPOs, a firm's age, a firm's size, and the prestige of third parties connected to a firm (especially its underwriters) all positively influence an IPO firm's initial valuation. Yet there are many unanswered questions that remain to be addressed in future work of the influences on IPO valuation.

Despite the number of papers which have looked at the effects of ties to prestigious third parties on IPO valuation, we know little about why these prestigious third parties are attracted to form ties with some IPO firms and not others. Presumably, there are underlying resources within the firm, or its industry, that attract others; but what these resources might be has remained, to this point, underexplored. The work by Zimmerman (1998) and Higgins and Gulati (1999) provide some support for the belief that these resources might relate to the senior managers and directors affiliated with the firm. The financial literature on IPOs (e.g., Grinblatt and Hwang, 1989; Welch, 1989) has predominantly focused on how a firm signals its quality to actors. Perhaps the symbolic and/or substantive qualities of a firm's managers and directors act as a signal of the firm's quality to the market.

The fact that scholars interested in the determinants of IPO valuation have not paid more attention to the managers and directors associated with the IPO firm seems at odds with the predominant view in the venture capitalist community of the importance of a firm's upper-echelons leadership. A Warburg, Pincus



venture capitalist interviewed for the current study expressed this view: “The three most important things about the companies we back are the people, the people, and the people.” Another New York-based VC said: “These days, a great idea or technology is a dime a dozen... it’s great people I need to search for. I will always back a ‘grade B’ idea with a ‘grade A’ management team, but I’ll never back a ‘grade A’ idea with a ‘grade B’ management team.” And Ann Winblad, general partner at VC firm Hummer-Winblad, described the importance of a firm’s senior management this way: “They’re the engine that makes a business race ahead. Money is just the fuel that goes into the engine” (Anders, 1999b: R44). These points of view have yet to be fully explored in the academic literature on IPOs.<sup>16</sup>

A valid question to raise, in response to the existing studies on the effects of managers and directors on their firms’ IPO valuation is why so many studies have produced so many non-significant results. As mentioned earlier, however, these studies have relied on measures that do not get at the underlying symbolic (i.e., prestige) or substantive abilities of the managers and directors. Higgins and Gulati (1999) began to assess the quality of an IPO team’s social capital in different contexts, but more work needs to be done that examines the human capital and collective knowledge of the entire top management team or board. For example, future studies – beginning with this thesis – should attempt to answer whether any industry experience of a top management team member leads to favorable IPO outcomes, or only certain kinds of experience.

So far, there has not been any study that focuses on the impact of top management teams in the IPO context, as has been done in the contexts of larger firms (e.g., Smith *et al.*, 1994; Hambrick, Cho, and Chen, 1996). Higgins and Gulati’s paper (1999) collapsed their sample of top management teams and boards to measure a composite “IPO team” effect. There are several studies that demonstrate the impact of a firm’s top management team on multiple organizational outcomes, including in new venture contexts (e.g., Eisenhardt and Schoonhoven, 1990; Burton *et al.*, 1999), which should be followed in the IPO context. The upper-echelons perspective (Hambrick and Mason, 1984), which maintains that senior managers exert a great deal of influence on the firms they lead, has been underutilized in the smaller

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<sup>16</sup> One exception is MacMillan, Siegel, and Subba Narasimha (1985).

organization context, such as IPO firms, compared to *Fortune 500* firms. I provide such an application of this theoretical view to the IPO firm context in the next chapter.

Finally, future studies need to employ multiple measures of IPO performance. Only focusing on measures such as underpricing on the first day of trading (e.g., Ritter, 1984), initial market capitalization (e.g., Stuart *et al.*, 1999), or price premium per share (e.g., Andrews, 1995) provide difficulty in interpreting the results. Using several measures of IPO performance will provide a better understanding of why certain firms are more successful at IPO and afterwards than others. The extant studies especially neglect focusing on an IPO firm's long-term performance. I intend to address all of these shortcomings in my current study of the effects of upper-echelons human capital and social capital on their firm's IPO valuation and post-IPO performance. I will now turn to a full theoretical development of the current study's propositions.

### **III Theory and Propositions:**

This chapter is divided into four sections. The first section provides a summary of upper-echelons theory (Hambrick and Mason, 1984) and how it has been used to examine top management team and board effects on organizational outcomes. The second section uses upper-echelons theory, human capital theory, and social capital theory to develop a conceptual model of how an IPO firm's *upper-echelons capital* affects its IPO valuation and post-IPO performance, developing propositions which are suggested by the model. In the third section, I explore the role of industry uncertainty in moderating these effects of upper-echelons capital, based on previous theoretical and empirical research, and present an additional set of propositions. The final section of this chapter discusses how a firm's ties to prestigious third parties at the time of IPO mediates the upper-echelons capital effects on IPO valuation and post-IPO performance.

#### **III.I Upper-Echelons Theory:**

Upper-echelons theory has developed over the last 15 years within the larger body of strategy research and, consequently, is interested in explaining the factors that directly and indirectly contribute to organizational performance. It developed, in part, as a reaction to two explanations for how firm strategy is developed by other strategy researchers: the view of Porter (1980) that strategy develops based on a firm's position in its industry, as determined by its strengths and weaknesses; and the view of Quinn (1980) that strategy develops based on incremental changes to past strategy. Hambrick and Mason (1984) posited that there was another explanation for how a firm's strategy emerges: as a result of the biases and preferences of those leading the firm – i.e., the *upper-echelons* of the firm. Finkelstein and Hambrick (1996: 3) described this view as follows:

In the face of the complex, multitudinous, and ambiguous information that typifies the top management task, no two strategists will identify the same array of options for the firm; they will rarely prefer the same options; they almost certainly will not implement them identically. Biases, egos, aptitudes, experiences, and other human factors in the executive ranks greatly affect what happens to companies. This is not to say that managers are weak or sinister, only that they are human and limited.

The upper-echelons of an organization are generally defined as either the members of the top management team (usually those within the firm who possess the title “Vice President” or higher<sup>17</sup>) and the members of the firm’s board of directors<sup>18</sup>. Many studies have found support for the upper-echelons perspective, showing executive characteristics linked to definitions of complex business problems (Dearborn and Simon, 1958), organizational innovation (Hage and Dewar, 1973), organizational structure (Miller and Toulouse, 1986), organizational strategy (Boeker, 1989), organizational growth (Eisenhardt and Schoonhoven, 1990), and effectiveness of strategy implementation (Gupta and Govindarajan, 1984).

Such a view has its origins in the behavioral view of the firm (Cyert and March, 1963) and Thompson’s suggestion that the “variable human” exerts a considerable force on organizational actions and outcomes (1967: 101). For Thompson, it was more than the CEO of a firm who influenced its actions, but all those in positions of leadership (1967: 143):

Although the pyramid headed by an all-powerful individual has been a symbol of organizations, such omnipotence is possible only in simple situations where perfected technologies and bland task environments make computation decisions processes feasible. Where technology is incomplete or the task environment heterogeneous, the judgmental decision strategy is required and control is vested in a dominant coalition.

Hambrick and Mason (1984) picked up on this last point by theorizing that a firm’s top management team would be more predictive of organizational outcomes than the CEO alone. This view that teams have greater effects on organizational outcomes than the CEO alone has

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<sup>17</sup> I use such a definition of the top management team within this study.

<sup>18</sup> In my operationalization of a firm’s board of directors for this study, I only include directors who are not also top management team members to avoid double counting. A Chairman was counted as a member of the board but not the top management team. A Chairman and CEO was counted as a member of the top management team but not the board.

been supported in subsequent research (Hage and Dewar, 1973; Tushman, Virany, and Romanelli, 1985; Finkelstein, 1988). But research on upper-echelons effects on organizations can and have been studied at multiple levels of analysis, including CEOs, business unit heads, top management teams, and boards of directors. I will begin this chapter with a review of the major findings about the effects of top management teams and boards on organizational outcomes and the mechanisms by which these effects occur.

### *III.1.1 Top Management Team Effects on Organizational Outcomes:*

Since Hambrick and Mason's seminal paper (1984), there has been a great deal of empirical research about how top management teams' collective beliefs, values, education, experiences, and social ties have organizational effects, through their scanning, interpretation, and responses to different stimuli encountered on the job. This literature stream has three basic premises: (1) what executives do in the future is integrally tied to what they have encountered in the past, (2) demographic characteristics of executives can be useful proxies for their belief structures, and (3) the top management team is more valuable as a predictor of firm outcomes than the CEO alone (Hambrick and Mason, 1984; Finkelstein, 1988; O'Reilly, Snyder, and Boothe, 1993; Finkelstein and Hambrick, 1996).

There has been a great deal of evidence amassed, to date, demonstrating the effects of top management teams and senior managers on their organizations. For example, Virany and Tushman (1986) were able to demonstrate that more successful microcomputer firms had senior executives with significantly more industry experience than those in less successful firms. The successful firms also had significantly more founders still active in the top management team than the less successful firms. Gupta and Govindarajan (1984) found evidence that executive's backgrounds which matched their firms' current strategy (build vs. harvest) were positively associated with firm performance. Looking at a sample of semiconductor firms, Eisenhardt and Schoonhoven (1990) found that firm growth was linked to its top management team's industry

tenure heterogeneity and the top management team's size. Halebian and Finkelstein (1993) also found that top management team size was positively related to firm performance in a sample of computer companies. Overall, the upper-echelons perspective has spawned empirical work displaying many robust findings of top management team and executive characteristics directly and indirectly influencing organizational outcomes.

#### *III.1.II Board Effects on Organizational Outcomes:*

Although the upper-echelons perspective is most commonly utilized to understand the effects of the top management team on firm outcomes, it also suggests the importance of the board to firm outcomes. Finkelstein and Hambrick (1996: 245) have argued that boards can be conceptualized as "supra-top management teams," with the potential to shape organizational strategy formation and performance. This upper-echelons view of boards contrasts with the descriptive literature and agency theory-based literature on boards, which depict boards as governance mechanisms to monitor and discipline management.

Recent anecdotal evidence suggests boards might have a more significant effect on firm outcomes for smaller and younger firms, which tend more commonly hold IPOs than larger and older firms. Dan Levitan, a managing partner at Maveron LLC, which helped fund eBay, describes the board's role for the small, high-technology firms he funds, this way: "The board is not viewed as a governing mechanism.... It's viewed as a top-level strategy group" (Reingold, 1999: 132). Says Jacobs (2000: R4), describing boards of high technology firms: "... rather than merely being a sounding board, [these] directors must be an extension of management. They must be active participants in creating and shaping strategy, defining markets and building senior management teams. They have to hit the ground running, and sometimes help build a business from the roots up. And they have months, not years, to make an impact." Assuming that boards have sufficient discretion (as the boards Levitan and Jacobs are describing above would) and individual directors have sufficient power, Finkelstein and Hambrick (1996) suggest that boards

should also affect organizational outcomes, as upper-echelons theory argues that top management teams do. These authors (1996: 240) point out that there are several ways this can occur: "Boards can directly affect strategy through involvement of their members on committees, recommendations to top management, and oversight of executive decisions. Boards can indirectly affect strategy by reducing interorganizational dependencies and by conveying information about other firms' strategies." Thus, the board's collective experiences, education, beliefs, values, and social connections should also affect their organization's outcomes, although perhaps not as strongly as the top management team's.

Several empirical studies have found various characteristics of boards and individual directors linked to organizational outcomes. For example, financial representation on boards has been positively linked to greater firm borrowing (Stearns and Mizruchi, 1993; Mizruchi and Stearns, 1994): having a life insurance executive on the board was positively associated with long-term private borrowing, and negatively associated with long-term public borrowing; and having an investment banker on the board led to the opposite results. Directional interlocks (i.e., directors who are owners or officers of firms they are connected with) were found to decrease and nondirectional interlocks (i.e., directors who are affiliated with a third-party organization) were found to increase the likelihood of a firm adopting the multidivisional form (Palmer, Jennings, and Zhou, 1993). Focal firm acquisition activity has been positively linked to the acquisition activity of those on its board (Haunschild, 1993). Haunschild (1994) also found that the price premium paid by a focal firm for an acquisition is linked to the prior premiums paid for acquisitions by those sitting on the focal firm board. Goodstein, Gautam, and Boeker (1994) looked at the backgrounds of directors as an influence on firm outcomes. They predicted that larger and more diverse boards would be associated with less strategic change, because such boards would be characterized by greater internal disagreement preventing consensus of action. They found statistical support for their argument about board diversity in a sample of hospital

boards. All these examples serve to form a compelling case for how a board's membership can affect directly and indirectly organizational outcomes.

*III.I.III Mechanisms by which Top Management Team/Board Effects Occur:*

In the studies described above, there are several mechanisms, posited by researchers, through which top management teams and boards affect organizational outcomes. The mechanisms implied to operate are that the composition of the top management team or board forms the cognitive resources and social structure of the group. These resources and this social structure affect the group's information processing strengths or deficiencies, which give rise to its strategic decisions which can be successful or not. Hambrick and Mason (1984) pointed out that a team's cognitive resources, such as executive experience in a particular position, function, and industry, social ties, and education, as well as social structure, such as how well the group is able to draw on its collective cognitive resources to make decisions, will affect the kind of information it will scan for and consider when making decisions. The information processed by the team will vary by its "quantity, quality (e.g., richness, currency, accuracy), range of information processed (which environmental sectors are scanned, which functional areas are informationally mastered), and exchange/dissemination of information within the team" (Hambrick and D'Aveni, 1992: 1446). Teams with the greater cognitive resources and social structure that promote greater information processing will be able to spot opportunities and exploit them or spot problems and correct them in a timely fashion, which translates into greater firm performance.

For example, in a study of the effects of individual leadership, Smith, Carson, and Alexander (1984) found that Methodist ministers who were effective leaders in the past, continued to be effective in future situations. They measured effectiveness by church attendance and money raised for the church. These authors suggest that the mechanism by which some leaders are more effective than others is their past experience, allowing them to know how to be



good at their jobs. Virany and Tushman's finding (1986) that higher performing microcomputer firms having top management teams with longer industry tenure also suggests that *managerial experience* is a critical factor in organizational performance.

Another theorized mechanism by which top management team/board effects occur at the individual-level is *managerial quality for a particular context*. Gupta and Govindarajan's study (1984) of SBU performance showed that some managers had characteristics (such as tolerance for ambiguity and risk openness) that better matched a firm's strategy (build vs. harvest), leading to success. These managers were better qualified, according to the authors, for the context in which they were operating.

Top management teams and boards have also been supposed to impact their organizations because the individuals in these groups selectively perceive stimuli according to what they know and understand. If one particular firm has a CEO and several other key executives whose primary functional backgrounds are in production, it is likely that firm will tend to perceive organizational problems in terms of how it impacts or results from production. This *selective perception based on functional background* will make it more likely that the firm will pursue a strategy that emphasizes production capabilities (Hambrick and Mason, 1984).

In several studies of the effects of boards mentioned, researchers have argued that an *executive's or director's social ties* affect the kind of environmental stimuli attended to and responded to (Geletkanycz and Hambrick, 1997). Information about the going premia paid on acquisitions (Haunschild, 1994), or the advantages of an innovative organizational form (Palmer, Jennings, and Zhou, 1993) travels through a social network and an executive or director can be influenced to take an action that is especially popular among his/her social network. Social ties can also lead to business being exchanged between two parties. So, an executive's or director's social ties make it more likely that business will be conducted between firms (Mizruchi and Stearns, 1988).

These studies of top management team and board effects on organizations have also suggested that this relationship also operates through group-level mechanisms that affect the *social structure affecting a firm's strategic decision processes*. For example, Goodstein, Gautam, and Boeker's study of hospital board diversity (1994) suggested that boards with directors with heterogeneous backgrounds would have difficulty understanding each other's point of view, leading to less harmony, and poorer decisions. Haleblan and Finkelstein (1993) argue that the size of a top management team or board will contribute to a firm's performance, because larger groups have more cognitive resources to draw from with which to make the most appropriate decisions.

To summarize, upper-echelons theory has argued that organizations become reflections of their top management teams and boards. There have been many studies confirming that top management teams and boards do have effects on their organizations. However, some contexts confer greater discretion on executives and directors than others (Hambrick and Finkelstein, 1987). The dispersion of power among top management teams and boards also seems to be an important moderating variable on the effects managers and directors have on their firms (Finkelstein, 1992). In the many empirical tests of the upper-echelons' impact on their organizations, several mechanisms have been proposed for how organizations come to reflect their top management teams and boards: (1) the quality and experience of the managers or directors involved, based on their past experiences, allows them to make better or worse decisions, (2) the selective perception by the managers and directors, who tend to focus on problems/opportunities in their domain of expertise, shifts the organization's attention to those matters, (3) the social ties of the managers and directors, through which they obtain information and social pressure, also shifts organizational action in directions based on that information and pressure, and (4) the social structure of the senior group, affects the top management team's or board's strategic decision process and the resulting quality of decisions. These mechanisms are

supposed to affect the information processing capabilities of the senior group, which gives rise to certain strategic decisions affecting organizational performance.

To this point, however, no attempt has been made in the upper-echelons literature to unify these several strands of mechanisms by which top management teams and boards affect organizational outcomes into an encompassing concept. To this end, I propose the concept of upper-echelons capital, a two-part scheme defined as the combined human capital and social capital of a firm's top management team and board. In the next section of this chapter, I present a complete definition of the upper-echelons capital concept, connecting it to the literatures of human capital and social capital. I also present a logic for how the concept impacts organizational outcomes in a particular context in which managerial discretion is high – the initial public offering market for firms.

### **III.II Upper-Echelons Capital:**

The literature on the effects of top management team and board composition on organizational outcomes has focused on many attributes to be examined. I have organized several of these attributes into a two-part scheme which I term upper-echelons capital. Upper-echelons capital refers to the combined team resources of a firm's top management team and board which I posit to contribute to organizational performance. These resources, which I will define shortly, have been previously been studied and found to be important factors in predicting firm performance. I will argue that firms possessing greater degrees of upper-echelons capital have greater substantive abilities with which to affect their firms' performance in a positive manner over time. Further, I will argue that actors recognize these upper-echelons capital attributes as important factors to a firm's future success and will value firms according to a firm's breadth and depth in these attributes.

Thus, the substantive abilities of a firm's senior managers and directors, as demonstrated by its upper-echelons capital, become a basis for actors to assess a firm's prospects

of success, as well as a cause of future firm success through the upper-echelons' strategic choices. An example of how the substantive abilities of a firm's upper-echelons affect future performance, as well as expectations of future success, is the Silicon Valley start-up, MyCFO Inc., and its founder, James Clark -- the only person in history who has started three separate billion-dollar companies: Silicon Graphics, Netscape (now part of AOL Time Warner), and Healtheon (now WebMD). MyCFO provides financial advice to clients with more than \$1 million in assets (Lewis, 1999). It is likely that any new company launched by Jim Clark would generate tremendous interest, based on his reputation for building huge companies in the past. Yet the power of Mr. Clark's reputation for helping firms become industry leaders is demonstrated in how MyCFO has been able to recruit one of the most admired boards in Silicon Valley, including John Chambers, CEO of Cisco Systems Corp., John Doerr, perhaps the best-known venture capitalist in the Valley from Kleiner Perkins Caufield & Byers, and Tom Jermoluk, Ex-Chairman of ExciteAtHome Corp. and now Partner at Kleiner Perkins Caufield & Byers (Anders, 1999a). Its top management team is also shaping up nicely. Art Shaw, former senior vice president of Charles Schwab's electronic brokerage business, was attracted to join as the start-up's CEO. It also added the former managing partner of Deloitte & Touche's Western region to become the COO of professional services.

With several executives and directors known for steering fledgling start-ups to very successful IPOs associated with MyCFO, it has instant credibility with stakeholders. With each new high-powered executive to join the firm, it becomes easier to attract other successful executives. And it becomes easier to attract prestigious capital. Lewis describes the process with Clark this way (1999: 86 - 87):

From the moment Netscape made him a billionaire, he acquired a new form of power: the power of being Jim Clark. Half the engineers in the Valley wanted to work for whatever company he

started, on the assumption that if anyone was going to predict the future it was Jim Clark. All Clark had to do was announce how he next planned to invent the future, and huge sums of money and vast reservoirs of engineering talent came pouring in, intent on proving him right.

Clark's personal reputation has translated into one of the swiftest assembling of high-powered executives, directors, and investors, enhancing MyCFO's corporate reputation and creating momentum for its path to IPO, where surely Morgan Stanley, Goldman Sachs, and Crédit Suisse First Boston will vie for the honor of taking it public.

In line with Finkelstein and Hambrick (1996: 117), this thesis argues that "top management teams [and boards] are not only a central component in the strategic decision-making process; they may also be viewed as a basic organizational attribute, worthy of explanation in their own right." I assert that the top management team and board are organizational resources, as much as fixed assets, patents, technological innovations, and inventory. While not every firm has a Jim Clark as a top management team member to endear the most prestigious capital and talent, I argue that all firms' top management team and board members have the potential to attract notable employees, customers, investors, and strategic partners based on, as Sahlman (1999b) says, how much they know and if they are known. Highly capable executives and directors will generate higher performance for their firms. And actors will judge the collection of senior executives and directors when estimating the quality of the firm accordingly. Such a view of top management teams and boards is compatible with the resource-based view of the firm, which sees the firm as a bundle of difficult to imitate resources giving the firm advantages and disadvantages vis-à-vis its competitors. Yet, as Finkelstein and Hambrick (1996) acknowledge, the upper-echelons literature has not provided a comprehensive way to assess this critical organizational attribute. I aim to correct this shortcoming in the

literature by proposing a single concept – upper-echelons capital – that applies the concepts of human capital and social capital with the upper-echelons perspective.

Being able to understand and assess a firm's upper-echelons capital may be especially relevant for firms undergoing IPOs, where managers' and directors' discretion is great and the uncertainty within which they operate is great. In the IPO context, the organizations are still young enough and small enough that executives have great latitude in shaping organizational strategy and outcomes (Hambrick and Finkelstein, 1987). Thus, human capital and social capital characteristics of a firm's top management team and board – its upper-echelons capital – will become important predictors of a firm's future success, which actors should recognize, in terms of the firm's valuation at IPO. In this second section of the chapter, I use upper-echelons theory, human capital theory, and social capital theory to develop a conceptual model of how an IPO firm's upper-echelons capital affects its IPO market capitalization and post-IPO performance, with accompanying propositions.

### *III.II.I Definition of Upper-Echelons Capital:*

I define upper-echelons capital as the aggregate individual human capital and aggregate individual social capital of a firm's top management team and board. Thus, upper-echelons capital consists of two parts: upper-echelons human capital and upper-echelons social capital. I will now define each of these sub-concepts, in turn, and review the relevant literatures applying to each sub-concept.

### *III.II.II Upper-Echelons Human Capital:*

The human capital concept can be applied to upper-echelons theory in the sub-concept of upper-echelons human capital. The human capital concept can be traced to the early writings of Becker (1957). He noticed that there was evidence that more highly educated and skilled persons tended to earn more than others (1964) and wanted to understand why. Human capital is defined by Becker as those “activities that influence future monetary and psychic income by

increasing the resources in people” (1964: 1). These “activities” are investments made by people in their time, money, and/or energy, with the expectation that the investments will allow them to obtain a higher income and degree of satisfaction in the future. Examples of these kinds of investments are: (1) their schooling (i.e., education) which helps them acquire general or specific knowledge which later improves their productivity, (2) their on-the-job training, which increases their “productivity by learning new skills and perfecting old ones while on the job” (Becker, 1964: 9), (3) their general training which benefits them in other venues besides their current firm/job, and (4) their specific training, which improves a their productivity only in their current job/firm. Becker’s work had a lasting impact on the work of economists who followed, as they endeavored to link people’s compensation/earnings (i.e., their marginal utility) to their human capital (Schultz, 1961; Mincer, 1974; 1994).

#### *III.II.II.I Definition of Upper-Echelons Human Capital:*

Consistent with Becker’s human capital definition (1964), I define upper-echelons human capital as a top management team’s and board’s: (1) combined training, industry experience, and work experience, and (2) combined prior joint work experience that increase specific training of working as a collective for increased productivity.

There are several ways in which greater upper-echelons human capital benefits organizational outcomes. The greater experience of executives and directors allows them *superior decision-making and management skills*. Having worked within an industry for an extended period gives an individual a greater awareness of the kinds problems that are critical and how such problems should be handled. Prior work experience as a senior executive or director would also allow a greater depth of understanding for the kinds of issues facing senior executives. Greater human capital, based on training and experience, also generates trust in others about the qualifications of top management team and board members, solidifying relationships with a firm’s stakeholders that can be helpful in times of crisis or uncertainty.

Although prior studies have not examined upper-echelons human capital *per se*, there are several top management team and board studies that demonstrate the effects of this concept of organizational outcomes. I will now review the findings of these studies, which are presented in Table 2.

*III.II.II.II Prior Top Management Team/Board Studies that Support Upper-Echelons Human Capital Effects:*

Although there have been almost no studies of the effects of top management teams' human capital on IPO firms, there are several studies which demonstrate that this concept has an impact on organizational outcomes. The industry experience of the managers on the top management team has been linked to organizational success. In one of the first studies examining the effects of industry experience, Gupta and Govindarajan (1984) focused on the effects of general managers' marketing and sales experience on their strategic business units' (SBUs) performance. In a sample of 58 SBUs from 8 *Fortune 500* firms in 1980, these authors found that firms which were pursuing "build" strategies enjoyed stronger performance when their executive had sales or marketing backgrounds. They found no such link in their sample between firm manager backgrounds and performance when firms were following a "harvest" strategy.

Eisenhardt and Schoonhoven (1996) also explored the effects of individual managers' industry background. In their study of 102 semiconductor firms from between 1978 and 1985, these authors used a resource-based view lens to study how managers' backgrounds were linked to a firm's rate of alliance formation. This dependent variable was found to be highly correlated with firm's performance. Their results demonstrated a significantly positive relationship between the number of previous industry employers of a firm's top management team members and the level of previous jobs held by a firm's top management team members with the firm's rate of alliance formation. Eisenhardt and Schoonhoven argued that greater industry experience gained through employment with a number of different firms, as well as through holding senior



positions within these firms, gives top management team members more resources to draw on with which to make rapid decisions that are indirectly linked to improved firm performance.

Also in the semiconductor industry and using an upper-echelons perspective, Boeker (1997) explored the effects of a focal firm hiring a top management team member from one of its competitors on its propensity to adopt that competitor's strategy for itself. In looking at 67 public and private semiconductor producers from Silicon Valley between 1976 and 1993, Boeker found there was a significantly positive main effect of such a hiring on a firm's likelihood of adopting a competitor's strategy. He also found several conditions under which the hiring of such an individual led to an increased likelihood that a firm would adopt a competitor's strategy. A newly-hired manager with a research and development or engineering background and a manager with longer industry tenure both led to higher rates of adoption. Boeker explains these findings as evidence that greater industry experience, and experience from particular backgrounds, give one more *credibility* and, thus, make one more influential in a top management team. Boeker also tested to see if an executive's prior position level was related to firm strategy adoption and, contrary to expectations, he found a negative relationship. He found that top management team members who were direct reports to a CEO in their prior position led to a higher strategy adoption rate at their new firm than those who had been CEOs before. However, the former direct reports to the CEO were much more likely to influence a strategy adoption at their new firm than top management team members who had not been on a top management team at their last firm.

As Haveman (1999) has observed, it is sometimes difficult to distinguish between effects of human capital from effects of social capital because these concepts are too similar, not because they operate in similar ways. As an executive acquires human capital through increased industry or firm tenure, that person will likely acquire concurrently social capital. Working 10 years in the telecommunications industry as a VP of Research and Development, for example,

gives an executive a deep understanding of the latest innovations that have been developed or are about to be introduced which will affect the development of markets for particular products over the next five years, thus raising the manager's human capital. However, such an executive also has likely developed a rich network of ties with researchers within and outside the firm over these 10 years, raising the manager's social capital. With this greater social capital, the executive likely has access to information on leading edge research, further increasing the manager's human capital. It is likely that an increase in human capital leads to an increase in social capital, and vice-versa.

Human capital also accrues from specific work experience team members have as a collective. This joint work experience can help team members determine what tasks are best performed by different executives based on a collective knowledge of differential team member abilities. There is anecdotal evidence of start-ups going out and hiring entire teams from other firms for their top management team joint work experience. Paul Bandrowski, president of Reciprocal, a firm providing digital rights management services and products to the online music industry, hired 12 senior managers and technologists from AT&T to complete the rest of his senior team. He explained his decision to do so as follows: "It was an exciting prospect to hire a team of people who already worked well together, understood each other's personality, and could hit the ground with the ability to run faster" (*Financial Post*, 1999: C8).

Top management teams with a greater percentage of members who have previously worked together have a better understanding of how each individual operates, which can enable them to respond to situations more rapidly than they otherwise might. This joint background among team members would also promote less relationship conflict, allowing greater ease of decision making. Eisenhardt and Schoonhoven (1990) provided empirical evidence of the effects of team joint work experience in a study of 92 semiconductor new ventures founded between 1978 and 1985. They found that the previous joint work experience was positively related to

growth rates for these firms. These effects were even stronger for firms operating in high-growth markets and became stronger as firms aged.

Eisenhardt and Schoonhoven (1990) explained their findings as evidence that smaller, entrepreneurial firms have special requirements of their top management teams. In such firms, they argued, speed in decision making is key, because of rapid technological innovations and environmental uncertainty. Because decisions are made quickly, it becomes important that group members engage in constructive conflict to air out alternative ideas and ensure the best choice is selected, while avoiding the injurious effects of relationship conflict (Jehn, 1995). Therefore, it helps if the team members have some prior experience working together. Eisenhardt and Schoonhoven also suggested that the extent of prior joint work experience also indicates a greater team knowledge of how the industry operates, which facilitates collective decision-making.

There is a strong theoretical base and empirical support to suggest that top management teams with managers who possess a great deal of human capital are better able to scan the environment and consider relevant information when facing threats or taking advantage of opportunities. Thus, greater top management team human capital should lead to a firm making substantively better strategic decisions that positively influence its operational performance (i.e., growth in sales and growth in profitability). In the context of firms going public, greater firm top management team human capital at the time of its IPO should contribute to its operational performance after the IPO (that is called its post-IPO performance).

*Proposition 1a: Higher levels of top management team human capital yield superior post-IPO firm performance.*

I am assuming in this thesis that markets operate efficiently. Therefore, if it is the case that a firm with managers who make substantively better decisions leads to an increase in the firm's performance, actors will recognize this correlation and price an IPO firm appropriately at

the time of its offering. This valuation reflects the market's assessment of the firm's current and future earning potential.

*Proposition 1b: Higher levels of top management team human capital yield superior IPO firm valuation.*

There have also been a number of studies of board human capital and how such capital is linked to firm performance. However, few of these studies focus on new firms. Industry experience should benefit board members in the way it has been found to benefit top management team members. Greater knowledge of a firm's particular industry allows a director to contribute meaningfully to board discussions of a firm's strategy against its competitors. Such a director might also be aware of significant industry trends that the firm will need to respond to in order to remain competitive. To this point, however, no empirical study has tested the effect of directors' industry tenure as a predictor of firm strategy or firm performance. The findings previously discussed showing a link between top management team industry tenure and firm outcomes imply a similar result for directors (Gupta and Govindarajan, 1984; Eisenhardt and Schoonhoven, 1996; Boeker, 1997; Gimeno *et al.*, 1997).

There is also supporting evidence from several studies which have examined the influence of director intraindustry ties, based on prior jobs and current boards sat on, on firm performance. For example, Provan (1980) studied 46 nonprofit human service agencies in the northeastern U.S. and found that the number of board linkages with other human service agencies led to greater firm performance (measured as amount of funding received for the agency from the United Way). Provan suggests that one of the reasons for this finding is that directors with more industry ties have a greater understanding of what is going on with other human service agencies, which helps them to better direct the firms they serve on. Higgins and Gulati (1999) found that members of a biotech's "IPO team" (defined as officers and directors of the firm at the time of its IPO) with high degrees of intraindustry social capital were more likely to have prior industry

employment ties, where they would have gained greater knowledge about how the industry operates. Teams with this higher intraindustry experience were also linked to the IPO's size. These results point out how the human and social capital concepts sometimes overlap. In this case, industry contacts are a measure of a director's industry social capital, but also allow the director access to more diverse information about the industry, thus, increasing his/her industry knowledge.

A firm's board with greater human capital should be able to engage in a more active role, interpret complex data it is presented with relating to the functioning of the firm, and make suggestions about how the firm can best respond. The board members' greater knowledge and experience help them play more of a participatory role in setting firm strategy, as well as more effective monitors and judges of management's actions. To apply this logic to an IPO context, IPO firms who possess boards with greater levels of human capital should also possess greater levels of performance after the IPO.

*Proposition 2a: Higher levels of board human capital yield superior post-IPO firm performance.*

These firms with boards who have high levels of human capital will have greater substantive monitoring and decision-making abilities, which should not go unnoticed by actors if, indeed, there is a link with the firm's post-IPO performance. Actors will value IPO firms who have higher levels of board human capital with higher IPO valuations.

*Proposition 2b: Higher levels of board human capital yield superior IPO firm valuation.*

### *III.II.III Upper-Echelons Social Capital:*

The origins of the social capital concept are in the writings of Coleman (1974; 1982; 1992) and Bourdieu (1985). Social capital refers to the actual and potential resources individuals obtain from knowing others, being part of a social network with them, or merely from being known to them and having a good reputation (Bourdieu, 1985). Social capital derives from one's

social ties that have the capacity to be turned into access to information or other resources. Other literatures which draw on the social capital concept are social networks, structural holes (Burt, 1992), and interlocking boards. A problem with the empirical work that has been done on social capital is that it needs to go beyond simple counts of a person's ties to a more qualitative description of the ties.

Several scholars have proposed linking the human and social capital concepts (Coleman, 1988; Haveman, 1999). As mentioned earlier, a major problem in distinguishing between human and social capital is that there is often overlap between the concepts. Consider social ties. Social capital is supposed to be access to information or resources through contacts with others. Certainly this occurs through board tie connections or prior employment connections. Yet information which is gained through these connections also educates someone, in the way that being trained in a task does. Human capital is defined as investments made by individuals in themselves or by firms in their workers that make these individuals or workers more productive. And so it seems that the information gathered through having social capital raises a person's human capital, helping them take actions that prove to be more productive.

For an illustration of how human and social capital become intertwined, take the case of Wu-Fu Chen: a computer networking entrepreneur responsible for starting 11 companies in the past 15 years (Thurm, 1999). His biggest success so far is one company that went public and was acquired three years later in 1997 for \$2.6 billion. Four of his other companies were purchased in their embryonic stages, a majority for more than \$100 million each. Two other companies operate profitably in Asia. With a track record like that, Chen has a following among venture capitalists, who see him as possessing high levels of human and social capital that allow him to succeed. His past experience with start-ups has allowed him to acquire human capital to succeed at building such firms, but also to build up his social capital in the computer networking and investment communities. It is difficult to separate the importance of one from the other.

“‘The word in the investment community is, if Wu-Fu’s in it, get in it,’ says John McQuillan, a venture capitalist. ‘He can get a strong team of engineers, get them to work an extra two hours on a Friday night, his calls get returned, and he’ll get the best price when it’s time to sell’” (Thurm, 1999: A10).

Social capital is critical for firms trying to build momentum and gain attention. Long before an IPO, these firms must demonstrate their ability to succeed in their chosen market space, in order to raise private financing that can allow the firm to grow to the stage where it can viably go public. Having people with high degrees of social capital affiliated with the firm helps convey this ability to others. Andy Rachleff, general partner at Benchmark Capital, describes how his firm screens business plans this way: “We have never invested in a company that wasn’t referred to us or came from someone we didn’t know or know of.... If you want to talk to a venture capitalist, find someone who knows him or her.” Another Silicon Valley venture capitalist stresses: “Savvy investors assess a start-up as much by its founders’ connections as the founders themselves” (Osborne, 2000a). And entrepreneurial finance scholar William Sahlman observes that:

successful venture founders have two characteristics: they are “known” and they “know.” Tackling the latter first, the founders know the industry for which they propose to raise capital and launch a venture – they know the key suppliers, the customers, and the competitors. They also know who the talented individuals are who can contribute to the team. At the same time, they are known in the industry: people can comment on their capabilities and can provide objective referrals to resource suppliers like professional venture capitalists. Suppliers, customers, and employees are willing to work with them in spite of the obvious risk of dealing with a new company (Sahlman, 1999b: 144).

Once investors sense a firm has a management team and board that are “known” and “know”, in part due to its social connections, they will be attracted to back the firm, which further attracts others to invest.

#### *III.II.III.1 Definition of Upper-Echelons Social Capital:*

Building on the work of Higgins and Gulati (1999), I define upper-echelons social capital as the top management team’s and board’s collective industry social capital (i.e., with other major individuals or organizations inside the industry) and “blue-chip” social capital (i.e., with other major individuals or organizations outside the industry).

There are several ways in which greater upper-echelons social capital benefits organizational outcomes. First and foremost, greater connections to other key players within one’s industry give executives and directors informational cues of important industry trends that help them to make appropriate strategic decisions in response. Thus a firm can take preemptive steps against some threat to avert a downturn in performance. These intraindustry connections can also provide examples of strategic alternatives when managers are considering a particular response to a threat (Geletkanycz and Hambrick, 1997). These alternatives allow executives to reduce their level of uncertainty about the impact of particular actions and avoid protracted efforts to create their own solutions to problems (DiMaggio and Powell, 1983). This can allow a firm to respond faster to problems, which might benefit firm performance, especially in highly uncertain environments (Eisenhardt, 1989). Greater social ties can facilitate access to resources through relationships with buyers or suppliers or through joint ventures with other industry actors. This benefit of social ties is especially advantageous with parties or organizations on which a firm depends heavily for critical resources (Pfeffer, 1972; 1973; Pfeffer and Salancik, 1978).

Social capital that is built up through connections outside one’s industry can also prove to be valuable. Many extraindustry relationships – especially with those firms that are perceived



as being “blue-chip” companies – might lead to access to more diverse sources of information and resources with which the executives and directors base decisions (Geletkanycz and Hambrick, 1997). These information cues provide a firm with a recipe for success, which perhaps has not been tried in their industry, giving them a potential first mover advantage. The implementation of outside strategies has been found to lead to higher firm performance in industries which are characterized as stable (Geletkanycz and Hambrick, 1997). Extraindustry relationships, especially if they are with prominent organizations, can also lead to greater prestige within one’s industry. This greater prestige can lead to greater access to resources, furthering the firm’s performance (Thompson, 1967). Finally, greater social capital, based on relationships with other key actors within and without one’s industry, also generates trust in others about the qualifications of top management team and board members, solidifying relationships with a firm’s stakeholders that can be helpful in times of crisis or uncertainty. Greater stakeholder trust in a firm leads to lesser firm uncertainty, which, as noted above, helps a firm’s performance by making future earnings more predictable (Pfeffer and Salancik, 1978). There are several studies demonstrating the effects of top management team/board social capital on organizational outcomes. I now turn to a review of these studies, which are presented in Table 3.

### *III.II.III.II Prior Top Management Team/Board Studies that Support Upper-Echelons Social Capital Effects:*

Several recent studies have documented how top management team social capital, within and outside an industry, affects organizational outcomes. In Boeker’s (1997) previously mentioned study of Silicon Valley semiconductor firms, he found that executives who were hired away from competitors and had longer industry tenures were more likely to see their new firms adopt their ex-firm’s strategy in the coming years. Boeker suggests that executives with longer industry tenures have built up strong relationships with industry actors. These connections give

them access to information and resources. Boeker argues that this increased social capital makes these executives more powerful to influence their new top management team.

Higgins and Gulati's study (1999) provides evidence that top management team intraindustry social capital can benefit an IPO firm.<sup>19</sup> They found that greater firm top management team intraindustry social capital (measured as ties to the top 30 biotech and pharmaceutical firms over the last 25 years in terms of their revenues) was positively correlated to the size of the firm's IPO offering. Intraindustry social capital among top management team members is also strongly associated with the prominence of the IPO firm's underwriter. The authors also find a .50 correlation between the prominence of an IPO firm's underwriter and IPO firm offering size. So, top management team intraindustry social capital seems to be a strong, although indirect, influence on IPO valuation.

Geletkanycz and Hambrick (1997) more directly measured the impact of top management team social capital on organizational performance. Using strategic choice and social networks theoretical lenses, these authors examined the performance of 30 large, publicly-traded firms from the branded foods and 30 from the computer industries between 1983 and 1987. In exploring the effects of top management team intraindustry and extraindustry ties, measured as boards sat on, they found that more top management team extraindustry ties led to less strategic conformity with the industry by the firm. Top management team intraindustry ties had no effect on firm strategic conformity with the industry. Senior management appears to acquire different information and/or resources through these extraindustry ties that make them more likely to choose divergent strategies from their competitors. However, Geletkanycz and Hambrick find that choosing a divergent strategy from the industry norm can actually hurt a firm operating in an uncertain environment. There is moderate support that greater top management

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<sup>19</sup> Higgins and Gulati (1999) do not distinguish between the IPO firm's top management team and board; they combine them into what they call the "IPO team."

team extraindustry social capital is linked positively to organizational performance in a stable environment. Greater top management team intraindustry social capital was not found to be related to organizational performance under this condition.

Yet, there is strong support for the claim that top management team extraindustry social capital is linked to higher firm performance from D'Aveni (1990). In his study of large corporate bankruptcies between 1972 and 1982, D'Aveni selected matched pairs of 57 failing and surviving firms according to size and industry. He found support for a claim that greater top management team prestige, through extraindustry social capital, measured as board ties and inclusion in the social registry, is associated with fewer bankruptcies. He argues that top management teams with high levels of this social capital bring greater resources to their firms through their connections. They can assuage creditors if their performance dips, when the creditors might otherwise move for drastic changes in the firm potentially exacerbating existing problems.

And in perhaps the most relevant study for this thesis topic, Burton, Sørensen, and Beckman (1999) surveyed 173 Silicon Valley-based high-tech firms between 1994 and 1995. Using a social networks framework, they found moderate support for their claim that the prominence of prior employers of a firm's founding top management team was positively related to the probability of that firm receiving external financing at founding. These results suggest that top management team social capital provides a firm with preferential access to information and resources supporting its performance.<sup>20</sup>

When top management team members are well connected to other individuals, firms, and organizations, they have access to a wealth of information about what is going on within the

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<sup>20</sup> These results could also be interpreted as implying that managers acquire greater human capital, in terms of their training and experiences, from working at more prominent firms. Actors recognize the value of this increased human capital when they join their new firms. This possible interpretation also underscores Haveman's (1999) earlier point on the difficulty in parsing out human capital effects from social capital effects and vice-versa.

industry. Social ties allow information about new threats and opportunities within and outside the industry to pass across them. Thus, managers with greater social capital can respond swiftly to head off challenges to their firms or take advantage of time-sensitive opportunities. But social capital offers more to those who possess it than access to information. As Portes (1998) points out, social capital connections also provide those who possess them with access to greater resources, which they can deploy in taking action based on environmental stimuli.

For example, consider an American aircraft manufacturer seeking to win a contract with a national carrier in South America. The company has been trying to present the key advantages of its product in comparison to a European competitor's for the bid, but it fears that it has not been persuasive enough. However, the American company's CEO recalls that one of its major electronics suppliers is also from this South American country. The CEO talks to the president of the electronics supplier – which happens to be one of the largest employers in that country – about his difficulties with the bid and the president invites him to meet with two senior government officials with whom he is on favorable terms. Following this private meeting, which goes very well, the government has been convinced of the merits of the American firm and the contract is quickly settled.

Greater social capital gives managers early access to information and access to resources when needed. These two assets help managers react more swiftly and more effectively to problems they face, as they direct their firms. If two firms competing in the same industry are equal in every other way except that one's top management team has much more social capital than the other, it can be expected that the firm rich in social capital will enjoy higher performance than the other firm, because the network of social relationships can be monetized when needed. Social capital should be especially important for firms that are going public. These firms will generally lack social capital, in comparison with more mature firms, which is partly why they face "liabilities of newness." Thus, those IPO firms with greater social capital

will have an advantage in the post-IPO that they can turn into greater funding from investors, which allows them to develop more fully than if they lacked funding, and greater operational performance through increased sales and profits.

*Proposition 3a: High levels of top management team social capital yield superior post-IPO firm performance.*

If top management team social capital is truly availing to an IPO firm's post-IPO performance, actors will recognize this relationship and value such firms higher at the time of IPO than firms lacking top management team social capital. They might also react to the top management team's social capital as a signal of the firm's quality (Spence, 1974). A small biotech firm with a CEO who is an ex-head of one of the big pharmaceutical firms, stands out among the throngs of other nondescript biotech firms. Such notoriety on the part of an executive certainly attracts media coverage and attention among biotech watchers that might also translate into a higher valuation for the firm at IPO compared to other similar firms.

*Proposition 3b: High levels of top management team social capital yield superior IPO firm valuation.*

Similar to the preceding top management team effects, several studies have supported the notion that board social capital affects organizational outcomes. Using agency, institutional, or resource dependence theoretical lenses, many studies have documented how social ties promote a contagion of popular ideas through a network. For example, as already mentioned, Palmer *et al.* (1993) found that a firm with directors who sat on boards of other firms which had adopted the multi-divisional form was also likely to adopt the organizational structure. In his famous study of firm's likelihood of adopting poison pill provisions, Davis (1991) found that a firm's number of directors with ties to other firms who adopted these measures strongly predicted its adoption. Haunschild's study (1993) of 327 medium and large companies between 1981 and 1990 found that the number of acquisitions made by firms in which a company's inside

directors sat on the boards was positively related to the number of acquisitions that company made in a given year. This influence through board ties did not end there. She later found that the size of a company's acquisition premium was related to the average premium paid by firms in which the company's inside directors sat on the board (Haunschild, 1994). As a final example, Stearns and Mizruchi (1993) found that firms with more directors who were financial representatives were more likely to engage in long-term, short-term, and private borrowing. A great deal of support can back up the claim that directors' social ties influence their firms' decisions.

Social capital through intra- and extraindustry ties seem to provide directors with *more accurate or diverse knowledge or access to resources* allowing them to be better contributors to a firm's strategic decisions and better monitors of management's performance. I have already described Provan's findings (1980) that the number of directors with linkages to other human service agencies was positively associated with a human service agency's performance – measured as its funding from the United Way. Higgins and Gulati (1999) also found that board intraindustry social capital was indirectly related to biotech firms' IPO size. Board social capital *outside* an industry also appears to affect firm performance. Using social class, resource dependence, and agency theory views, D'Aveni and Kesner (1993) examined 106 tender offers between 1984 and 1986. They found that higher prestige boards, measured as the percentage of directors on the board who had "vice-chair" or "chair" in their titles from their home firm, were more likely to fight off tender offers. These authors suggest that such boards are able to do this, in part, because of greater extraindustry social capital, which gives them more connections to draw favors from in helping their firms to resist unwanted offers from suitors.

With these findings, and those from the body of literature on top management team/board social capital already reviewed, board social capital appears to benefit firm performance in a similar way that top management team social capital does. Well-connected

directors get doors opened to them that otherwise would be closed. These relationships can provide access to information, access to capital, or access to time (from lenders, for example), which allow a firm more degrees of freedom to respond to different market opportunities. Thus, a firm's board social capital helps it make more informed strategic decisions or make decisions that can be strongly supported by other key actors within or outside the industry. In both cases, the firm's performance should be strengthened by higher levels of board social capital. This relationship should be found in the IPO context, so that firms with greater board capital have higher levels of post-IPO performance.

*Proposition 4a: High levels of board social capital yield superior post-IPO firm performance.*

Similar to previous propositions, I also assert that, if board social capital is a predictor of post-IPO success, actors will recognize its benefits and build that into their valuations of a firm at IPO. Board social capital should also act as a proxy signal of the firm's quality for investors.

*Proposition 4b: High levels of board social capital yield superior IPO firm valuation.*

### **III.III Moderating Effect of Industry Uncertainty:**

Organizational scholars have studied the effects of industry uncertainty on organizational outcomes since Cyert and March (1963) and Thompson (1967). How might it moderate my conceptual model described thus far of upper-echelons capital affecting post-IPO performance and IPO valuation? Uncertain environments, by definition, are difficult to predict; therefore, if environments are characterized by greater or lesser industry uncertainty, how will that affect how actors assess the quality of a firm that is about to go or recently has gone public? I will now review some of the prior research that is relevant to answering these questions.

A central tenet of upper-echelons theory is that executives and directors will respond differentially to varying environments depending on that environment's uncertainty. Hambrick

and Finkelstein (1987), in their seminal paper, theorized that executives and directors will have more discretion – latitude for action – in highly uncertain environments than highly certain environments. The greater ambiguity of the uncertain environments, they argued, permits managers and directors to advocate a number of defensible strategic directions for the firm – for good or for ill. Highly certain environments create conditions in which top management teams and boards are expected to do things in a way that is known to work. Thus, managers and directors would appear to be able to have a larger impact on their firm's performance when that firm operates in an uncertain industry.

In stable environments, such as the American steel industry after World War II until 1960, for example, the level of industry uncertainty was quite low – due to steady demand, no foreign competition, and few technological innovations – making it easy to determine the status of the different firms. The roles and requirements for top managers and directors become formulaic under such circumstances, as Thompson (1967: 89) explained: "In a stable environment, acceptable performance in the past can be taken as evidence of preparedness for the future. Demonstrable improvement over the past lays the basis for the claim of even more satisfactory future performance and hence indicates response to the norm of rationality." Because of this steadiness: "[t]o the extent that the environmental sector is homogeneous and stable, boundary-spanning jobs can be standardized, use common skills, and afford little opportunity for learning or for career-building visibility. Under these conditions, the jobs are routinized, and we would expect the contracts to be negotiated by collective bargaining as discussed above" (Thompson, 1967: 111). Therefore, the knowledge, skills, and connections of managers and directors will matter less for organizations in more certain environments compared to firms functioning in more dynamic environments, because actors judging a firm's quality can rely on the firm's past performance and industry conditions as indicators of a firm's potential.



In dynamic environments, characterized by greater uncertainty, because of threats from new technologies and new competitors, the managers and directors of a firm become more salient for actors when making determinations of the firm's status vis-à-vis other firms.

Historical improvement may be relevant for all organizations, for environments are never so unstable as to negate the past completely. But what the organization may be called upon to achieve in the future, and improvement on obsolete criteria may be of little consequence. Lacking absolute criteria of fitness, and being unable to assume that improvement over its past capability is a reflection of its future, the complex organization then turns to social references to demonstrate that it is doing as well as or better than others in its league (Thompson, 1967: 89).

The technical sophistication of these industries are usually difficult for analysts and other actors to assess, and it becomes more important for a firm to differentiate itself by the prestige of other actors it surrounds itself with.

[Perrow] (1961) brought out the point that [extrinsic] prestige was sought out when important elements of the task environment lack ability to understand and interpret evidences of intrinsic merit. It may be the case, for example, that an organization is engaged in such specialized undertakings with highly refined technologies that few elements of its task environment are capable of evaluating it on technical grounds.... We must recognize, however, that at the institutional level, organizations themselves as well as task-environment elements may lack objective measures of past success or fitness for the future, and that extrinsic measures of quality may be as important for internal purposes as for public relations (Thompson, 1967: 92).

Joel Podolny's work (1993; 1994) on status hierarchies in investment banking has similarly found that, in times of great market uncertainty, actors rely on making decisions about other firms to do business with, based on who they have worked with previously and who they perceive as being of the same status level as themselves. Podolny finds evidence that status hierarchies are self-reproducing and, thus, stable over time: high status firms remain high status partly by only doing business with other high status firms.

My argument to this point is that market actors determine an IPO firm's quality, which translates into its IPO valuation and post-IPO performance, in large measure by its upper-echelons capital. The combined human capital and social capital of the firm's top management team and board demonstrates the firm's ability to succeed going forward. But according to the arguments of Thompson (1967), Hambrick and Finkelstein (1987), and Podolny (1993; 1994), the impact of these managers and directors on their firms' performance should rise in highly uncertain environments. I argue that a firm's upper-echelons capital becomes salient to actors when it is in an industry characterized by greater uncertainty. Therefore, the uncertainty, which depends on the industry, acts as a moderating force on the upper-echelons capital - firm performance relationship.

Several studies have found a strong moderating effect of industry uncertainty on the firm team/board characteristics and firm performance relationship. Haleblan and Finkelstein (1993) found that environmental turbulence moderates the relationship between firm performance and both team size and CEO dominance. They found that firms with larger teams and less dominant CEOs did better in turbulent environments (perhaps due to better information-processing capabilities). Eisenhardt and Schoonhoven (1990) argued that larger and more heterogeneous top management teams performed better in "high-velocity" (i.e., rapidly changing) industries.

Based on these many findings and theoretical arguments, I make the following set of propositions:

*Proposition 5a: Upper-echelons capital is a stronger predictor of post-IPO performance in industries with great uncertainty than in industries with low uncertainty.*

*Proposition 5b: Upper-echelons capital is a stronger predictor of IPO valuation in industries with great uncertainty than in industries with low uncertainty.*

#### **III.IV Mediating Effect of Prestigious Third-Party Ties at IPO:**

To this point in the IPO literature, most scholars have focused on exploring how IPO firms' ties to prestigious third parties predicts their performance once they go public. I have already reviewed the strong findings that show a firm's ties to prestigious underwriters (Stuart, Hoang, and Hybels, 1999; Higgins and Gulati, 1999), auditors (Balvers *et al.*, 1988), venture capitalists (Gompers, 1996), and strategic alliance partners (Stuart *et al.*, 1999) all contribute to a firm's IPO and post-IPO success.

My conceptual model described to this point of how upper-echelons capital leads to higher IPO valuation and post-IPO performance would be incomplete without accounting for the role of prestigious third parties. I contend that pre-IPO firms with higher levels of upper-echelons capital will be more attractive to prestigious third parties. These third parties have a need to differentiate firms according to their perceived quality pre-IPO for the same reason that actors do at the time of IPO and afterwards. More prestigious venture capitalists will want to be aligned with the firms with the most prestigious management teams and boards; more prestigious strategic alliance partners will want to be aligned with the firms with the most prestigious venture capitalists and top management teams and boards; the most prestigious underwriters will want to be aligned with the firms with the most prestigious partners, investors, and top management teams and boards. A firm's upper-echelons capital is the most important factor in

drawing in other prominent actors to create the impression to other actors of the firm's perceived quality.

Upper-echelons capital will allow a firm to form ties to prestigious third parties, and these ties will have a positive effect on the firm's post-IPO performance and IPO valuation. To put it in formal terms:

*Proposition 6a: High levels of upper-echelons capital yield more firm ties to prestigious third parties.*

*Proposition 6b: High levels of firm ties to prestigious third parties yield superior post-IPO firm performance.*

*Proposition 6c: High levels of firm ties to prestigious third parties yield superior IPO firm valuation.*

A complete illustration of my conceptual model is presented in Figure 1.

In addition to looking for the linear relationships described in my propositions, I will also be on the lookout for possible threshold effects and ceiling effects of my upper-echelons variables on the IPO firm outcomes. It is possible that some of these upper-echelons capital variables might only have a significant impact at their highest levels. For example, a top management team's human capital due to work experience might only be significant predictor of post-IPO performance beyond 3 years of base level experience; and, it might be a highly significant predictor at very high levels. A straight linear regression of all teams' human capital would not allow me to see these differential effects. By contrast, a board's social capital level might reach an upper-level, in terms of its effect on firm performance (beyond which it had no greater influence on performance). Therefore, I will take care to study that there is truly a linear relationship between my independent and dependent variables, as my propositions imply. If there are threshold or ceiling effects in my results, I will point these out. I will now turn to a complete overview of my research methodology.

#### **IV Research Methodology:**

##### **IV.I Selecting the Sample:**

My sample consists of all the computer software firms (defined as computer programming and integrated design firms) and restaurant and hotel chains that went public between 1994 and 1998 (five years inclusive).<sup>21</sup> These industries were chosen because each had a large number of IPO firms during this time period and because they differed substantially in their industry uncertainty. I will describe, below, how I determined their differences in industry uncertainty, but I will begin with my reasoning for the years studied.

There are several reasons for selecting the time frame from 1994 to 1998 for my study. To improve upon previous research on IPOs (e.g., Andrews, 1995; Welbourne and Andrews, 1996; Finkle, 1998; Pollock, 1998), I wanted to employ a longitudinal, rather than cross-sectional, approach, to ensure that my findings were not the artifact of an unusual IPO year. I wanted to choose a more recent time period, to improve my likelihood of collecting as complete a data set as possible. Yet, the time frame selected ends early enough, so that I can assess several years of a firms' post-IPO performance. These five years have another advantage of having sufficient numbers of IPOs in each year, yet not abnormally large or small numbers in comparison to adjacent years (see Table 5). In Table 5, the total numbers of and the total amount of funds raised through IPOs for each year since 1970 are displayed. Each of these five years has a consistently robust number of IPOs.

I wanted to select industries that had a large number of IPOs over my time period and that differed markedly in their uncertainty. Such a contrasting industry sample design allows me to control for industry effects that make cross-sectional studies of IPOs difficult to interpret. The contrasting industry approach also allows for a testing of my moderating variable propositions about industry uncertainty.

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<sup>21</sup> The two SIC classifications I used that make up the software category did not exist prior to 1996. Therefore, my software IPO firms all come from the years 1996 through 1998.

To select my industries, I began by determining which of all possible industries had the most number of firms that went public between 1994 and 1998. There were 15 industries with more than 10 IPOs during this time; they are displayed in Table 6. For these industries, as shown in Table 7, there was an overall trend for more IPOs over this time period. However, this group of firms is fairly representative of what was going on in the overall IPO market during this time, as seen in Table 5. Tests of the differences in sizes of IPO firm offerings in these five industries compared to other industries showed no significant differences.

Once I determined the 15 most popular IPO industries, I set about determining which industries varied most in their uncertainty and provided a large enough number of firms for meaningful statistical analyses. I measured an industry's uncertainty as its industry stock price volatility between 1994 and 1998. Firms operating within industries with greater stock price volatility would face greater uncertainty about their own future performance in their stock price, which would have an impact on their abilities to attract resources to support their growth. Therefore, industry stock price volatility is a fair measure of industry uncertainty. Industry stock price volatility has been commonly measured in prior research as the unlevered beta for an industry (i.e., the covariation between all the securities' stock prices within a 4-digit SIC and the overall market from the CRSP database, controlling for differences in debt ratios across industries). Helfat and Teece (1987) set a precedent for measuring industry uncertainty as an industry's beta, by using an industry's systemic risk (beta) as a measure of its level of uncertainty before and after firms became vertically integrated. Although Sutcliffe and Zaheer (1998) have proposed an alternative way to measure uncertainty, through surveying actors' perceptions, I am limited from employing such a method here, because it would require actors to retrospectively rationalize. I must use a more objective, yet still accurate, measure of industry uncertainty, which is why I selected an industry's beta as an appropriate measure. Using the unlevered beta is preferable to a levered beta because it controls for industry differences in capital structure. The

industries unlevered betas for this time period are listed in Table 8 in descending order. Based on the rankings of these 15 industries according to their unlevered betas for 1994 to 1996, I chose the following industries for study: one industry possessing among the highest levels of uncertainty (software firms, defined as a combination of the computer integrated design and computer programming services industries, with unlevered betas of 1.54 and 1.22 respectively) and one possessing among the lowest levels of uncertainty (restaurant and hotel chains, with unlevered betas of .49 and .34 respectively). There were 95 software firms that went public between 1996 and 1998 and 75 hotels and restaurant chains that went public between 1994 and 1998. Of the 95 software firms, 43 were computer programming firms (SIC: 7371) and 52 were computer integrated design firms (SIC: 7373). Of the total 75 hotel and restaurant chain IPOs in my sample, 25 were hotel chains and 50 were restaurant chains. For a full listing of all the IPO firms in my sample, see Appendix I

To this point in the organizational literature on IPOs, the most popular industry to study has been biotechnology (e.g., Finkle, 1998; Stuart, Hoang, and Hybels, 1999; Higgins and Gulati, 1999). Although this industry has an abundance of data sources that make it fertile for study, focusing exclusively on it to understand IPOs can lead to overgeneralizations of biotech-specific factors to other industries in the literature. This thesis will help to explore the IPO phenomenon through the lenses of other industries to potentially greatly improve our perspective on IPOs.

#### **IV.II Sources:**

The data for firms in my industries that went public between 1994 and 1998 came from multiple sources. The firm IPO valuation and post-IPO performance data came from two *Securities Data Corp.* databases: VentureXpert and Global New Issues. To avoid sample selection bias, it was important to collect information on the private firms that existed prior to and during my 1994 - 1998 IPO window, to control for other factors that might be leading to firms going public. These private firm data came from the *D&B Million Dollar Directory*.

The primary source for firm's upper-echelons' characteristics came from the firms' IPO prospectuses (i.e., the S-1 or SB-2 filings with the Securities and Exchange Commission), which contained detailed biographical information on the officers and directors of the IPO firms. Securities and Exchange Commission filings are public documents and are available from multiple sources: the EDGAR Database with the Securities and Exchange Commission, *EDGAR-Online*, *FreeEDGAR*, *Laser-D*, and *Compact Disclosure*. The S-1 filing must contain information on the officers' last 5 years of work experience, but not always information on their earlier background or educational background.

#### **IV.III Measures:**

I will now discuss the dependent, independent, moderating, mediating, and control variables and their measures for the current study. For a complete listing of the proposed constructs used for the study with their variables and measures, see Table 9.

##### *IV.III.1 Dependent Variables:*

###### *IV.III.1.1 IPO Valuation:*

I measured IPO valuation, following Stuart *et al.* (1999), as the market capitalization of the IPO firm, defined as:  $V^* = (p_u q_t - p_u q_i)$ , where  $p_u$  is the IPO subscription price,  $q_t$  is the total number of shares outstanding, and  $q_i$  is the number of shares offered in the IPO. The value of the firm,  $V^*$ , equals the market value of shares at offering, not including the amount of funds raised by the firm in the IPO (Stuart *et al.*, 1999; Higgins and Gulati, 1999). This is the firm's market capitalization at the time of IPO, less the proceeds to the firm as a result of the IPO, which makes the measure a cleaner measure of the market's assessment of the firm's future potential net of the cash raised in the IPO.<sup>22</sup> In this variable, and with all appropriate variables in my analyses, I

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<sup>22</sup> For a more detailed description of this measure, see Stuart *et al.* (1999).



transformed dollar-based values into 1996 constant dollars. This measure had to be logged prior to regression analyses.<sup>23</sup>

#### *IV.III.I.II Post-IPO Performance:*

I measured a firm's post-IPO performance in two different ways: its stock performance and its operating performance. These two basic performance types have been used to measure an IPO firm's post-IPO performance in previous research (Andrews, 1995; Zimmerman, 1998). Following Sirower's methodology (1997) which measured firm performance following a merger or acquisition, I have measured post-IPO performance both one and two years post-IPO. By choosing one and two years out as my measures of post-IPO performance, I intend to capture a more complete picture of how a firm's performance is affected by the upper-echelons capital variables over time. A large majority of previous research on post-IPO performance has only examined long-term performance one year after an event. It has also tended to focus on *either* stock performance *or* profitability measures of performance as the performance measure. A more complete view of the effects of upper-echelons effects can be captured by incorporating *both* perspectives, as well as long-term sales growth.

I measured post-IPO stock performance as a firm's total shareholder returns. I measured operating performance in two ways: (1) sales growth in percentage terms and (2) profitability measured as return on sales. Both measures have been commonly used in the study of new venture and IPO firm performance (e.g., Eisenhardt and Schoonhoven, 1990; Zimmerman, 1998). Return on sales is a more preferable measure of profitability for IPO firms than either return on assets or return on equity because firms in high-tech industries sometimes possess very few assets or common equity when they go public (Eisenhardt and Schoonhoven,

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<sup>23</sup> I also measured IPO valuation as the net proceeds gained by the firm holding an IPO. Such a measure captures how much cash a firm gains from the IPO event for the purposes of running the business, rather than estimating the firm's market capitalization. However, it turned out that this measure was highly correlated with IPO valuation ( $r > .99$ ), so I will only report the results of the market capitalization measure previously used by Stuart *et al.* (1999).

1990). This makes comparing the return on assets or equity between industries of differing uncertainty problematic. All measures of post-IPO performance had to be logged prior to analyses, except for the profitability measures, which needed to be reverse-scaled and logged.<sup>24</sup>

#### *V.III.II Upper-Echelons Capital Variables:*

As I defined earlier, the upper-echelons capital concept represents a combination of a firm's top management team capital and board capital. Top management team/board capital consists of two parts: top management team/board human capital and top management team/board social capital (See Table 9). As I mentioned previously, I operationalized top managements teams as those officers listed in the company's IPO filing who had the title "vice president" or higher (including someone with a dual Chairman/CEO title). I operationalized the board as those who served on the board without also serving on the top management team (i.e., only outsider directors). Someone with the Chairman title alone was counted as a member of the board but not the team.

The top management teams in my sample averaged 5.96 members (sd = 2.64). The boards averaged 3.56 directors (sd = 1.50). The software firms tended to have larger teams, averaging 6.44 members (sd = 2.39), than the hotel and restaurant chains, averaging 5.31 members (sd = 2.82). Yet, the hotel and restaurant chains tended to have larger boards, averaging 3.79 members (sd = 1.46), than the software firms, averaging 3.38 members (sd = 1.52). The officers averaged 44.13 years old (sd = 5.02), with 17.08 years of formal education (sd = .83). The directors averaged 50.07 years old (sd = 7.01), with 17.44 years of formal education (sd = 1.03). The software firms tended to have younger teams (m = 43.99, sd = 4.86) and boards (m = 49.21, sd = 7.49) than the hotel and restaurant chains' teams (m = 44.33, sd =

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<sup>24</sup> There were some cases with my variables where their distributions were skewed to the right (i.e., a J-Curve skew), instead on being normally distributed. In these cases, it would have been inappropriate to log the variable, which is to be used when a distribution is skewed to the left. To handle this situation, I first reverse-scaled my distribution and then logged the variable. As a final step, I again reverse-scaled the distribution, to match its original order. This is the process I am referring to, when I use the term "reverse-scaled and logged."

5.26) and boards ( $m = 51.20$ ,  $sd = 6.20$ ). The software firms also tended to have teams with more years of formal education ( $m = 17.28$ ,  $sd = .73$ ) and boards ( $m = 17.56$ ,  $sd = 1.02$ ) than the hotel and restaurant chains' teams ( $m = 16.64$ ,  $sd = .90$ ) and boards ( $m = 17.16$ ,  $sd = 1.03$ ). I will now turn to a description of each of these upper-echelons capital types and their measures.

#### *IV.III.II.I Top Management Team/Board Human Capital:*

Top management team human capital consists of *Relevant Experience*, defined as the amount and kind of relevant industry experience, and *Percentage of Top Management Team Prior Joint Working Experience*. I will now describe my different measures for top management team human capital. I used three measures of a top management team's *Relevant Experience*. The first was a dichotomous measure of *Whether Any of the Team's Officers had Focal Industry Experience* (i.e., 0/1), which has proved to have a strong relevance to a firm's growth in other studies (Eisenhardt and Schoonhoven, 1990). This was calculated from the management biographies included in a firm's IPO registration statement.

The second measure of top management team *Relevant Experience* was a team's *Average Prior Position Level*. This measure captures an executive's experience in dealing with problems of differing scope. Eisenhardt and Schoonhoven (1996) found evidence that firms with top management team members who had higher-level prior positions were more likely to forge alliances with other firms. These authors argued that their higher previous positions gave these executives and, thus, their firms, greater prestige in the eyes of other actors. This prestige was translated into other actors forming more relationships with these firms compared to other firms. In the IPO context, Higgins and Gulati (1999) also found this variable was a positive predictor of performance in a sample of biotech firms. To measure an executive's average prior position level, I used a variation of the scale developed by Eisenhardt and Schoonhoven (1996) and subsequently modified by Higgins and Gulati (1999). This scale ranks positions on a 0 to 5 scale from low to high, beginning with a nonmanagement position and extending to the CEO/President

level. A description of this scale is listed in Appendix A. All top management team members in my sample were coded and the mean level of prior positions for the top management team was calculated.

The final measure of *Relevant Experience* is the team's *Average Focal Company Tenure*. Executives with greater company tenure will, by definition, enjoy a greater degree of industry experience. The measure is commonly used in research on effects of top management teams (e.g., Finkelstein, 1992).

As an additional measure of team human capital, I measured *Percentage of Top Management Team with Prior Joint Work Experience*. Again, Eisenhardt and Schoonhoven (1990) found that the top management teams in their sample who had a larger percentage of members which had worked together previously were linked to faster sales growth. The authors argued that these prior working relationships helped members know which roles they would each play in handling different sorts of problems confronted. Therefore, this was measured as the percentage of top management team members who had worked at the same company at the same time previously, according to their biographies.<sup>25</sup>

Board human capital is measured as *Relevant Experience*. I measured board *Relevant Experience* three ways: (1) *a Board's Average Age* (as a proxy for a continuous measure of industry experience), (2) *Whether Any Directors Have Focal Industry Experience* (i.e., as 0/1), based on the descriptions of the biographical entries, and (3) the *Board's Average Focal Company and/or Board Tenure*.

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<sup>25</sup> In the rare cases where top management team members had worked at more than one firm together previously, I used the percentage of one of the groups combined with half the percentage of the lesser group of current top management team members who had such joint experience. For example, in a top management team of 10 people, where there was one group of 3 people who had previously worked together at one company and there was another group of 2 people who had previously worked together at another company, I added 30% (the average of the larger group) with 10% (half the average of the smaller group), for a total average joint work experience measure of 40%.

#### IV.III.II.2 Top Management Team/Board Social Capital:

Upper-echelons social capital is defined as the combined *Industry* and “*Blue-Chip*” *Social Capital* of the firm’s top management team and board. *Industry Social Capital* is defined in a similar manner to how Higgins and Gulati (1999:14) define “intraindustry social capital” as an executive’s or director’s social ties, through his/her “employment and/or board memberships with prominent organizations in the firm’s same industry”. I also measure executive’s and director’s ties to prominent firms in my industries through their board ties and prior employment histories found in the IPO filing.<sup>26</sup> Similar again to Higgins and Gulati (1999), I created my list of prominent firms by generating a list of the top 30 firms by market capitalization from 1990 to 1994<sup>27</sup> in the computer integrated design (SIC code: 7373), computer programming services (SIC code: 7371), restaurant chain (SIC code: 5812), and hotel chain (SIC code: 7011) industries.<sup>28</sup> This listing of U.S. and international firms came from COMPUSTAT. Any organization appearing in the top 30 firms for their industry during this time period was considered prominent.<sup>29</sup> Firm size serves as a proxy for firm prominence here. Although I would have preferred to use some kind of annual ranking of firms’ prominence based on industry executives’

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<sup>26</sup> I recognize, however, that this definition of Industry Social Capital is an operationalization and does not capture the full sense of ties an executive or director might have with an organization’s key stakeholders (e.g., with government or non-profit organizations).

<sup>27</sup> It is important to note that my measurement of prominent firms precedes the start of my IPO window. This avoids the possible confound of a prominent 1995 firm being applied to a firm that went public in 1994 (i.e., prior to that firm becoming perceived as prominent). Any 1994 prominent firms would be taken from their performance in 1993 that preceded my first IPO firm in the sample.

<sup>28</sup> Sensitivity analyses examining the differences between using 30 as a cutoff point for these prominent firms, versus using 25 or 35 as cutoff points, showed no significant differences to the later results.

<sup>29</sup> The largest 30 firms from several years prior to my sample time period of 1994 to 1998 were used, assuming that there is a lag between a firm which is seen as prominent in one year based on some objective measure (such as firm size) and when actors stop seeing that firm as prominent even with a decline in firm performance in the interim, as new institutionalist scholars would argue (e.g., Meyer and Rowan, 1977).

perceptions as my measure of firm prominence, such a ranking was not available for my industries of study. Firm size, while not ideal, is an appropriate proxy for prominence, which has some precedence in being utilized by other researchers interested in firm prominence (Useem and Karabel, 1986). For example, Carter and Manaster (1990) find a high correspondence between investment banks' prominence, based on their positioning in tombstone advertisements, and their size, based on the size of the deals they managed. Because these top 30 lists change each year, the total number of firms to appear on these lists over these six years was larger than 30. These industries' lists of the prominent firms can be found in Appendix D. A top management team's or board's *Industry Social Capital* was measured as the *Average Number of Executive's or Director's Ties to Elite Firms in their Industry*, either through their prior or current work or board ties.

Social capital is argued to be social relationships that give individuals the ability to "claim access to resources" and what "the amount and quality of those resources" will be (Portes, 1998: 3 - 4). Clearly, one's social capital is not limited to those in one's industry. Relationships could exist with other prominent business leaders, bankers, creditors, lawyers, or government officials that would allow someone involved in a firm going public to have a significant advantage compared to someone without such ties. Such a view is compatible, of course, with resource dependence theory (Pfeffer and Salancik, 1978). I define top management team/board "*Blue-Chip*" *Social Capital* as an executive's or director's social ties, through his/her employment and/or board memberships with "blue-chip" firms outside the company's industry. I decided to measure "blue-chip" firms as those who were members of the *Fortune* 100.<sup>30</sup> For those directors who were venture capitalists, or investment bankers, I coded them as "blue-chip"

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<sup>30</sup> Although one might argue that coding the *Fortune* 500 would be a more appropriate measure of "blue-chip" social capital, the *Fortune* 100 is sufficiently popular among the general business community as a measure of prestige to be an adequate measure. In some ways, by focusing on the *Fortune* 100 instead of the *Fortune* 500, I am providing a much more conservative test of my "blue-chip" social capital hypothesis.

if either their venture capital firms were listed in the top 10 by capital raised for their funds between 1990 and 1994 (*Venture Capital Journal*, 1990; 1991; 1992; 1993; 1994),<sup>31</sup> or their investment bank qualified as prominent by the method outlined in the next paragraph.<sup>32</sup> Listings of these prominent firms and venture capitalist are included in Appendices E and F respectively.

For measuring the prominence of directors who were investment bankers, I considered using the top 10 banks listed in Carter *et al.*'s (1998) ranking of prominent investment banks.<sup>33</sup> Such a measurement is consistent with extant organizational studies (e.g., Stuart *et al.* [1999], Higgins and Gulati [1999]). However, I decided to create an alternative measure of investment bank prominence more tailored to my sample. For the 15 industries that most commonly held IPOs from 1994 to 1996, I tracked the lead underwriters for each of the offerings of a firm in these industries between 1990 and 1994 and ranked them according to their average proceeds from these IPOs (see Appendix H for the top 10 underwriters for these industries over this time). This ranking was calculated as the total proceeds raised by the underwriters of the IPOs divided by the total number of IPOs handled by that underwriter, based on statistics within the Global New Issues database from Securities Data Corporation. My underwriter ranking is included in Appendix J. A director from one of these top 10 investment banks from this list was considered prominent, as these banks were paid the most to take the firms in my sample public.<sup>34</sup> Similar to

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<sup>31</sup> My reasoning for selecting the top 10 firms per year by amount of new fund raised is based on a review of the funds raised between 1990 and 1994. For almost all years, the largest funds were part of the top 10 for that year. There was usually a considerable drop between fund sizes of those in the top 10 and those below (i.e., a drop of 50% or more). It was also important that I track these top 10 firms for several years, as venture capital firms only raise new funds every 3 to 4 years. My 5 year span should capture all the significant venture capitalists that would have been involved in the IPO firms in my sample.

<sup>32</sup> This time period was chosen, again, because it is a suitable amount of time before the IPO sample begins. I expect that a firm which is seen as prominent will continue to be seen as prominent for several years, even if it declines in prominence. Therefore, it is important for me to track the prominent firms for several years before my IPO sample begins.

<sup>33</sup> See Appendix G for a full listing of the Carter and Manaster (1990) rankings.

*Industry Social Capital*, a top management team's or board's "*Blue-Chip*" *Social Capital* was measured as the average number of executive's or director's ties to prominent firms outside their industry, either through their prior or current work or board ties.

#### *IV.III.III. Factor Analysis of Upper-Echelons Capital Variables:*

Because my sample of IPO firms is small when divided according to industry uncertainty, I was concerned with restricting my independent and control variables to preserve a sufficient number of degrees of freedom. With so many measures of upper-echelons capital, I attempted to run a set of factor analyses to see if the related measures loaded onto common factors. Initially, I attempted to create a single index for top management teams and another for boards of upper-echelons capital, encompassing my different measures of human capital and social capital. However, a common factor did not emerge for either top management teams or boards. When I divided up the measures into top management team/board human capital or social capital, a common factor also failed to appear. It was only when I further grouped the human capital and social capital measures into subgroups did I find a common factor.

Top management team human capital broke into two clear factors: (1) Relevant Experience and (2) Percentage of Top Management Team Prior Joint Working Experience. My three measures of top management team Relevant Experience were the team's having any focal industry experience among its team members, average prior position level, and average focal company tenure. The eigenvalue for the single factor extracted by Principal Components Analysis was 1.24, with the second factor's eigenvalue being .943.<sup>35</sup> The percentage of the top

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<sup>34</sup> There was also a significant decline between investment banks in the top 10 and those outside the top 10 of my listing of those with the highest average proceeds per IPO, making me comfortable in selecting this number as an appropriate cutoff point.

<sup>35</sup> In analyses not reported here, I included a team's average age to a factor analysis with the other three measures of top management team industry experience/company tenure, to see if this factor was partially explained by the age of the team members. It turned out that age did not load on to a single factor, suggesting this factor is not being driven by age.



management team with prior joint working experience was measured as a stand-alone variable, as it did not load on to another top management team human capital factor.

Board human capital broke into a common factor for Relevant Experience. My three measures of board Relevant Experience were whether any director had focal industry experience, average focal company and board tenure, and average age. The eigenvalue for the single factor extracted was 1.34 and the second factor's eigenvalue was .993.

Top management team social capital broke into two clear factors: (1) industry social capital and (2) "blue-chip" social capital. My two measures of top management team industry social capital were the team's average board ties to prominent focal industry firms and average past work ties to prominent focal industry firms. The eigenvalue for the single factor extracted by Principal Components Analysis was 1.71, with the second factor's eigenvalue being .293. My two measures of top management team "blue-chip" social capital were the team's average board ties to "blue-chip" firms and average past work ties to "blue-chip" firms. The eigenvalue for the single factor extracted was 1.14 and the second factor's eigenvalue was .863.

Board social capital also divided into the same two clear factors: (1) industry social capital and (2) "blue-chip" social capital. My two measures of board industry social capital were the board's average interlocking ties to prominent focal industry firms and average past work ties to prominent focal industry firms. The eigenvalue for the single factor extracted was 1.36 and the second factor's eigenvalue was .641. My two measures of board "blue-chip" social capital were the board's average interlocking ties to "blue-chip" firms and average past work ties to "blue-chip" firms. The eigenvalue for the single factor extracted was 1.08 and the second factor's eigenvalue was .924. Thus, once the factor analyses were completed I had measures for top management team human capital, board human capital, top management team social capital, and board social capital.

#### IV.III.IV. *Ties to Prestigious Third Parties:*

The mediating variable in my model is a firm's ties to prestigious third-party actors. I have measured the two most important types of prestigious third parties a firm can have when undergoing its IPO: its underwriter and its venture capital investors. The prestige of these third parties have been found to be strong predictors of IPO valuation and post-IPO performance (Beatty and Ritter, 1986; Carter, Dark, and Singh, 1998; Pollock, 1998; Stuart *et al.*, 1999). To measure *underwriter prestige*, I used the ranking system I developed in place of the system developed by Carter and Manaster (1990) and refined by Carter, Dark, and Singh (1998).<sup>36</sup> Appendix H shows the top 10 underwriters for the IPOs of firms within the 15 industries that most often held IPOs from 1994 to 1996, according to the average proceeds raised by the underwriter on the IPO for IPOs between 1990 and 1994. In other words, this measure of the average underwriter's proceeds from the IPOs is an indirect measure of the proceeds raised by their firms holding the IPO, as underwriters are paid for between six and seven percent of the total offering size. This measure of prominence is a good representation of which underwriters get paid the most for taking a firm to market, and, therefore, which underwriters IPO firms value most. This measure is preferable to the Carter and Manaster (1990) ranking because it is more relevant to my sample. This measure was also logged prior to running my analyses.

As a second measure of ties to prestigious third parties, I measured whether or not an IPO firm has *backing from a prominent venture capitalist* at IPO. Previous studies have found that having venture capitalists associated with a firm at IPO positively predicts having a prestigious underwriter and more institutional investors following an offering (Megginson and Weiss, 1991). By aligning itself with a prominent venture capitalist's certification through investment, an IPO firm can credibly signal that it is of high enough quality to have passed a

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<sup>36</sup> See the end of section IV.III.II.II, for a complete description of how I calculated the top 10 prestigious IPO underwriters for the 15 industries I was most interested in and see Appendix J for the full underwriter ranking I used.

venture capitalist's round of due diligence. To determine whether a firm had a prestigious venture capitalist associated with it, I created a list of top venture firms, using *Venture Capital Journal's* annual ranking of venture firms according to the amounts raised for their new funds from 1990 to 1994. Every 3 to 5 years, venture capital firms must raise money for funds they are starting to invest in future investment opportunities. How much a venture capitalist raises for a particular fund depends on recent returns for the entire venture industry and on that firm's historical returns. Therefore, new capital raised depends heavily on a venture capital firm's past performance (tracking previous funds' entire lives, which can be up to a decade old). I coded the top 10 venture capital firms for each year from 1990 to 1994, based on their capital raised for new funds, and my final list of prestigious venture capitalists included all of the firms appearing on my lists for each year (47 firms total).<sup>37</sup> It is appropriate to look at capital raised over several years, because venture capital firms do not raise capital every year. If I only used listings of venture capital firms from a few years, I might fail to include a prestigious venture capitalist that was flush with capital at the time of my measurement. However, all prestigious firms will raise capital over a five year period, so I can be reasonably be assured that my final list is not missing important firms. This list is included in Appendix F. Any venture capitalist with at least a 5% ownership stake in one of the IPO firms in my sample was coded "1," if it was ranked in my prestigious venture capitalist listing, and "0" otherwise.<sup>38</sup>

There was an extremely high correlation between the firms backed by prominent venture capitalists and backed by prestigious underwriters ( $r > .81$ ). Therefore, in an effort to

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<sup>37</sup> In supplemental analyses, I also coded the top 15, top 20, and top 25 venture firms to see how it affected the results of my analyses. No significant differences appeared to be present and so only the results of the top 10 are presented in Tables 17 through 25.

<sup>38</sup> I also tracked whether a sample IPO firm had *any* venture capitalist-backing or not. Generally, whether a firm was back by a prominent venture capitalist or any venture capitalist, the same management and board variables were equally predictive. However, the upper-echelons variables were *stronger* predictors of a firm having ties to a *prominent* venture capitalist, showing that more prestigious venture firms seek out and/or are attracted to more prominent management teams and boards.

conserve degrees of freedom in my later analyses, I combined these two variables into a common factor called *prestigious third-party ties*. The eigenvalue for the single factor extracted by Principal Components Analysis was 1.28, with the second factor's eigenvalue being .725.

#### *IV.III.V. Control Variables:*

For my control variables, I first included a variable for *firm age*. Older firms have the opportunity to overcome several of the liabilities of newness that younger firms are still prone to experience (Stinchcombe, 1965). These more mature firms can form and solidify key relationships with buyers, suppliers, lenders, and other key stakeholders in the community in which the firm operates. Because of their longer track record, these more established firms, like Goldman Sachs and UPS mentioned earlier, can expect to raise substantially more money at IPO than younger firms. I measure firm age as an IPO firm's years since founding.

Similar to firm age, *firm size* might also affect the value of a firm's IPO, because larger firms display the success of their business model. There is less uncertainty surrounding larger firms compared to smaller firms, which would affect how much a potential investor would discount their future earnings. I measure firm size by the IPO firm's revenues from its latest year listed in its prospectus. The revenues were transformed into 1996 constant dollars and logged.

Additionally, I coded firms for their *pre-IPO capitalization*. Firms come to market with different amounts of venture capital funding. Generally, venture capital funding is doled out over several rounds. If firms are rushed to market quickly with less funding, they have less of a chance to build up their relationships with stakeholders and develop their own internal infrastructure. Thus, those firms with greater funding, similarly to firm size, have more resources to draw from, which should be reflected in their value at IPO. Data on venture capital-backed firms' pre-IPO capitalization came from *Securities Data's* New Issues database. This variable was transformed into 1996 constant dollars. My measures of firm age, firm size, and pre-IPO capitalization were highly intercorrelated ( $r > .39$ ), so I created a factor index of the

three measures called *pre-IPO potential*. The eigenvalue for the single factor extracted by Principal Components Analysis was 1.53, with the second factor's eigenvalue being .957.

Hot IPO markets have been demonstrated as a major influence on IPO returns (Ritter, 1984), therefore I wanted to control for the environmental conditions in which the IPO firm went public. I measured the *general IPO market* as the average net proceeds gained for IPOs in the particular year a firm held its initial offering (transformed into 1996 dollars). The market for IPOs between 1994 and 1998 generally increased over time, from a low of 116 IPOs in 1994 to a high of 723 IPOs in 1996. The total number of IPOs for each year is depicted graphically in Figure 3. The IPO market is also heavily influenced by the *general market conditions*. For example, the NASDAQ's unprecedented rise in 1999 and early 2000 corresponded with a substantially large number of IPOs coming to market compared to earlier years. Therefore, I controlled for this factor as an influence on IPO valuation and post-IPO performance, by measuring the percentage gain/loss of the Dow Jones Industrial Average in the year prior to a firm's IPO. These two control variables were also highly correlated ( $r > .36$ ), so I created a common factor called *IPO Market Conditions*. The eigenvalue for the single factor extracted by Principal Components Analysis was 1.12, with the second factor's eigenvalue being .885.

As an additional control variable, I measured a *firm's profitability* at IPO as its net income after taxes in the year prior to its offering to control for it generating substantial profits with which it can invest in growing its business. I also measured the *IPO float* (i.e., the percentage of a firm's total equity sold at IPO). Some firms have been accused by analysts of only selling a small total number of shares in their IPOs in hopes of creating an artificially low supply of shares in the market that will help increase a stock's price. Although there is little evidence to support the effectiveness of such a strategy, I decided to include such a measure as a control in my analyses. This measure had to be reverse-scaled and logged prior to analysis.<sup>39</sup>

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<sup>39</sup> See footnote 24 for more explanation of what I did here.

Again, there was a high correlation found between these two measures, as more profitable firms tended to sell off more of their equity at IPO ( $r > .38$ ), so I created a common factor titled *IPO float and profitability* to protect my degrees of freedom in my analyses. The eigenvalue for the single factor extracted by Principal Components Analysis was 1.02, with the second factor's eigenvalue being .979.

Finally, for my regression runs which included post-IPO performance dependent variables, I captured data on the 1- and 2-year post-IPO performance of the Dow Jones Industrial Average, to control for general market conditions, and of the specific industry a firm operated in, to control for specific industry conditions. I found these two measures – *post-IPO general market conditions* and *post-IPO industry conditions* – were significantly correlated ( $r > .36$  and  $.23$  respectively), so I created 1- and 2-year factor scores. The eigenvalue for the single factor extracted by Principal Components Analysis for *1-year post-IPO conditions* was 1.36, with the second factor's eigenvalue being .639. The eigenvalue for the single factor extracted for *2-year post-IPO conditions* was 1.23, with the second factor's eigenvalue being .766. By reducing the number of control variables by combining them into several common factors, I was able to conserve my degrees of freedom in my analyses to further strengthen their reliability. For my post-IPO performance regression runs, I also included *IPO Market Valuation* as an additional control variable, as greater valuation would lead to greater cash resources being raised and greater perceived reputation as an industry participant.

#### **IV.IV Data Analysis and Hypotheses:**

In this study, I have two dependent variables (IPO valuation and post-IPO performance), one moderating variable (industry uncertainty), and one mediating variable (ties to prestigious third parties). For my three sets of analyses, I use a sample selection model. Ordinary least squares (OLS) analyses test the effects of top management team/board human capital and social capital on ties to prestigious third parties, IPO valuation, and post-IPO

performance. I pooled the observations cross-sectionally for the years 1994 to 1998. There are not multiple observations per firm and, therefore, there should not be a problem with autocorrelation or heteroskedasticity. Indeed, in comparing the full and partial plots of the residuals, I ascertained that heteroskedasticity was not an issue. Durbin-Watson tests confirmed that autocorrelation is not a problem, as values range between 1.8 and 2.05, which is within an acceptable range given the number of variables and the size of the sample.

#### *IV.IV.1. Additional Control for Unobserved Differences Between Private and IPO Firms:*

Of all the private firms that exist in the United States, only a very small percentage end up going public. However, I am only looking at the pool of firms from my industries that filed to go public with the Securities and Exchange Commission between 1994 and 1998. Does this raise the possibility that my findings might be biased in studying only the firms which went public, instead of all the firms (some of which survived and some of which had previously failed) which could have conceivably gone public during my sample time period? There might be a great difference in the management teams and boards of firms that go public and those that do not. Therefore, one might argue that my findings on the effects of management team and director backgrounds on firm performance are relevant only to IPO firms and do not generalize to the entire population of private firms that never choose to go public or are capable of going public. I readily agree with this statement. The purpose of this study is to learn more about which management team members and directors have the greatest effects on different firm outcomes in different industries. It is not necessary to demonstrate that these effects translate to all private firms to establish that they exist for firms undertaking IPOs -- although, this would be a natural extension of this study for future research.

However, to deal with this potential criticism, I included a Heckman-like OLS regression in my methodology to control for a potential "survivor bias" because of its two-stage process (Heckman, 1976; 1979; Lee, 1983). This method has been used by several other

organizational researchers when looking at a population of firms going public (e.g., Stuart, Hoang, and Hybels, 1999; Higgins and Gulati, 1999). The Heckman procedure guards against the OLS estimates being biased by unmeasured differences between firms that went public and firms that remained private during my time period studied. I also employed this extra control step to be able to speak more authoritatively on the differences that exist between my sample of IPO firms and the larger population of new ventures which could have potentially gone public during my time period studied.

I was able to collect data on a random sample of private firms in existence in my industries from 1994 (111 software firms, 132 hotel chains, and 178 restaurant chains for a total of 421 private firms).<sup>40</sup> I chose 1994 as the year for collecting private firm data because it was the first year of my time period, making any of these private firms capable of going public during my time period (1994 - 1998). Ideally, I would have gathered data on all private firms in my industries for as long as the industries existed, to guarantee I included all the private firms that might have gone public during my time period but did not. However, such a data collection task was not possible, as my source for the data (see below) did not exist with complete listings of private firms data prior to 1994. My private firm data were collected from the *D&B Million Dollar Directory: America's Leading Public and Private Companies*. For each of the private firms in my sample, I was able to capture information about their home state, founding date, 1994 revenues, and number of employees in 1994. These variables were then used with data from my IPO firms in the first stage of a logistic regression to determine the likelihood of a firm completing an IPO. The estimates of parameters from this first stage are incorporated into the second-stage regression model predicting the ties to prestigious third parties, or IPO valuation, or post-IPO performance (Van de Ven and van Praag, 1981; Higgins and Gulati, 1999). These

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<sup>40</sup> Of course, this data was collected of firms in 1993 and published in 1994, so all of these firms conceivably could have gone public between 1994 and 1998.



second-stage models have standard errors that represent only the firms that went public ( $n = 170$ )<sup>41</sup>, although the larger sample of public and private firms are included in the sample ( $n = 591$ ; i.e.,  $421 + 170$ ).

In the first-stage logistic regression, I estimated for the larger data set of public and private firms ( $n = 598$ ), the probability that a firm would go public. In this regression, I used geographical location (measured as whether any on the computer software firms were based in California or Massachusetts, which would give it an advantage in hiring from a larger talent pool and social contacts with which to compete against other firms), year of founding, revenues, a dummy variable for industry, and number of employees in 1994 to predict this likelihood, consistent with Higgins and Gulati's (1999) approach. In the first regression I ran, I found that a firm's revenues and geographical location did not significantly predict the likelihood of a firm going public. The other variables were all significant at the .001 level. Therefore, I dropped the non-significant variables and ran another first-stage regression predicting the likelihood of going public. In this regression, each of the predictor variables were associated with the likelihood of going public at the .00001 level. Number of employees and the software industry dummy variable positively predicted the likelihood of going public, and a firm's age negatively predicted the likelihood of going public. These predicted variables correctly classified 79.35% of the firms based on if they held an IPO, with a chi-square value of 141.854. The predicted probabilities from the first-stage regression were saved and became a final control variable, *predicted  $\lambda$* , in the second-stage OLS regressions, whose results are reported in the next chapter.

Tables 10 and 11 summarizes the variables tested in my first-stage regression analyses and the next chapter reviews the results of my analyses.

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<sup>41</sup> For a complete listing of my IPO firms, see Appendix I.

## **V. Results:**

There were some significant differences between the public and private firms in my sample, as well as interyear and interindustry differences. This chapter will describe these differences, summary statistics for the variables of interest, as well as all regression analyses results.

### **V.I. Differences Between Public and Private Firms:**

Looking at Tables 10 and 11, there are some differences in firm characteristics between my sample of firms holding IPOs and those remaining private. The firms in my sample going public tended to be younger (8 years old versus 21 years old,  $p < .001$ ), with more revenues (\$54MM versus \$27MM,  $p < .01$ )<sup>42</sup>, and more employees (1182 versus 525,  $p < .005$ ). A greater percentage of my 170 IPO sample firms tended be software firms (56%), than my 421 private sample firms (26%).

### **V.II. Differences Between IPO Years:**

The years of observation of IPO firms in my sample were 1994 through 1998. However, in examining the interyear differences between IPO firm characteristics in my sample, it is important to recognize the software firms were only from years 1996 through 1998. There were not SIC classifications for my software firms (7371 and 7373) prior to 1996. I included additional firms for the hotel and restaurant industries from 1994 and 1995 because there were not enough IPOs for those firms between 1996 and 1998 to base statistical comparisons on. As can be seen in Table 12, the most popular year in my sample to hold an IPO in these industries was 1996 (N=61). The least popular year in my sample to hold an IPO was 1995 (N=14). Nineteen ninety-six was also the year in which firms tended to have the highest revenues, market capitalizations, and profitability. The IPO firms tended to get younger as the sample went on,

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<sup>42</sup> NB: All dollars amounts presented in these results have been transformed into 1996 dollars.

but they also tended to have a greater percentage of prestigious underwriters taking the firms public over the course of my time period.

### **V.III. Differences Between IPO Industries:**

There were some major differences again of firm characteristics between my two contrasting industries: software versus hotel and restaurant chains. Table 13 shows that the higher uncertainty software industry tended to see younger firms go public compared to the lower uncertainty hotels and restaurants (8.58 years old versus 9.35). Software firms also had fewer revenues (\$53.5MM versus \$54.0MM) and fewer employees (464 versus 2131) at IPO than the hotels and restaurants. Yet, these software firms were valued with higher IPO market capitalizations and had more prominent venture capitalists associated with them (43% versus 11%), despite being less profitable than hotels and restaurants at the time of IPO (-\$1.63MM versus \$800K).

### **V.IV. Summary Statistics:**

Table 14 presents the means, standard deviations, number of observations, and minimum/maximum values for all the variables in my analyses. Some interesting observations about the summary statistics include: boards tended to have more educated members than the top management teams in the sample (17.44 years of formal education versus 17.08 years of formal education). Of those who listed their educational backgrounds in their IPO registration statements, more directors in my sample (54%) went to elite graduate schools than top management members (34%).<sup>43</sup> Of the total firms in my sample, 29% were backed by prominent venture capitalists. There was a fairly even split in industry type of the 170 sample firms, with 56% being software firms and the remainder being hotels and restaurants. The IPO sample firms were not profitable when going public: the average net income after taxes in the year prior to IPO for firms in my sample was -\$610,000.

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<sup>43</sup> The meaning of an "elite" graduate school will be defined later.

#### **V.V. Correlations:**

Table 15 presents the correlations table for all variables studied. Not surprisingly, there were high positive correlations between all IPO valuation and post-IPO performance dependent variables. Firms with prestigious underwriters also had high positive correlations with all IPO valuation and post-IPO performance measures. Although firms associated with prominent venture capital investors also had positive correlations with IPO valuations, there was no significant correlation with long-term stock growth, sales growth, or long-term profitability.

Interestingly, there were almost no significant correlations between top management team or board characteristics and the dependent variables. However, there were a few positive correlations between firms associated with prominent venture capitalists and a team's relevant experience and amount of industry social capital and a board's amount of relevant experience. Similarly, firms with prestigious underwriters tended to have boards with more relevant experience. Predictably, firms with ties to prestigious underwriters were highly likely to also have ties to prominent venture capitalists.

Firm pre-IPO potential had the strongest positive correlations with the dependent variables of any of the control variables. It was significantly positive with all dependent variables except the two long-term sales growth measures. The IPO float and firm profitability factor was also strongly positively correlated with a firm's IPO market capitalization and its long-term stock growth. A positive significant correlation was also observed between a "hot" IPO market (measured as the factor of average IPO proceeds for a given year and market conditions in the year of an IPO) and firm IPO valuation and 1-year post-IPO performance. One last observation to comment on is the positive relationship between 1-year post-IPO conditions, measured as the factor of the general market performance and industry performance in the year following an IPO, and a firm's 1-year post-IPO change in stock price. Market forces can predict how a firm's stock price will behave in the year following IPO, but this correlation disappears

after this period of time. Therefore, other factors might better explain a stock's longer-term price behavior than general or industry market conditions.

#### **V.VI. Regression Analyses:**

Tables 16 through 24 display results of the regression analyses. In the first of these tables, Table 16, I present the Logit estimates of whether a firm is backed by a prominent venture capitalist at the time of IPO. Model 1 includes all control variables and finds that underwriter prestige and industry uncertainty are positively significant in predicting firms receiving prominent venture capitalist backing. Model 2 shows a fully-functional model with all top management team and board variables included, as well as control variables. Interestingly, no upper-echelons variables predict firm alignment with prominent venture capitalists – although the adjusted  $R^2$  increases from .154 to .294. In Model 3, I include all interaction variables testing the effects industry uncertainty with the upper-echelons capital variables. Similar to Model 2, however, no significant differences are found based on industry differences.

In Table 17, and for the remaining regression runs, I shifted to an OLS analysis. The dependent variable also changed to become a firm's underwriter prestige at the time of IPO. In Model 1, several of the control variables are found to positively predict firm underwriter prestige: pre-IPO firm potential, firm profitability at IPO/IPO float,  $\lambda^{44}$ , and a firm's ties to a prominent venture capitalist at IPO. Yet, Model 2 finds no significant upper-echelons predictor variables in a fully-functional model, although several of the control variables (pre-IPO potential, firm profitability at IPO/IPO float, and prominent venture capitalist at IPO) remain positively significant. In Model 3, with the industry interactions, top management team industry social capital is a significant predictor of prestigious underwriter alignment for the higher uncertainty industry firms. But counter to my proposition, board industry social capital is found to positively

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<sup>44</sup> That is, the saved probabilities from the first stage regression estimating the likelihood of a firm holding an initial public offering.

attract prestigious underwriters for the lower uncertainty industries compared to the higher uncertainty ones.

Table 18 is the first of the remaining analyses with firm performance-related dependent variables. This first set of analyses is for a firm's IPO valuation, measured as its market capitalization less its net proceeds received from the offering. In Model 1, the underwriter/venture capitalist prestige factor is a positive predictor of IPO valuation, along with pre-IPO firm potential, and the lambda variable. Opposite to my propositions, the top management team's relevant experience was *negatively* significant in predicting IPO valuation in Model 2 (at the  $p < .10$  level). This could be partly explained by the fact that the software firms tended to have younger (and, thus, shorter tenured) management teams than the hotel and restaurant firms. But, top management team industry social capital is a positive significant predictor of IPO valuation as predicted. No significant industry differences appeared in upper-echelons characteristics driving performance in Model 3.

In Table 19, the dependent variable shifts to post-IPO performance. In this set of analyses, the OLS estimates are of the firm's one-year post-IPO stock performance. The control variables in Model 1 show pre-IPO firm potential and IPO market conditions at IPO predict one-year total shareholder returns. Models 2 and 3, however, find no significant upper-echelons characteristics that predict this longer-term stock performance. The one exception is that top management team prior joint work experience is found to be a positive predictor of stock performance for the lower uncertainty industry firms compared to the higher uncertainty industry firms. This was counter to my proposition.

Table 20 goes on to analyze the effects on two-year post-IPO stock performance. In Model 1, the significant control variable is the industry dummy variable. Of the upper-echelons variables included in Model 2, none is found to be a significant predictor. In Model 3, there is a positive link between top management team industry social capital and two-year post-IPO stock ,

as is performance in higher uncertainty industries compared to lower uncertainty industries. However, as in the analyses for one-year stock performance, management team joint work experience is found to be a predictor of long-term stock performance for lower uncertainty industry firms compared to higher uncertainty industry firms.

In Table 21, the dependent variable for post-IPO performance shifts to sales growth. In this table, one-year post-IPO sales growth estimates are presented. One of the first observations apparent in Model 1 is that only one of the control variables positively predicts the dependent variable: the firm's IPO market valuation. A firm's pre-IPO potential is actually found to be negatively related to its one-year post-IPO sales growth. In Model 2, the upper-echelons variables are regressed onto one-year sales growth and only team industry social capital is a significant positive predictor variable. And in Model 3, examining the differences in variables for the two contrasting industry types, team industry social capital is again found to be more valuable in growing sales for higher uncertainty industry firms than lower uncertainty firms, as is the board's relevant experience. The board's industry social capital is a stronger predictor of sales growth for lower uncertainty industries compared to higher uncertainty industries.

In Table 22, the dependent variable is two-year post-IPO sales growth. In Model 1, a firm's IPO market valuation is again positively significant, and a firm's pre-IPO potential is negatively significant control predictors. A team's industry social capital again displays strong effects on sales growth in Model 2. And a team's industry social capital is also a significant predictor variable for higher uncertainty industries compared to lower uncertainty industries in Model 3.

In Table 23, the dependent variable changes to one-year post-IPO profitability, measured as return on sales. Looking at Model 1, pre-IPO firm potential has returned to being strongly significant in a positive direction and *negative* market performance in the year post-IPO is significantly related to longer-term profitability. This latter result indicates that the greater the

market downturn in a particular year, the likelier it is that firm's that have gone public in the past year will be profitable. This suggests that unprofitable firms are unlikely to go public when the broader market has turned downwards. More certain industries are also found to be more likely to have higher profits than less certain industries. Additionally in Model 1, lower uncertainty industry firms are found to enjoy higher one-year post-IPO increases in profitability compared to higher uncertainty industry firms. Model 2 finds no significant results for the upper-echelons variables, but there are several in Model 3. In the third model for this dependent variable, team industry social capital and board relevant experience are stronger predictors of one-year post-IPO profitability for the higher uncertainty industry firms compared to the lower uncertainty industry firms. But team relevant experience and board industry social capital are stronger predictors of long-term profitability for the lower uncertainty industry firms compared to the higher uncertainty industry firms.

Finally, in Table 24, we see the results of the regression runs for two-year post-IPO profitability. In Model 1, we see that pre-IPO firm potential is a significant positive predictor of profitability. Turning to the upper-echelons variables in Model 2, no significant findings are found. And in Model 3, there are no differences between the industries for upper-echelons characteristics' effects on performance.

So, overall, there was not widespread support for upper-echelons capital effects on IPO firms' valuation or long-term performance. Figure 8 shows the significant results of upper-echelons capital characteristics' effects on IPO outcomes. Figure 9 displays the results of industry differences on this relationship. A positive relationship in Figure 9 indicates the relationship was significant for the high uncertainty software industry more than the low uncertainty hotel and restaurant industry; a negative relationship indicates the relationship was significant for the low uncertainty industry. The strongest predictor variable by far was the top management team's industry social capital, which predicted short-term IPO valuation, as well as



long-term performance, including one- and two-year post-IPO sales growth. Team industry social capital was also found to be more important for the higher uncertain software industry compared to the lower uncertainty hotel and restaurant industry for prestigious underwriter ties, post-IPO two-year stock performance, one-year and two-year sales growth, and one-year profitability. Board industry social capital, by contrast, was found to be a stronger predictor of underwriter prestige, one-year sales growth and one-year profitability for the lower uncertainty hotel and restaurant industry. These two different types of industry social capital and their different effects raise the possibility that perhaps there were effects of different types of upper-echelons capital that I was not capturing in my base set of analyses. Therefore, I decided to perform a series of additional analyses to further explore alternative ways that upper-echelons capital might affect IPO firm performance.

#### **V.VII. Threshold/Ceiling Effects Analyses:**

As mentioned earlier in my Theory chapter, I wanted to ensure that my propositions, which assume a linear relationship between upper-echelons capital variables and my dependent variables, properly fit the data. It is quite possible that there might be some limits, beyond which greater amounts of upper-echelons capital do not have an increased effect on a particular IPO firm outcome. For example, perhaps, after having 3 esteemed, “blue-chip” directors from *Fortune 500* firms on an IPO firm’s board, there is little additional value to the company in promoting a fourth such director. Conversely, there might be a minimum amount of upper-echelons capital required to have an effect on other IPO firm outcomes.

In order to better understand my data and interpret the results of my base set of analyses, I explored the possibility that threshold or ceiling effect relationships might exist between the upper-echelons variables and the outcome variables. The straight OLS regressions in the base set of analyses might have overlooked the possibility that certain upper-echelons variables are highly predictive on an IPO outcome when they have reached a threshold level or,

by contrast, before they reach a ceiling level. In order to test for these possibilities, I took each of my upper-echelons capital variables and divided them into their quartiles.<sup>45</sup> These quartiles then became four new variables, and I performed a linear regression with my control variables, all my upper-echelons variables, and three of the four new quartile variables.<sup>46</sup> By looking at the results of the different quartile variables, I was able to see whether their effects on the dependent variable were becoming stronger or weaker as the quartiles increased. In some cases, there were sharp differences in the effects of the upper-echelons variables depending on what quartile they fell in. The significant findings for my different upper-echelons variables are reported below and presented in Figure 10.<sup>47</sup>

Top management team relevant experience was one of the upper-echelons variables that in my first set of analyses failed to significantly predict any IPO firm outcomes. However, when analyzed in separate quartiles, the top three quartiles for team relevant experience all positively predicted one-year and two-year post-IPO stock performance ( $p < .04$  and  $p < .01$  respectively). In both cases, the bottom quartile firms with team relevant experience did not experience significant post-IPO stock growth. Additionally, I found that only those firms with teams that ranked in the upper quartile for team relevant experience significantly predicted one-year and two-year post-IPO profitability ( $p < .05$ ). These findings suggest that the stock market has an appreciation for only those firms' teams in the 25<sup>th</sup> percentile or higher for relevant experience.

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<sup>45</sup> In other analyses not reported here, I experimented with sensitivity tests that divided my data into thirds or quintiles to ensure that I was selecting the most appropriate cut point. The results for when the data were divided into thirds or quintiles, the results were not markedly different from when the data was divided into quartiles. Therefore, I will only present results from when the data were divided into quartiles.

<sup>46</sup> I omitted either the lowest or highest quartile variable from the regression. This omitted variable effectively acted as the missing dummy variable in the analysis.

<sup>47</sup> To see the complete regression results for these threshold effects analyses, please see Appendices M through R.

However, only those firms in the 75<sup>th</sup> percentile or higher appear to be statistically linked to higher profitability levels.

Board relevant experience is another upper-echelons variable that was not a strong predictor of IPO firm outcomes in my base set of analyses. Yet, in looking at its quartile effects, I was able to determine that the upper three quartile firms for board relevant experience were better able to attract prestigious underwriters at IPO ( $p < .01$ ) and see better two-year post-IPO stock growth ( $p < .05$ ). This finding might suggest that prestigious underwriters might be more influenced by the members of a firm's board rather than its team when deciding whether to take a firm public.

A final upper-echelons characteristic that I tested to see its differential quartile effects was team prestigious education. I found that there were some interesting threshold effects of team prestigious education. Firms in the upper quartile for prestigious educated teams were able to attract prestigious underwriters to take a firm public ( $p < .06$ ). None of the other quartiles had a significant influence on a firm's affiliating with a prestigious underwriter. But the upper-three quartiles of firms with prestigious educated teams enjoyed higher IPO valuations ( $p < .05$ ).<sup>48</sup>

The other variable that I was able to study its threshold effects on IPO firm performance was an underwriter's prestige, as its continuous nature lent itself to such an analysis. I saw the greatest threshold effects in this variable. Those underwriters in the upper 50<sup>th</sup> percentile in terms of their prestige enjoyed the highest IPO firm valuations ( $p < .001$ ), while those in the lower 50<sup>th</sup> percentile of prestige did not have a significant effect on their IPO firm valuations. However, the upper quartile group of prestigious underwriter seem to be best able to predict or influence an IPO firm's long-term performance on many fronts. This upper quartile group of prestigious underwriters were linked to higher one-year and two-year post-IPO stock growth ( $p <$

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<sup>48</sup> As discussed later in this chapter, these results for prestigious education can only be taken as speculative, due to a small number of firms that reported educational backgrounds of their officers.

.08 and  $p < .04$  respectively). In fact, those IPO firms backed by the third and fourth quartile investment banks according to their prestige had *negative* two-year post-IPO stock growth ( $p < .04$ ). The upper quartile group of investment banks was also linked to higher one-year and two-year post-IPO sales growth ( $p < .02$  and  $p < .01$  respectively)<sup>49</sup>.

So there were several examples of threshold effects where a minimum amount of an upper-echelons capital characteristic – or prestige, in the case of the underwriters – was required to demonstrate the relationship with IPO firm outcomes suggested in my propositions. Team and board relevant experience seem especially sensitive to have a threshold amount before they influence IPO firm outcomes. It is important to point out that ceiling effects of upper-echelons capital characteristics were not evident in my analyses. Therefore, it appears that greater amounts of upper-echelons capital do not appear to harm a firm's performance, although different types of upper-echelons capital appear to have differential effects on IPO firm outcomes.

#### **V.VIII. Supplemental Analyses: Effects of Prestigious Team Education**

I performed an additional set of supplemental analyses focusing on additional ways in which a team's amount of prestigious education characteristics might influence IPO firm outcomes. One of the traditional upper-echelons variables that I was not able to include in my base set of analyses was team and board education. The reason for this omission was due to the fact that this demographic feature of team members and directors is not commonly reported in the public filings IPO firms make with the Securities and Exchange Commission. Of the total 170 firms in my sample, only 45 firms included formal education descriptions of their officers or directors. Of these 45 firms, almost none included education information on their directors. This led to a significant reduction in my available degrees of freedom, when I included educational variables with my main upper-echelons variables. I decided therefore to leave formal

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<sup>49</sup> These results are not reported here, as they are not directly related to my study of upper-echelons capital characteristics.

educational variables out of my base set of analyses and include them for the top management team only in a separate set of supplemental analyses. What follows is a brief background review of top management team educational backgrounds and their effects on firm performance in the recent literature. I will then review my analyses of team prestigious educational effects on IPO performance.

As referred to in Becker (1964:1), combined amount and quality of education are an important part of human capital. There have been several studies finding a link between the top management team members' educational backgrounds and their firms' outcomes. Gimeno, Folta, Cooper, and Woo (1997) surveyed 4814 entrepreneurs who ran their own firms in 1985 to see how their human capital, measured as educational backgrounds and motivation, was related to the likelihood of their exiting their companies in future years. The authors proposed that an entrepreneur's general and specific human capital should be negatively related to his/her likelihood of exiting the business, because human capital translates into better decisions that lead to increased performance over time. The authors measured general human capital as total number of years of education and specific human capital as industry tenure; both were negative predictors of subsequent business exit for the entrepreneurs.

In addition to the amount of top management team member education affecting a firm's strategic choices, at least one study has found that the prestige of an executive's education has an effect. In a sample of 105 *Fortune 500* firms between 1963 and 1968, Palmer, Jennings, and Zhou (1993) found that companies whose CEOs had MBAs from a small set of elite schools were relatively more likely to adopt the multidivisional corporate form (M-form) – an administrative innovation – than others without such a background. The authors suggest that those with MBA from elite schools have an awareness of better information that makes them better managers substantively – therefore, raising their human capital. Those with MBAs from

elite business schools might also raise their social capital through access to the social and business elite (Useem and Karabel, 1986).

For these analyses, I decided to create a measure of the quantity of formal education, as well as the quality of formal education, that would combined increased human and social capital to executive making decisions on an IPO firm's behalf. I measure top management team *prestigious education* as the amount and prominence of an executive's formal education that he/she would draw on in making decisions. Besides substantive skills acquired through a higher education, an executive might also acquire prestige and social contacts associated with particular schools or programs. More prestigious universities are thought to provide a higher quality education than less prestigious universities, although these reputations might be loosely-coupled with the actual education quality. Therefore, alumni of prestigious universities might be seen to make better decisions than those who are alumni of less prestigious universities. Prestigious universities are also thought to provide the setting in which their students can form social ties with other students who will go on to attain positions of prominence in society after graduation. Thus, a Harvard MBA graduate might be seen as a more attractive candidate for a job because of his/her ties to former business school classmates, than a holder of an MBA from a less prestigious university. I measured prestigious education as the number of years of education and the prominence of the universities attended.

The first measure of prestigious education is the top management team's *Average Total Years of Formal Education*. This measure has been used by other scholars studying the effects of human capital (Useem and Karabel, 1986; Michel and Hambrick, 1992). My second measure of prestigious education is the team's *Percentage from an Elite College*. This was measured by determining how many executives on the team attended an elite college. I determined that an executive attended an elite college if it appeared on Finkelstein's list of prestigious colleges (1992). This list of colleges is included in Appendix B. My final measure of prestigious

education was the team's *Percentage from an Elite Graduate School*. To do this, I classified the top American graduate programs in business, law, engineering, computer science, and general graduate school education (which I used for my "other" graduate program classification), according to the rankings in the *Gourman Report* (Gourman, 1989; 1993), published every 3 - 4 years. This report has been used by prior researchers interested in measuring the prestige of graduate education (e.g., Higgins and Gulati, 1999). I used the *Gourman Report* rankings from 1989 and 1993 to come up with a list of the most prominent schools in business, law, engineering, science, computer science, and other. If a school appeared in the top 15 schools for a particular category in 1989 or 1993, it was classified as prominent for that particular category. A listing of these prominent programs is included in Appendix C. An executive was coded as either attending one of these prominent or not, and the team score was averaged across its members' individual scores.

My three measures of top management team prestigious education (team's average years of formal education, percentage from an elite college, and percentage from an elite graduate school) appeared to load onto one common factor, so I decided to combine them. The eigenvalue for the single factor extracted was 1.83 and the second factor's eigenvalue was .730. There were no direct effects of a team's amount of prestigious education on any of my IPO firm outcomes.

#### **V.IX. Review of Results in light of Propositions:**

Overall, these results suggest several significant effects of upper-echelons capital variables, although not uniformly. Team characteristics seem to be stronger predictors of a firm's IPO valuation and post-IPO performance than board characteristics. Yet board characteristics appear to be strong predictors of IPO firm outcomes under certain conditions. Prominent venture-backed firms tend to predict a firm having a prominent underwriter at IPO and vice-versa. Team industry social capital had direct effects on IPO valuation and longer-term

firm performance. Some of the most interesting effects of upper-echelons capital characteristics are in the threshold effects and supplemental analyses. See Table 25 for a complete review of the results compared to the propositions.

Propositions 1a and 1b examine the relationship between team human capital and IPO valuation and post-IPO performance. No significant direct effects between the team human capital variables and a firm's post-IPO performance were found in the base set of analyses. However, there were significant threshold effects for team human capital effects and post-IPO firm performance. For the upper one, two or three quartiles, there were significant positive links found between team relevant experience and one-year and two-year post-IPO stock performance *and* profitability. So, overall, taking the threshold effects analyses into account, there is mixed support for Proposition 1a.

The top management team's amount of relevant experience was found to be linked in a *negative* manner to IPO firm valuation in the base set of analyses. However, in the supplemental analyses, the team's amount of prestigious education was positively linked to a firm's ties to a prestigious underwriter and to its IPO valuation. Therefore, mixed support was found for Proposition 1b.

Propositions 2a and 2b examine the relationship between board human capital and IPO and post-IPO performance. A board's amount of relevant experience was found to have a direct *negative* effect on the two-year post-IPO sales growth. However, those firms with a board that ranked in the upper quartile of all firms for relevant experience were significantly likelier to have higher two-year post-IPO stock growth. Therefore, there was again mixed support for Proposition 2a. There were no direct effects of board human capital on IPO valuation in the base set of analyses. However, in the threshold effects analyses, a board's relevant experience was positively linked a firm's ties to a prestigious underwriter, for those firms in the upper quartile



for that characteristic. The ties of the underwriter, in turn, had a direct effect on that firm's IPO valuation. Therefore, mixed support was found for Proposition 2b.

Propositions 3a and 3b refer to the effects of team social capital on IPO valuation and post-IPO performance. Top management team industry social capital was found to be a positive predictor of one-year and two-year post-IPO sales growth. Therefore, I can conclude support for Proposition 3a. In the base set of analyses, there was a direct effect of team industry social capital on a firm's IPO valuation. So, there was support found for Proposition 3b.

Propositions 4a and 4b refer to the effects of board social capital on IPO valuation and post-IPO performance. No significant direct effects were found for the board social capital variables in the base set of analyses for post-IPO performance or IPO valuation. So, no support was found for Proposition 4a and Proposition 4b.

Propositions 5a and 5b refer to the differences between the effects of upper-echelons capital variables on IPO valuation and post-IPO performance depending on industry uncertainty types. The propositions suggest that the effects of the upper-echelons capital variables should be stronger for the software firms (characterized by higher industry uncertainty) than the hotel and restaurant chains (characterized by lower industry uncertainty). There were several finding that ran counter to Proposition 5a, referring to upper-echelons characteristics positively influence post-IPO performance for higher-uncertainty industries. Top management team prior joint work experience was linked to one-year and two-year post-IPO stock performance for lower uncertainty industries rather than higher uncertainty industries. A team's relevant experience was also a more significant predictor of one-year post-IPO profitability for the lower uncertainty industries. And a board's industry social capital influenced a firm's post-IPO one-year sales growth and one-year profitability for the lower uncertainty industries more than higher uncertainty industries. However, in line with my proposition, top management team industry social capital was linked to two-year post-IPO stock performance *and* one-year and two-year

post-IPO sales growth and one-year profitability for the higher uncertainty industries than lower uncertainty industries. And, a board's relevant experience was positively linked to a firm's one-year post-IPO profitability for the higher uncertainty industries. Therefore, mixed support was found for Proposition 5a.

For proposition 5b, which focuses on differential industry effects on IPO valuation, the results were again inconclusive. Top management team industry social capital influenced the firm's affiliation with a prestigious underwriter for the higher uncertainty industries; but the board's industry social capital was more important in influencing a firm's ties to prestigious underwriters for the lower uncertainty industries. This is an interesting result, as it suggests that underwriters for the software industry like seasoned managers with industry experience and contacts, while underwriters for the hotel and restaurant industry like these same characteristics on members of the board. So, mixed support was also found for Proposition 5b.

Propositions 6a, 6b, and 6c examine the mediating effect of firm ties to prestigious third parties on the relationship between upper-echelons capital variables and IPO valuation and post-IPO performance. Proposition 6a states higher levels of upper-echelons capital yield firm ties to more prestigious third parties. There were no direct effects of my upper-echelons characteristics on my two measures of prestigious third-party ties. However, the upper quartile of firms with team prestigious education and board relevant experience were able to attract prestigious underwriters for their IPOs. So, I can conclude moderate support for Proposition 6a.

In Proposition 6b, I predict that high levels of firm ties to prestigious third parties yield superior post-IPO firm performance. There were no significant direct relationships between prestigious third party ties and post-IPO performance in my base set of analyses. However, in my test of threshold effects, I found that those firms affiliated with prestigious underwriters in the upper quartile has consistent significant positive effects on post-IPO performance variables,

including one- and two-year stock performance. So, altogether, these results suggest mixed support for Proposition 6b.

Proposition 6c states that high levels of firm ties to prestigious third parties yield superior IPO firm valuation. In the base set of analyses, I found that those firms with ties to prominent venture capitalists tended to also have ties to prestigious underwriters, and vice-versa. And my prestigious venture capitalist/underwriter affiliation factor was a highly significant positive predictor of IPO valuation. In the threshold effects analyses, I found that those firms with underwriters from the upper 50<sup>th</sup> percentile in terms of prestige were significantly linked to higher IPO valuation ( $p < .001$ ), whereas those firms with underwriters from the lower 50<sup>th</sup> percentile were not significantly linked to higher IPO valuation. So strong support can be established for this final proposition. For an illustration of the major findings emerging from my analyses, please review Figure 8.

In the next chapter, I move on to a discussion of these results, the limitations of this research, and new research avenues to pursue given the findings of this research.

## **VI. Discussion:**

This research posited that the upper-echelons of the firm play a critical role in the success of the firms that hold initial public offerings. Such firms tend to be smaller (in revenues and employees) and younger, relative to *Fortune 500* firms which have been more extensively studied in the literature on upper-echelons. Therefore, this study represented one of the most detailed and extensive studies of the effects of upper-echelons on firm performance at the early-stage of the firm's lifecycle. For the sake of parsimony, I proposed a new concept that categorizes different types of upper-echelons variables that affect performance: upper-echelons capital. Upper-echelons capital encompasses human capital and social capital variables. The results presented here display that there are strong effects of both top management teams' and boards' human capital and social capital on a firm's IPO valuation and post-IPO performance in different contexts.

There were several major themes that emerge out of this study's results.

### **VI.I. Lack of Support for a Universal Upper-Echelons Capital Concept:**

Upper-echelons capital is a useful concept in providing parsimony in categorizing the different ways in which upper-echelons variables can impact firm performance. However, the concept, as I defined it, did not universally affect firm performance in the early-stage context. Human capital and social capital variables were not universally related to IPO firm outcomes in my base set of analyses. The different aspects of upper-echelons human and social capital had different effects at different stages of the IPO firm's development. Context is critical to understanding what types of upper-echelons resources are needed when to have the strongest effects.

As an example of how one upper-echelons capital characteristic can have differential impacts, depending on how it is studied, consider board relevant experience. This variable had a *negative* direct effect on a firm's two-year post-IPO sales growth in my base set of analyses.

This implies that having an older group of directors on the board might slow down the firm's longer-term sales efforts; perhaps because the longer tenure constrains the amount and quality of the scanning the directors perform of the competitive landscape, which indirectly impedes the growth of the firm. However, for firms in the highest quartile for levels of board relevant experience, there is a clear link to affiliation with a prestigious IPO underwriter and higher two-year post-IPO stock performance. Therefore, this particular upper-echelons capital characteristic does not have significant effects on its own, except at a very high threshold level, when it attracts prestigious underwriters and gets the long-term interest of the public stock market.

The upper-echelons capital construct is a function of team/board resources (including team/board relevant experience, team prior joint work experience, team/board industry social capital, and team/board "blue-chip" social capital). While I sought simplicity by proposing this single concept, it is clear from these results that it is most useful in explaining IPO phenomena when it is unpacked and examined in different contexts. Yet, I do not believe this study's results suggest the aggregate upper-echelons capital concept is obstructive. Future studies would do well to build off the several interesting results I uncovered in my threshold effects analyses to better understand the specific contexts under which upper-echelons resources matter most in influencing firm outcomes.

#### *VI.I.I. Effects of Human Capital Variables:*

At first glance, the upper-echelons human capital variables appeared to have no or negative impact on the IPO firm outcomes. In the base set of analyses, team relevant experience was a negative predictor of IPO valuation and board relevant experience was a negative predictor of two-year post-IPO sales growth. But, as mentioned in the previous subsection, board relevant experience shifted to have a great impact on IPO firm outcomes when you take into account certain threshold effects. The upper 75<sup>th</sup> percentile of firms with team relevant experience were linked to higher one- and two-year post-IPO stock growth and those in the highest quartile were

linked to higher one- and two-year post-IPO profitability. Additionally, I found firms in the highest quartile for teams with prestigious formal educational backgrounds attracted more prestigious IPO underwriters and had higher IPO valuations. Taken together, these results suggest that human capital effects, for the IPO context, are greatest when they are at their highest levels in relation to peer firms.

#### *VI.I.II Effects of Social Capital Variables:*

There were also several significant effects of upper-echelons social capital on IPO valuation and post-IPO performance. Of all the different aspects of upper-echelons social capital, the most significant characteristic by far was the team's industry-specific social capital. A team's amount of industry social capital directly affected a firm's IPO valuation and its one- and two-year post-IPO sales growth. "Blue-chip" social capital did not have a direct effect on its own on firm outcomes. These results suggest that "blue-chip" social capital is not a tremendous predictor of short- or long-term IPO firm performance. "Blue-chip" social capital appears to be a decorative aspect for firms, with no meaningful value. Overall, these results indicate that industry social capital – especially among team members – is the most important of the upper-echelons capital characteristics.

#### **VI.II. Team and Board Effects Evident At IPO and Post-IPO:**

In examining the differences between when top management team and board resources affect firm performance, these results suggest that team and board characteristics are both operating at IPO and afterwards. Top management teams' effects on firm performance appeared at IPO and post-IPO. A team's industry social capital helps provide a bump in a firm's IPO valuation, as well as in its one- and two-year post-IPO sales growth. Those teams with managers from the highest quartile for prestigious formal educational backgrounds were also better able to attract prestigious underwriters and see a jump in their IPO valuation. There was also a strong effect of firms with high levels of team relevant experience and "blue-chip" social capital in

being able to attract prestigious underwriters. The most salient team characteristics linked to higher post-IPO performance included the upper quartile of firms with relevant experience (on one- and two-year shareholder returns *and* profitability).

I am not able to definitively state the mechanisms by which these executive effects are occurring. Those managers with prestigious education and extensive industry social capital might be implementing certain structures and processes that they have learned about through their formal education or through their social ties. They might also be hiring talented managers or technical people around them to fill in certain management holes at their firms leading up to an IPO. Their abilities to hire such talent could be related to their educational ties or prior work ties. However, these results suggest that these executive effects are more than just symbolic. Although institutional investors and underwriters appear to be impressed by teams with deep industry knowledge and contacts (from their industry social capital and relevant experience), these executive characteristics are also strongly linked to longer-term firm stock and operational success. If these team characteristics were being utilized to manipulate market actors for short-term IPO success, they would not be additionally linked to longer-term firm success (Spence, 1973). So, market actors appear capable of correctly recognizing team industry social capital when a firm goes public, but has not yet correctly rewarded firms for high levels of team relevant experience or prestigious education. Of course, to properly parse out how much of a manager's effect on long-term performance is due to symbolic or substantive abilities will require additional, detailed observance of entrepreneurial firms.

In terms of board human and social capital effects on IPO and post-IPO outcomes, my results suggest that the most important board factor operating on its own is board relevant experience. Firms with the highest levels of board relevant experience relative to their peers were associated with a better ability to attract prestigious underwriters and better two-year post-IPO stock growth.

Higgins and Gulati (1999) found that a firm's "IPO team's" social capital was linked to its ability to attract a prominent underwriter for its IPO, but the authors did not distinguish between the effects of the management team and the board. The current study takes this finding one step further, however, by identifying that the main predictor variables for affiliation with prestigious underwriters are (1) teams with the highest quartile of prestigious formal educational backgrounds and (2) boards with the highest quartile of relevant experience. These current results also show how a firm's ties to a prominent venture capitalist can enhance its ability to attract a prestigious underwriter.

Future research following on from this work needs to examine the influence of managers and directors on pre-IPO firms in more detail. Although I was able to find evidence of upper-echelons capital characteristics directly influencing the attraction of prestigious underwriters and IPO valuation, I was not able to find direct evidence of upper-echelons capital characteristics attracting prominent venture capital investors. This is likely due to the methodology limitation that I only had data on the venture capital firms at the time the firms were holding their IPOs. Therefore, I was not able to track the management teams and boards at the time that they raised the different rounds of venture capital. Interviews and surveys would likely be the most appropriate research methodology to pursue to get at this level of detail, as such firms are shielded from publicly reporting information. It would be interesting to interview several portfolio firms of a venture capital firm, as well as the venture firm's general partners, about the influence of managers and directors on a pre-IPO firm's development. It is likely that both symbolic and substantive effects are at work. Attempts should be made to try and tease apart their differing effects. One possible avenue to do this would be to collect data on private firms existing today seeking venture capital backing for a one- or two-year period going forward. The potential rewards of this line of research make this an attractive research project, despite the time investment required.



### **VI.III. Effects of Prestigious Underwriters on IPO Valuation and post-IPO Performance:**

An IPO firm's underwriter prominence was found to be strongly linked to IPO valuation. This result seemingly contrasts with two previous studies' conclusions on this relationship. Carter, Dark, and Singh (1998) found that underwriter prestige was *negatively* linked to IPO first-day performance. Pollock (1998) also found that underwriter prestige was negatively linked to price premium per share. However, my findings do not necessarily refute these findings. The aforementioned authors measured initial performance as the increase in stock price on the first day of trading from its opening price. Pollock measured performance as the difference in market valuation of the firm at IPO versus its book value. I simply measured a firm's market valuation at the time of its first stock trading (including its book value). My finding simply suggests that the more prestigious investment banks tend to take the larger new issues public for their IPOs. I did not study what happened to a firm's stock price on its first day of trading after it opened.

Few previous studies have examined the long-term effects of prestigious ties to third parties. I found a direct positive effect of the venture capital/underwriter prestige factor on a firm's IPO valuation, which, in turn, directly influenced a firm's one-year and two-year post-IPO sales growth. It is interesting to speculate about why this tie should influence a firm's post-IPO sales growth. Mavrinac (1999) found evidence that research coverage from a prestigious investment bank's analyst has a positive influence on that firm's total shareholder returns, but not on a firm's long-term sales growth. As an underwriter vies for a firm's business by taking it public, it holds out its research analyst to the IPO firm as an additional reason to choose the investment bank. The research analyst's role in the investment bank is to provide impartial guidance to the bank's institutional investor customers on which equities to purchase or sell. A "Chinese wall" is supposed to exist between the research analysts and the investment bankers, whose job is to sell a firm's debt or stock offering to potential investors. In practice, analysts'

compensation are often tied to the amount of business a firm's investment bankers do, so they can be influenced to provide favorable outlooks for firms that are also the bank's customers. Therefore, an IPO firm will likely receive favorable research coverage from its underwriter especially in the first year after an IPO, because the underwriter will seek to be the firm's first choice for its first "secondary offering." These positive comments by analysts might explain why an IPO firm's tie to a prestigious underwriter would influence its post-IPO stock performance, but it is not clear why such a tie would influence a firm's sales growth. Perhaps the firm's additional coverage by research analysts helps to increase the firm's visibility in the minds of potential customers. The firm's additional exposure through its relationship to a prominent investment bank could help in get in to more customer opportunities where it can close business. At this point, however, this conclusion is only speculation and more research needs to be conducted to determine the underlying cause for this relationship.

I found additional longer-term effects of a firm's affiliation with a prestigious underwriter in my threshold effects' analyses. For example, for the firms who had the backing of the highest prestige investment banks, such as Credit Suisse First Boston, Morgan Stanley, and Goldman Sachs, there was a significant positive effect on that firm's one-year and two-year post-IPO stock growth. Again, the question arises of whether these longer-term effects on firm performance are due to symbolic or substantive reasons. Are firms with the stamp of approval from Goldman Sachs better able to lead a firm to higher stock returns following an IPO because they implement structures and institutionalize processes that are critical to the life-cycle development of the firm? This interpretation ascribes substantive reasons for the long-term firm success. A more symbolic argument for these firms' success would be that such firms are successful because the managers and bankers give the firm an air of credibility that attracts more customers, which leads to higher stock growth. A third argument would lie somewhere between

those views. It is impossible to determine from the data available here which hypothesis is most accurate.

#### **VI.IV. Effects of Prominent Venture Capitalists on Firm IPO Valuation and Post-IPO Performance:**

There was no direct connection observed in these results between firms with prominent venture capitalist ties and their performance. My findings are consistent with Megginson and Weiss (1991) who found that prominent venture capitalist-backed firms were positively linked to prominent underwriters. Zimmerman (1998) also did not find a direct link between prestigious venture capitalist-backed firms and firm valuation. Only Gompers (1996) has provided evidence of a direct positive valuation effect of firm ties to more prestigious venture capitalists. He found that firms with investments from prestigious (defined as older) venture capital firms were positively linked to IPO valuation. The venture capitalists are clearly in a weaker position to pick winners compared to underwriters, because venture capitalists must invest when the firm is at a much earlier stage in its development with, by definition, more risk. This might be the greatest reason why there is not a positive link between firms with more prominent venture capitalists and their IPO valuation compared to firms with more prestigious underwriters. Future research should be done earlier on in the firm's life cycle to determine whether this result is valid. It would seem valid to predict that firms with more experienced managers would be better able to attract more experienced venture capitalists, which would subsequently allow the firm to better create value. An example of how these two factors would presumably operate in a synergistic fashion would be for the venture capitalists, who have a wealth of contacts they could mine to help the firm's growth, to open a number of doors to potential customers and partners for the firm. These contacts might go untouched unless the firm has managers with deep industry knowledge to instruct the venture capitalists on what types of contacts would be most helpful to

them. More detailed and careful research is warranted here, both of an empirical and qualitative variety to better understand how these mechanisms operate.

If Zajac and Westphal (2001) are correct that market actors operate in conditions of bounded rationality and, therefore, are motivated to action due to particular firms' or individuals' symbols, then venture capital firms should be prime locations to study this in action. One can imagine several interesting research questions pursuing an explanation for the criteria used by venture capitalists in weighing an investment in a particular firm. Unprecedented access to venture capitalists by researchers would be required to pursue this line of research, involving extensive interviews and questioning about existing portfolio investments, as well as those investments a particular firm passed on. The limits of venture capital firms' partners' retrospective rationality would be a strength, rather than a limitation, of this approach, given that researchers would be interested in the boundedly rational sets of assumptions these market actors operate under. Another approach to understand these firms' investment criteria would be study several portfolio firms as they went through several rounds of financing, to understand the link between management team members' and directors' backgrounds with amount of capital raised and prominent investors they attract. Wasserman (2001) has found evidence that new infusions of capital lead to the replacement of founder CEOs with more professionally experienced CEOs. It would be interesting to chart other changes that new capital means to the make-up of the management team and board, in terms of the characteristics laid out in this thesis. Presumably, the team and board get more "seasoned" with each new round of capital<sup>50</sup>, but it would be interesting to explore if some baseline amount of upper-echelons capital is required of the team and board to attract the initial financing.<sup>51</sup>

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<sup>50</sup> That is, they would successively add team members and directors with increasing amounts of human and social capital.

<sup>51</sup> See Appendix K for a detailed review of the pre- and post-IPO development of CacheFlow, a Menlo Park, CA-based provider of caching infrastructure to increase speed and quality of Web-based content delivery. Much more detailed tracking of companies like this CacheFlow example

#### **VI.V. Richer Human/Social Capital Measures Lead to New Findings:**

This study has used more developed measures of top management team and board human capital and social capital than in previous studies. These measures also yielded stronger results compared to previous upper-echelons research. The measures have also allowed for a more complete interpretation of previous research on the effects of upper-echelons in the IPO context. For example, Andrews (1995) looked at the effects of directors on a firm's IPO valuation, but measured a director's prestige by whether he/she had "President" in his/her title. As a result of Andrews' approach, her findings demonstrated no effect of director prestige on IPO valuation. In this current study, I was able to measure director prestige through his/her relevant experience, industry social capital, and "blue-chip" social capital and found several effects on IPO valuation and post-IPO performance.

In Zimmerman's dissertation (1998), she found a link between the team's industry experience and a firm's post-IPO growth. I was able to use my more detailed measure of team industry social capital to learn that this was a factor in post-IPO sales growth, and also on long-term stock growth and profitability under different circumstances. I also found a team's relevant experience, when in the upper quartile relative to a firm's peers, was a strong predictor of a firm's one- and two-year post-IPO shareholder returns and one- and two-year post-IPO profitability.

Higgins and Gulati (1999) found a positive relationship between "IPO team" industry social capital and IPO valuation, as I did. However, I also found that firms with teams having the highest quartile of prestigious formal education had a positive impact on a IPO valuation. Additionally, little previous research has explained what firm-level factors attract prestigious underwriters. I was able to do that here through more refined measures of team relevant

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would help unearth some answers to the questions I have raised in this paragraph about how new ventures develop and attract venture capital financing.

experience, team industry social capital, team “blue-chip” social capital, team prestigious education, and board relevant experience.

#### **VI.VI. Upper-Echelons Effects in Entrepreneurial Settings:**

The most central goal of this research was to seek confirmation of the prediction of Hambrick and others (Hambrick & Mason, 1984; Hambrick & Finkelstein, 1987; Finkelstein & Hambrick, 1996) that top management team and board effects will be strongest in smaller and more entrepreneurial firm settings. Support to this claim has been provided in my results. My hope is that this work and those of other current upper-echelons researchers (e.g., Wasserman, 2001) will encourage more detailed analyses on the effects of upper-echelons in entrepreneurial firm settings. Although the data of COMPUSTAT and CRSP is not available for these smaller firms, the early results provided here and in other recent studies suggest that there are strong upper-echelons effects in these contexts. The greatest challenge faced by researchers who choose to go down this path will be gaining access to these private firms and the venture capitalists who fund them. Yet, researchers will find many, if not most, of these firms will welcome contact from the academic community, if my experiences are representative.

#### **VI.VII. Extensions to Prior Research:**

While this research replicated some previously known findings (i.e., the linkages between an IPO firm’s age, size, and prestige of its underwriter with IPO valuation), this study improves on previous research because it (1) employs a multi-year and multi-industry approach in studying a specific context (i.e., IPO firms), (2) studies demographic differences between top management teams and boards (instead of collapsing the two groups), (3) studies the short-term valuation and long-term performance of the teams’ and boards’ effects, and (4) studies a wide variety of top management team/board demographic factors in a single study.

Besides the more refined measures of human capital and social capital, which have been noted already, this study provides several more developed measures of IPO valuation and post-

IPO performance. Greater light was also shed on the effect of top management teams and boards in a context that should offer more managerial discretion, compared to contexts that have been predominantly studied in extant research (i.e., smaller start-ups vs. *Fortune 1000* firms). There was also extensive comparison of different effects of team member backgrounds versus board member backgrounds on firm valuation and long-term performance in this study. The current research provided a better understanding than previous studies of the differences between human capital and social capital for top management teams and boards within different industries.

#### **VI.VIII. Differences between Industries of High and Low Uncertainty:**

There was mixed support for my propositions that firms operating in industries of greater uncertainty show a stronger link between upper-echelons characteristics and their firms' IPO valuation and post-IPO performance, compared to firms operating in industries of lower uncertainty. Top management teams' industry social capital showed a positive direct link to the firm's ability to attract a prestigious IPO underwriter (which, in turn, positively influenced the firm's IPO valuation) in the software industry but not in the hotel and restaurant industry. Top management team industry social capital also showed a positive direct link with a firm's two-year post-IPO stock performance, one-year and two-year post-IPO sales growth, and one-year post-IPO profitability for the software firms and not for the hotel and restaurant chains. The amount of relevant experience on a firm's board was also linked to higher one-year post-IPO profitability in the higher uncertainty industry.

However, counter to my propositions, board industry social capital was found to be a more important predictor of a firm's ability to attract a prestigious underwriter, as well as its one-year post-IPO sales growth and profitability, in the lower uncertainty hotel and restaurant industry compared to the more uncertain software industry. And a team's prior joint works experience was a positive predictor of firms' from the hotel and restaurant industry one- and two-year post-IPO stock growth. This suggests that upper-echelons capital effects are also strong in

the lower uncertainty industries, even where a firm's performance will more directly be impacted by hard factors such as capital assets. Although there is strong general support for upper-echelons characteristics affecting IPO valuation and post-IPO performance in all contexts, there are several differential effects that depend on the industry uncertainty type that a firm operates in. Further research effort is required to better understand the differential upper-echelons effects on firm performance within different industry contexts for these early-stage firms.

#### **VI.IX. Limitations of this Study:**

One limitation of the current study is its inability to capture whether and when top management team members and directors left or joined the company prior to or after an IPO, as a performance control. Based on the private nature of the firms studied, it proved impossible to track when particular team members or directors joined the firm prior to IPO. It would have been possible but unrealistic to track additions to or subtractions from the firm's team and board after the IPO because of the coding costs involved. Quarterly filings with the Securities and Exchange Commission might have mentioned changes to the board, although it does not require full disclosure of all changes to the management team.<sup>52</sup>

Another limitation of this study, again stemming from the difficulty in gaining access to private firm data, was the first-stage regression I performed to control for differences between my IPO firms and the private firms that never went public. Although I was able to use firm revenues, firm age, number of employees, geographic location, and an industry type dummy variable to correctly predict 79% of the firms that held IPOs, I was not able to collect any demographic information on the private firms' teams or boards to include in the first-stage regression. Having this additional information would have been very useful in isolating the management and board characteristics that aided in getting a firm to the point where it does go

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<sup>52</sup> Full disclosure of management team member additions and subtractions are often spread across several filings with the Securities and Exchange Commission, making their coding time- and cost-prohibitive.



public, as well as the characteristics leading to IPO valuation and post-IPO performance. It proved impossible to track down this private firm information for such a large sample. Hopefully, future research will improve on this flaw. In the meantime, this current study's findings are still instructive, especially given that the information I was able to track for the private firms was able to correctly classify a large majority of IPO firms.

This issue of a need for greater clarity about the changes that go on in the firm prior to an IPO raises an opportunity for future research directions. One problem with this study is the lack of temporal order in the data, in terms of when particular venture capitalists were attracted to invest and what the team and board composition was at the time of different investment rounds. There are commonly several rounds of firm financing between founding and IPO. An average IPO firm has three rounds of venture investment between founding and going public. It is common for some minor changes to be made to the team and board shortly after a venture round closes.<sup>53</sup> Therefore, it would be interesting to collect data on how the team and board change over time and how different team/board characteristics attract prominent venture capitalists at each round of funding.

Another possible limitation of this study is that venture capitalists often sell a proportion of their holdings in a firm shortly after IPO. If several of a firm's outside directors are partners at venture capital firms invested in the firm, perhaps their selling stock post-IPO reduces their interest in monitoring the firm. There are several reasons for being assured that firm outside directors who are also investors in an IPO firm continue to be actively involved in monitoring that firm's progress. Although IPO firms with venture-backing will each likely have several venture investors, most firms will only give up one to two board seats to these firms (typically to the largest pre-IPO investors in the firm). Of these firms who take board seats, a large majority

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<sup>53</sup> See Wasserman's (2001) study of how pre-IPO firms are prone to lose their Founder-CEOs on the way to going public for more information on this point.

will retain their board seats for at least 3 years. Said one venture capitalist interviewed on this particular point:

The idea that we would dump shares in [Portfolio Company] after its IPO is off-base. This is a company that we nurtured from a 20-person start-up through 4 rounds of funding. I was their first outside director. We're not going to sell all our shares now that they're public, because we still are, and plan to be for a while, involved with the company through our board seat. We would be hurting ourselves to dump shares. Most [venture capitalist]s I know who hold directorships in portfolio companies remain board members for at least two years after IPO.

Therefore, I can be reasonably assured that poor monitoring by venture capitalist directors is a confounding influence on my results.

Another possible limitation of my study is that there is some unobserved firm potential factor that I am not measuring but which is attracting particular managers and directors to a firm and which the market is valuing at the time of IPO. I include several control variables for a firm's potential at the time of IPO, including firm age, firm size (in terms of revenues), and a firm's pre-IPO capitalization. These variables were all highly intercorrelated, so I created a common factor score for the three. I also included a control for a firm's profitability at the time of IPO. Another possible firm potential characteristic might be a firm's proprietary technology (in the case of the software firms) or its internal processes. Unfortunately, I was not able control for this potential unobserved factor, because of a lack of available data. However, I was able to control for the unobservable potential differences that exist between my IPO firms and a random sample of private firms that did not hold IPOs during my time period studied. Therefore, I can reasonably be assured that my results do a fairly strong job on controlling for unobservable firm potential differences. Future research continuing to look at entrepreneurial firms could improve

on my method by trying to account more for technology and process differences between sample firms.

A final limitation of my study is the lack of a larger sample of IPO firms. Although I tracked management team member and director information for all IPO firms for two industries over a five year period and this is the largest sample of IPO firm management and director backgrounds of which I am aware, not all firms equally reported educational or past work experience information. Because of this, some of my team member and director variables (e.g., educational backgrounds) were much fewer in number than other variables (e.g., past work experience). Therefore, the findings reported here related to prestigious educational backgrounds must be taken as speculative, due to their small number. The number of observations for all other upper-echelons variables are sufficiently high to feel comfortable in the findings reported here. However, it would have been ideal to have a much larger sample to increase confidence in these results, as well as to better understand how some of the interaction effects explored in the supplemental analyses differed across my two industries. Future research should dig deeper into the effects of team member and director educations on firm valuation and performance with larger samples. It is likely that a survey method would lead to an easier time collecting data than through relying on what is reported by companies in their S-1 filings with the Securities and Exchange Commission.

#### **VI.X. Future Avenues for Research:**

It would be particularly interesting to pursue research exploring the strategies employed by pre-IPO firms in high uncertainty industries. Typically, such firms are preferred as investment vehicles by venture capital firms, because they are perceived to have greatest investment potential. Almost always, such firms are operating in industries that themselves are new. Therefore, a clear value chain has yet to be established, defining who sells what in the overall chain (Porter, 1980). Partnerships and rivalries are often in the process of being set.

Price points for the different components of the total solution have also failed to be firmly fixed. The strategies employed by new entrant firms to this type of industry is almost always one of “differentiation,” as opposed to “cost leadership” (which is usually reserved for larger, incumbent firms who choose to move into the new industry and are able to leverage their existing scale to sell on a cost leadership basis). The question arises then for new entrant firms, given that they will compete on a differentiation basis, what will be the specific differentiation strategy they pursue? The strategic management literature has little to offer in terms of a theory on how these firms will craft their strategy, or on what the performance implications are of different differentiation strategies that are followed, as well as on what strategies are likely to be followed depending on a firm’s management team and director backgrounds. Providing a better theoretical framework for understanding the process of firm strategizing in these highly uncertain industries would be a significant contribution to the overall strategy literature.

Admittedly, this dissertation is heavily phenomenologically-driven, focused on firms operating in IPO markets. Nevertheless, in exploring manager and director effects in this one specific entrepreneurial context, greater light was shed on this previously unexplored area. IPO firms should prove to be a popular area for further examination of entrepreneurial firms because of the availability of firm data from the S-1 filing with the Securities and Exchange Commission.<sup>54</sup> Previous studies (e.g., Beatty, 1989; Benveniste & Spindt, 1989) have found evidence that IPO firms tend to enjoy a “honeymoon period” for about 6 months after their IPO, in which they tend to outperform the market. This is followed by 12 to 18 months of underperformance relative to the market. After 2 years of trading in the aftermarket, new issues tend to trade at comparable levels to the rest of the market. This raises an interesting question: what effects do differential levels of upper-echelons capital have on the aftermarket performance patterns of IPO firms?

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<sup>54</sup> For an example of an S-1 filing, see Appendix L.

#### **VLXI. Practical Implications from this Research:**

This research holds several prescriptions for entrepreneurs and venture capitalists putting together a new venture's team and board. The old venture capitalist adage of investing in people – not in technology – has been given empirical support by this study. Experienced and successful management team members and directors appear to be highly related to attracting prestigious investment bankers, and successful strategic partners and customers. The most important upper-echelons capital characteristic to account for on a firm preparing itself for an IPO is industry social capital on the top management team. Relevant industry experience (which can help management team members and directors understand key problems/shortcomings in an industry that represent an opportunity for the firm) and experience in larger, successful companies (which can help management/directors have a vision of what a firm will grow to become in two to five years) seems to provide the best chance of a firm being extremely successful from a stock and operating perspective. However, the most successful firms will build depth in all upper-echelons capital areas on both the team and the board.

#### **VLXII. Upper-Echelons Capital Case Study: Tellme**

A case study on the importance of industry specific knowledge of a firm's early management team members comes from Tellme Networks, Inc. Tellme had all the makings of a huge success on paper, but has had difficulty living up to the high expectations of many observers. Founded in February 1999, Tellme's two co-founders – Mike McCue and Angus Davis – both previously worked at Netscape on the Navigator Web browser that competed against Microsoft's Internet Explorer, where its third co-founder – Hadi Patrovi – had worked. In fact, several other early members of the Tellme management team came from the Microsoft Internet Explorer team. Many early press reports on Tellme played up this "coming together of two former foes" storyline. Tellme's first business model was to offer an 800-number that consumers would call at various times during the day to get personalized information (e.g., stock

quotes, news headlines, sports scores, restaurant reviews) delivered to them over the phone through a voice-activated user interface. Tellme planned to make money by selling audio advertisements for the 800 number. Tellme's founders envisioned such a service as the next stage of the Web's development. "There are 200 million Internet-enabled PCs in the world and 2.2 billion phones in the world... we did the math," crowed McCue in explaining the company's revenue model in June 2000.<sup>55</sup>

In the first few months after Tellme's founding in 1999, McCue and Davis worked to pull together an initial Web-savvy management team from other "big name" companies besides Microsoft and Netscape that the press began to write about. McCue, through his time at Netscape, had become well-connected to the venture capital community in Silicon Valley, including John Doerr – arguably the most recognized venture capitalist in Silicon Valley from the firm Kleiner Perkins Caufield & Byers – and Jim Clark – co-founder of Netscape. When McCue pitched his idea to the venture capitalists, he easily raised \$40MM in a first round of financing from such notable firms as Kleiner Perkins, Benchmark, Ignition, and others. The advertising-based revenue model Tellme pitched at this time was a strategy used by many prominent Web-based companies in Silicon Valley (including Yahoo!, who charged money for placing "banner ads" at the tops of different Websites that were viewed).

Six months later, John Doerr made a fortuitous call to C. Michael Armstrong, a friend of Doerr's who was also Chairman and CEO of AT&T. By this time, Tellme's 800 number service was in operation with several appealing applications. On a private jet, somewhere over New Jersey, Doerr convinced Armstrong that Tellme was the next big thing in telecommunications – and AT&T needed to be a part of it by making an investment. Armstrong agreed, giving Tellme a \$60MM investment, not in cash, but in minutes of usage on AT&T's phone network – something Tellme desperately needed to help it pay for the 2.5 cents per minute cost of allowing

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<sup>55</sup> This quotation was taken from the Tellme Website.

a consumer to call the 800 number.<sup>56</sup> To the press, however, the investment was treated as a significant endorsement of Tellme by AT&T, further enhancing its credibility.

Interestingly, however, several senior AT&T researchers and engineers were opposed to the Tellme investment. They viewed Tellme's platform for its 800 number network as a vastly inferior architecture for delivering phone services compared to what was used within AT&T's network. In AT&T parlance, the platform was neither "scalable" nor "reliable" – breaking cardinal rules at AT&T. To the AT&T engineers, the senior technical team for Tellme lacked the needed backgrounds in the telephony world. In fact, most of Tellme's original technical platform team came from a Web-based company backgrounds (such as Netscape and Microsoft), instead of from larger telephone carrier company backgrounds (such as AT&T and Sprint). Said one senior AT&T researcher interviewed for this research speaking on condition of anonymity: "the Tellme guys just don't understand how a phone network operates. There are certain things about building a network-based telephony platform that we take for granted, but they seemed to have either forgotten or never known." Had the original platform team from Tellme come from a telephone carrier background, they would have known it was paramount to design their architecture to be scalable (i.e., the platform must be able to support thousands of simultaneous calls, without giving an incoming caller a busy signal), to have "5-9s reliability" (i.e., 99.999% of the calls have to be answered that come into the service), to be maintainable (i.e., making it easier for the operator of the platform to monitor and correct any problems rapidly and inexpensively), and operate in an open standards manner.

In establishing the company, Tellme did almost everything right. And, it is too early to pass judgement on them, as they still may grow to become a successful service. But there is no

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<sup>56</sup> These minutes invested in Tellme by AT&T were also minutes that would have gone unused otherwise. They were also given to Tellme at "list price" – meaning the highest possible price that AT&T charges to a service provider to run a service on their network, with no discounts. So, the investment was not as impressive as it seemed at first glance. It amounted to a "no-cost" investment for AT&T, in exchange for 25% ownership in the company at Tellme's Fall 2000 financing.

doubt that the company would have been better served to hire a core group of engineers to build their telephony platform who had significant backgrounds working at some of the largest telecommunication companies (like AT&T, Sprint, or Worldcom). Tellme's "Achille's heel" to date has been in not recognizing they lacked expertise in this core area to their nascent business. By underestimating the complexity of building a network-based platform – and wrongly assuming that their engineers' Web-based company backgrounds provided the necessary training to build their telephony platform – Tellme built their service on an inherently flawed architecture foundation. This path dependence made it extremely difficult to correct their mistake later. After having hired an entire technical team and investing millions of dollars, Tellme realized their platform had some fundamental weaknesses, leading to downtime on the platform and requiring increasingly more "fingers to plug and increasing number of holes in the dyke." To abandon the platform altogether for another platform meant accepting certain financial and psychological sunk costs. Tellme's management was reluctant to do this – especially after they raised another \$125MM in November 2000 in a third round of venture financing, which estimated the post-financing value of the company at over \$1B. By many objective measures – including number of daily calls to the service, amount of venture capital financing raised, amount of prestigious investors, number of employees hired from other prestigious companies, and media coverage<sup>57</sup> – Tellme was the dominant voice-based phone services company in a crowded field of entrants. To make any substantive changes in the platform design, such as outsourcing the platform function to another company, might be interpreted by Tellme stakeholders as a stunning admission that it was not as much of a leader as it tried to portray itself. Yet, despite the incredible sum of venture capital money raised, privately, McCue worried: "I was successful at raising money but not at running a business.... I worried that when hard times hit, we wouldn't be prepared" (Brown, 2001: 140).

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<sup>57</sup> In March 2001, Tellme scored a marketing coup, when Charlie Rose interviewed Mike McCue on *60 Minutes II* on how Tellme would "revolutionize the telephone."



Tellme was confounded by a paucity of paying customers and an enormous “burn rate” (i.e., its monthly negative cash flow). This lack of customers was due, in part, to the ineffectiveness of their original advertising-based revenue model. They were not getting enough advertisers as well as callers, to make this model as successful as they had hoped. A general market down-turn took place starting in the Spring of 2000 and accelerating that Fall, causing many potential advertisers to cut their ad budgets or go out of business entirely. Web-based companies who also relied on this means of revenue generation were hit just as hard as Tellme. With not enough money coming in the door, Tellme was forced to come up with an alternative business model to address the large ongoing costs it had begun incurring.

Even after raising \$180MM in venture capital, Tellme was absorbing costs at a monthly rate of \$5MM in the Spring of 2001. The company had quickly expanded from 80 employees to 260 in less than a year. In May 2001, Tellme’s board grew uneasy with the lack of financial results given the “burn rate” and forced the first of a series of job cuts. Initially, 10% of the employees were let go. Later, in July 2001, another 20% were cut bringing the total employees down to 200. At that time, Tellme also announced the appointment of a new CFO, presumably to help in the cost savings and refocusing efforts. One of the three co-founders, Hadi Patrovi, quietly announced he was leaving the company in order to “travel and read.” A few weeks earlier, Mike McCue, Tellme’s CEO, announced he had hired the executive search firm Heidrick & Struggles to search for his replacement. Publicly, McCue averred that “I am really most comfortable in a start-up setting. And now, since Tellme is on the verge of generating tens of millions of dollars, it is a good time for me to step down to start my next venture.” Privately, McCue had been pushed out by a dissatisfied board. By December 2001, Tellme revealed that it had spent \$140MM of the \$180MM raised in venture capital to produce a paltry \$10MM in revenues and would not be cash-flow positive until at least mid-2003 (Brown, 2001). Tellme’s board appointed the retired CEO of Cincinnati Bell – John LaMacchia – with 30 years of telco

experience as Tellme's new CEO in September 2001. "LaMacchia spent his first two months at Tellme teaching managers how to develop business plans for the year ahead, mapping what services to offer, to whom and at what price. 'It was a novel idea,' he says. 'They never thought that far out'" (Brown, 2001: 142).

Tellme did many things right in building their company. The founders came from two of the best known high-tech companies at the time (Microsoft and Netscape) and they had social connections with some of the most influential venture capitalists in Silicon Valley. The Tellme business plan, with its large potential market and an acceptable revenue model for that time, helped them get early funding from prominent venture capitalists and early media coverage. They also built – what I call in this study – a "blue-chip" board, with great "blue-chip" social capital. If the economic downturn had not hit, and their business model had developed in the manner the founders anticipated, it is likely that Tellme would have enjoyed a smash IPO by the Spring of 2001 with a prestigious underwriter along for the ride.

But when the broader environment shifted due to an economic slowdown and their original strategy proved untenable, two major holes in Tellme's management team were exposed: lack of industry experience and lack of industry social capital. This lack of experience resulted in the development of a problematic infrastructure to service 800 number calls. Tellme was forced to change its strategy to become a provider and hoster of voice-activated phone services that would be offered by large enterprises and telecommunication service providers to their end users. These two customer types tended to want to buy the infrastructure necessary to offer such services, rather than deal with a hosting service. However, Tellme's infrastructure could only be offered as a hosted service, because of the original architecture design. Tellme's technical team did not initially have enough experienced managers from the telecommunications industry in the early days of building the architecture. Tellme also failed to realize they had too many sales and

marketing personnel who had substantial expertise selling to large telecom service providers or large-scale enterprises.

The lesson from this case study and the research results presented here is that management teams and boards require substantive skills and symbolic reputations to optimize a newer venture's chances of success. Both are important and should not be neglected. Although a firm might be successful with a preponderance of either great substantive or symbolic abilities on its management team and board, it faces much greater risks if the broader environment changes quickly. A new venture and its investors and underwriters would do well to ensure that a firm has enough people with enough experience in the domain/industry the firm is operating in, to be in the best position to respond to exogenous shocks that arise in the business environment. As my results show here, top management team industry social capital (measured by past work ties and current board ties to industry leading firms) is the most critical upper-echelons characteristic to firm success in pre-IPO markets. This implies there is a limit to the amount of symbolic or prestigious value a firm can gain from "blue-chip" directors, and prominent investors and bankers. Such parties cannot solve complex business issues that require substantive domain knowledge.

#### **VI.XIII. Conclusions:**

Upper-echelons resources are critical to the success of the firm. It appears their effects are especially important in the context of the early-stage firm. Research to date has understudied these effects because of difficulty obtaining rich longitudinal data for private firms. This study provides evidence that there are rewards for researchers willing to put in the effort to uncover the requisite data. It is likely that future research will require surveys or close involvement with a national venture capital organization (e.g., the National Venture Capital Association) or individual venture capital firms, who will have access to the specific team and board additions over time of private firms.

This research study provides new directions for continued refinement of measures of human and social capital. By moving beyond simple counts of board ties, I was able to learn that one specific type of social capital (a team's industry social capital) was an important predictor of IPO and post-IPO success across two very different industries. However, there were additional results that showed bundles of different aspects of upper-echelons capital had several different effects depending on different contexts. It seems likely that continued refinement of human and social capital measures will add to further understandings of the early-stage firm dynamics in future research.

This study has resulted in strong evidence of the effects of upper-echelons capital influencing an IPO firm's valuation and its post-IPO stock and operating performance. The logical next avenue of research is to better understand the effects of top management teams and boards on their firms' performance prior to an initial public offering. Part of such research will require exploring why certain venture capital investors are attracted to particular firm attributes and what effects these investors have on the firm's continued development. This research effort is already underway.

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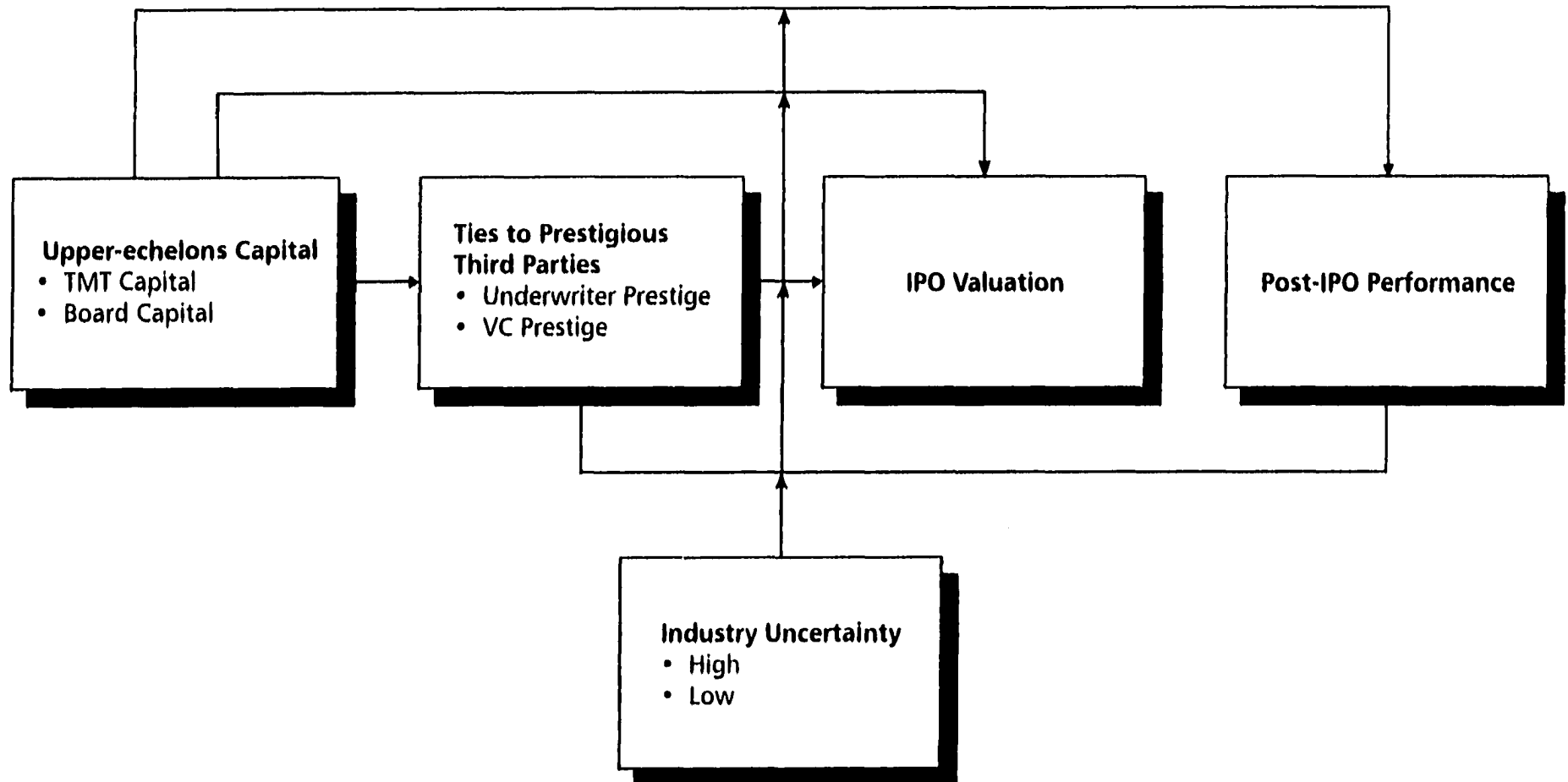
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**Figure 1**

**A Model of the Effects of Upper-echelons Capital on IPO Valuation and Post-IPO Performance**

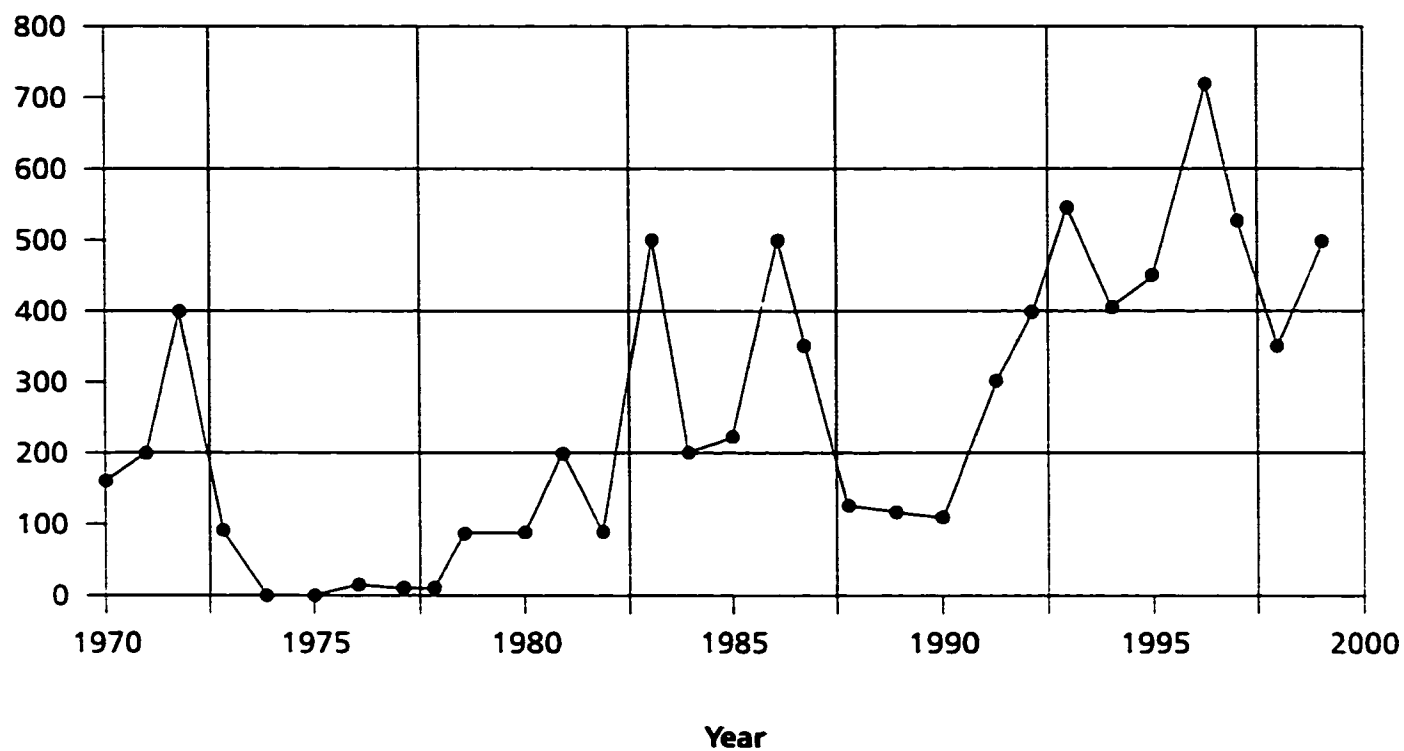


**Figure 2: The Upper-Echelons Capital Construct:**

|                          |   |
|--------------------------|---|
| Upper-Echelons Capital = | f (TMT Capital, Board Capital)                                      |
| TMT Capital =            | f (TMT Human Capital, TMT Social Capital)                           |
| TMT Human Capital =      | f (TMT Relevant Experience, TMT Prior Joint Work Experience)        |
| TMT Social Capital =     | f (TMT Industry Social Capital, TMT “Blue-Chip” Social Capital)     |
| Board Capital =          | f (Board Human Capital, Board Social Capital)                       |
| Board Human Capital =    | f (Board Relevant Experience)                                       |
| Board Social Capital =   | f (Board Industry Social Capital, Board “Blue-Chip” Social Capital) |

# Figure 3

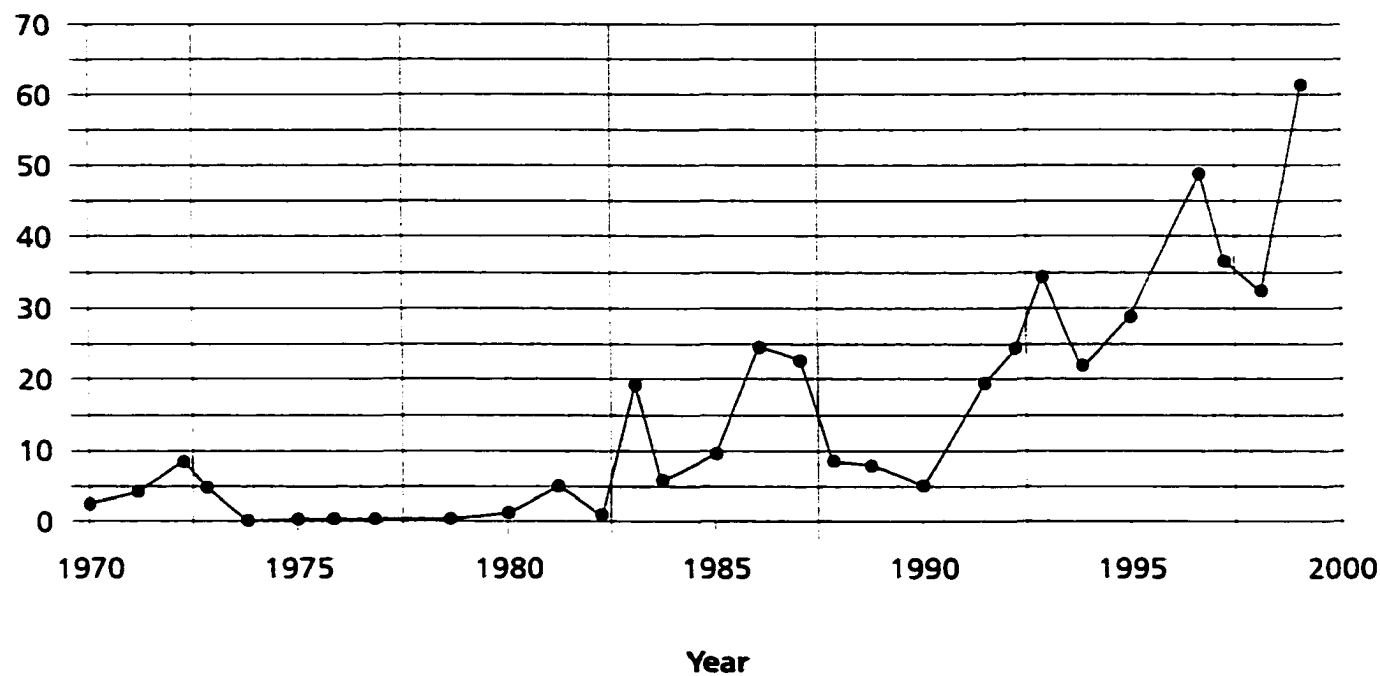
## Total Number of IPOs: 1970 - 1999



Source: Broady and Ehrlich, 1999; Willoughby, 1999

**Figure 4**

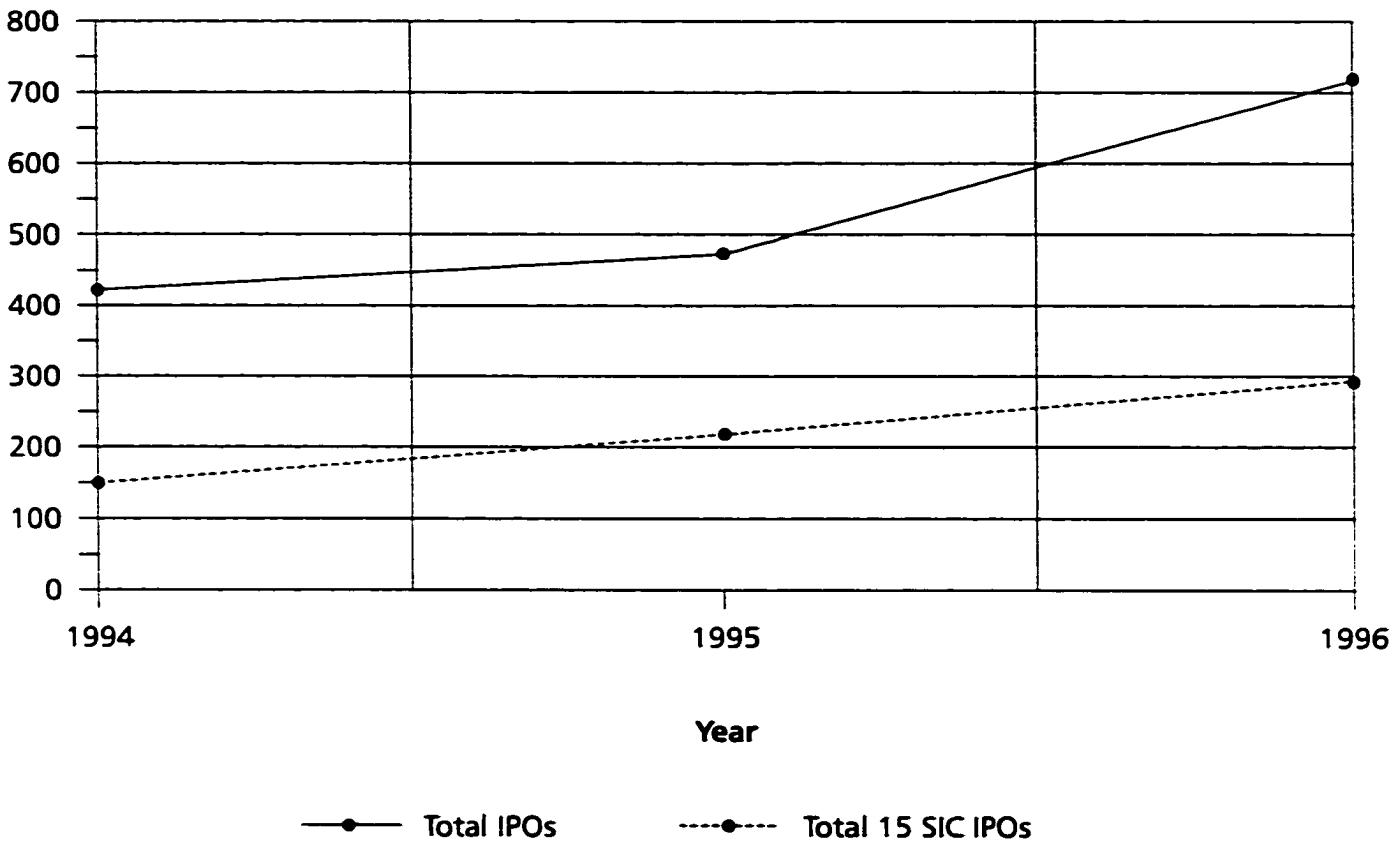
**Total Funds Raised in IPOs (1996 \$B): 1970 - 1999**



Source: Broady and Ehrlich, 1999; Willoughby, 1999

**Figure 5**

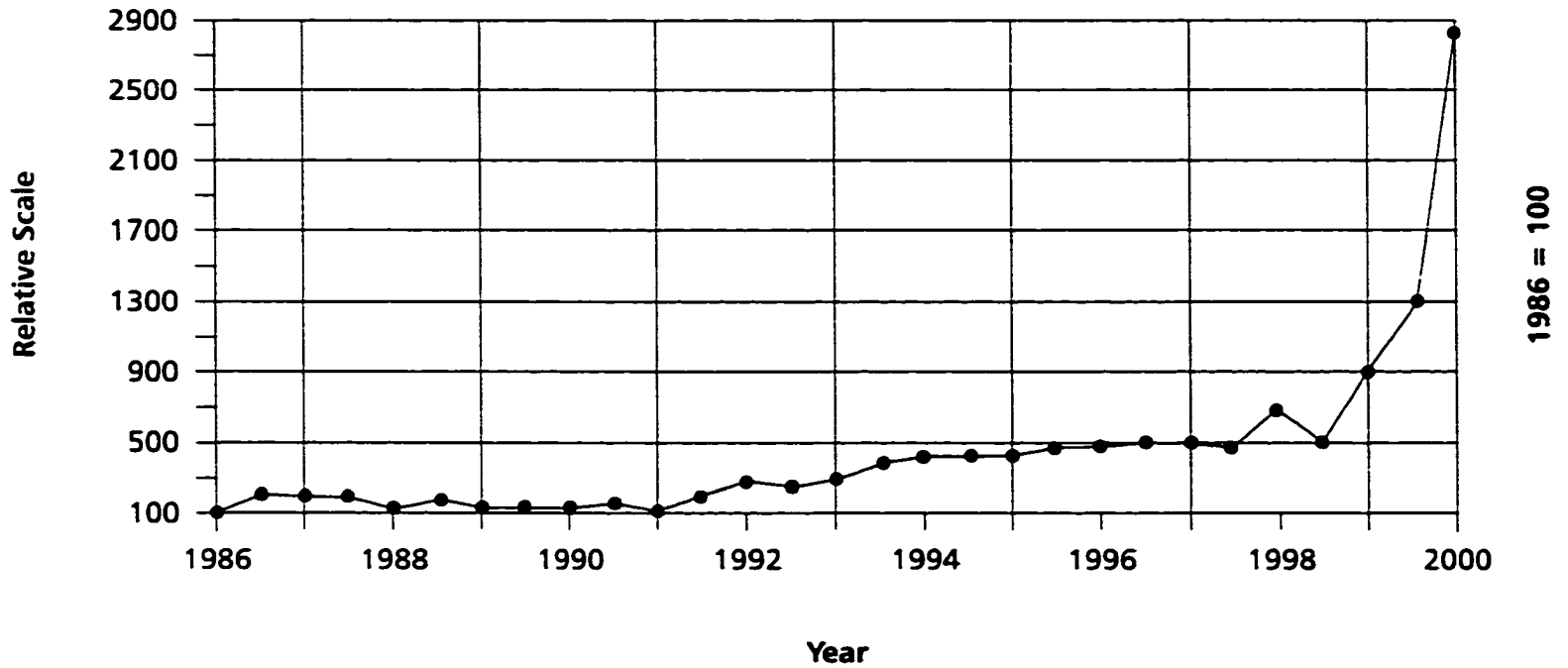
**Number of IPOs: 1994 - 1996**



Source: Willoughby, 1999; Securities Data Corp., 2000

## Figure 6

### IPO Performance: 1986 - 2000 S&P New Issues Relative to S&P 500

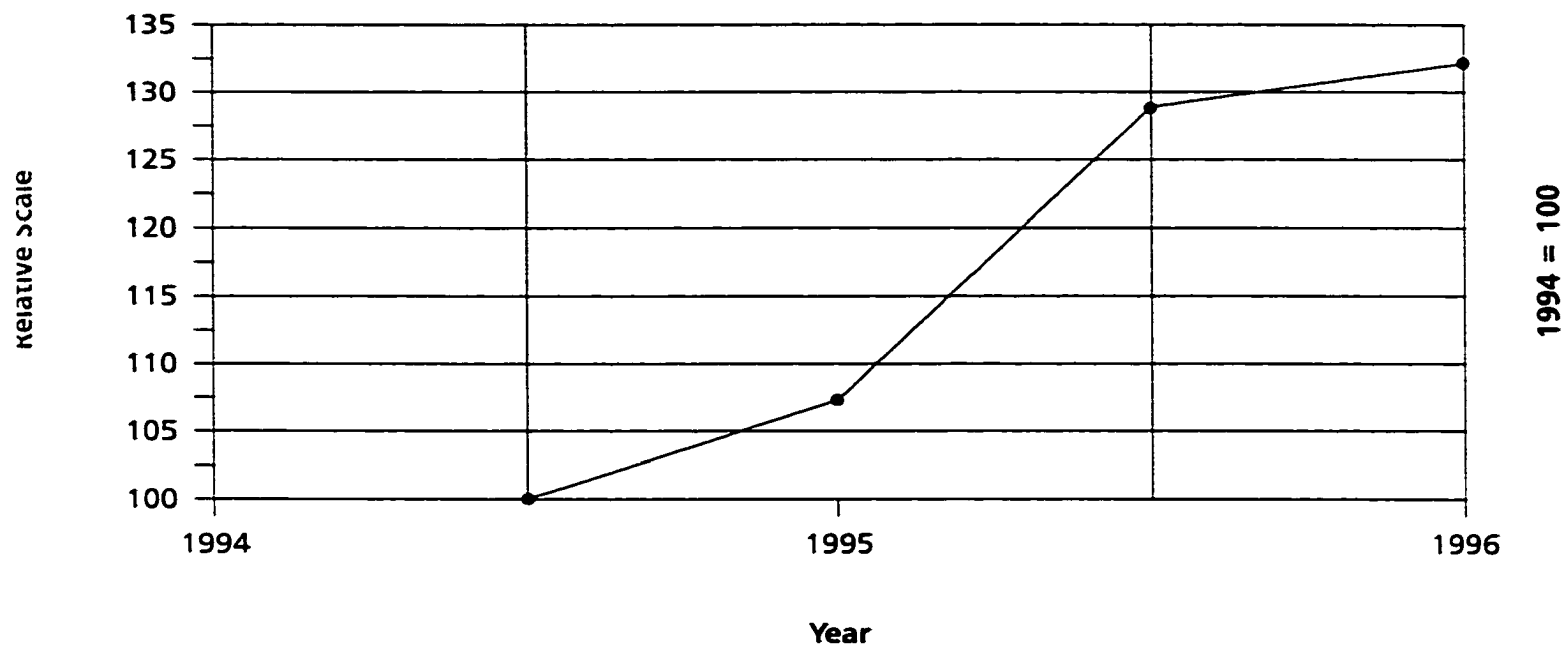


S&P 500 Performance Always Equals 100

Source: Abelson, 2000

## Figure 7

### IPO Performance: 1994 - 1996 S&P New Issues Relative to S&P 500

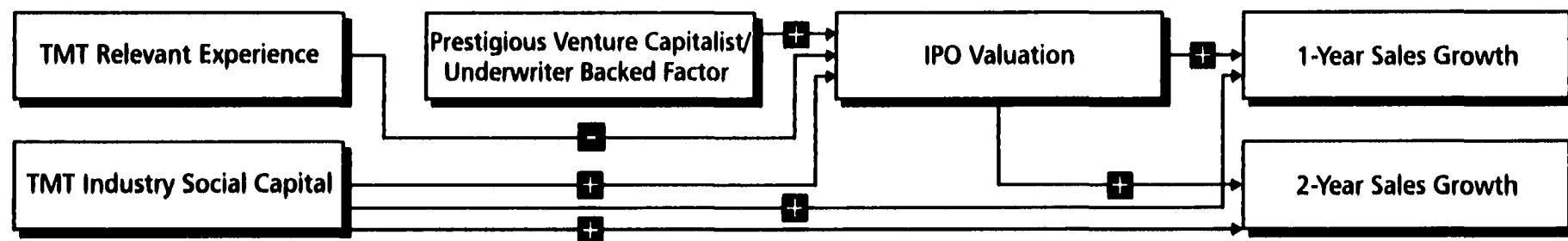


S&P 500 Performance Always Equals 100

Source: Abelson, 2000

**Figure 8**

**Results of Upper-Echelons Effects on IPO and Post-IPO Performance**





**Figure 9**

Results of Industry Differences in Upper-Echelons Effects on IPO Firm Outcomes

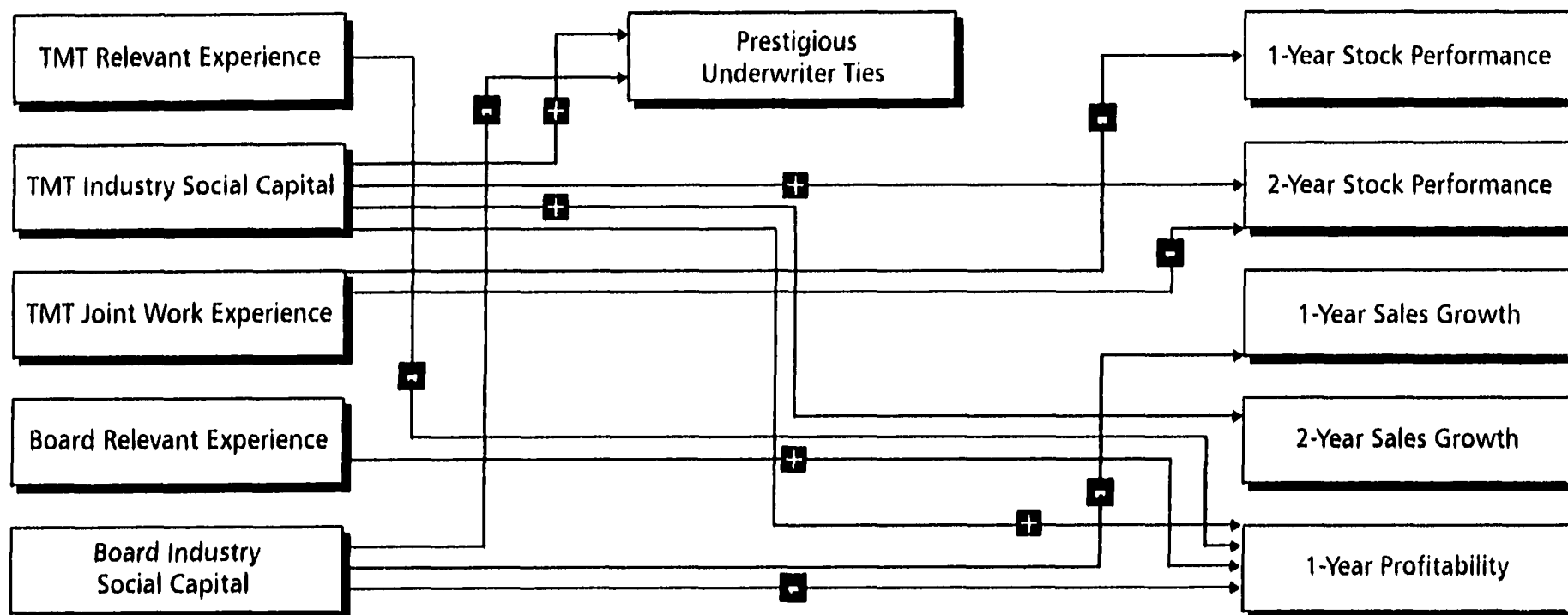


Figure 10

Threshold Effects of Upper-Echelons Capital Characteristics

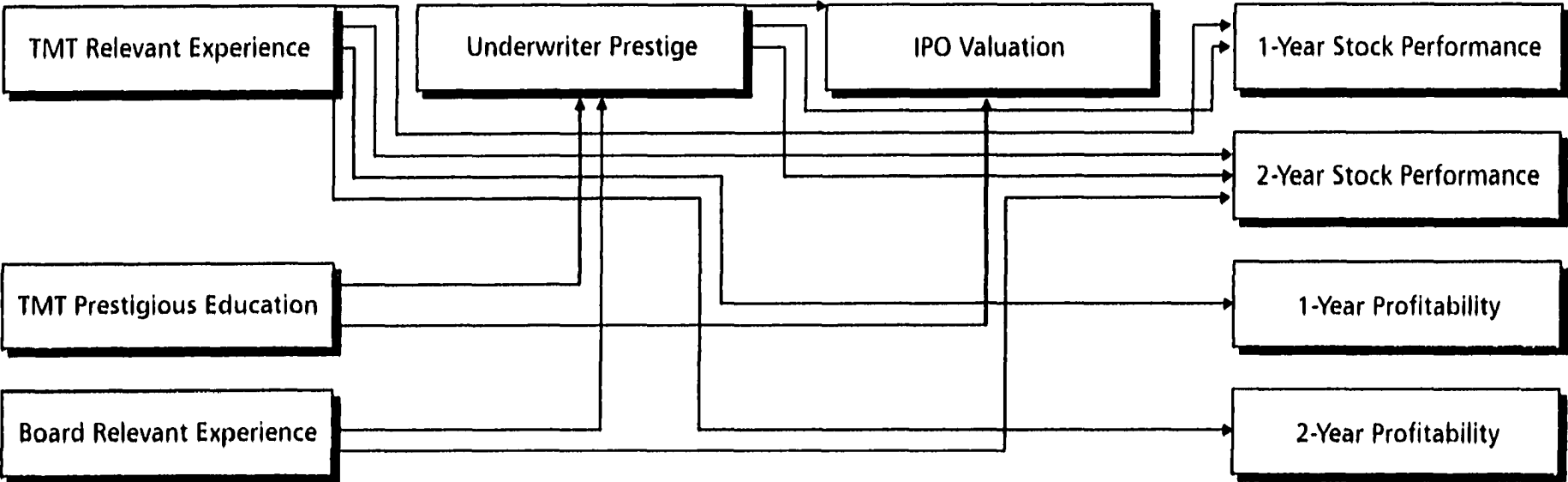


Table 1: Prior Research on IPO Valuation:\*

| Study:   | Independent Variables:                                   | Conception of Valuation:  | Theorized Mechanism:                             | Results: | Sample:   |
|--|--|---|--|----------|---|
| <i>IPO vs. Non-IPO dichotomous independent variables</i> |  |   |  |          |   |
| Aggarwal and Rivoli (1990)                               | IPO firms vs. NASDAQ index                               | 1-day IPO post-IPO abnormal returns<br>2-day IPO post-IPO abnormal returns<br>20-day IPO post-IPO abnormal returns<br>100-day IPO post-IPO abnormal returns<br>1-year IPO post-IPO price appreciation | Fads   | +        | 1598 IPOs between 1977 & 1987   |
| Ritter (1991)  | IPO vs. non-IPO firms (matched by industry & size)       | 3-year post-IPO TSR   | Investor over-optimism<br>Windows of opportunity | •        | 1526 IPO firms and 1526 matched non-IPO firms between 1975 & 1984   |
| Loughran (1993)  | IPO vs. non-IPO firms                                    | Monthly TSR   | IPO misvaluation<br>IPO underpricing             | •        | 3656 NASDAQ IPO firms between 1973 & 1991 that were less than 6 years beyond their IPO and a matched group of NASDAQ & NYSE firms |
| Loughran & Ritter (1995)                                 | IPO vs. non-IPO matching firm (calculated by market cap) | 5-year firm TSR   | IPO misvaluation<br>IPO underpricing             | •        | 4753 IPO firms between 1970 & 1990  |
| <i>Environmental factors as independent variables</i>    |  |   |  |          |   |
| Ibbotson & Jaffe (1975)                                  | # of IPOs in a given year<br>Past market performance     | (1) IPO returns<br>(2) IPO premia (price volatility)<br>(2)   | Hot markets- fads                                | +        | 128 IPO firms between 1960 & 1970   |
|  |  |   |  | NS       |   |
|  |  |   |  | NS       |   |

Table 1 (continued): Prior Research on IPO Valuation:<sup>a</sup>

| Study   | Independent Variables  | Conception of Valuation                                     | Theorized Mechanism  | Results  | Sample  |
|---|--|---|--|--|---|
| <i>Environmental factors as independent variables (continued)</i> |  |   |  |  |   |
| Ritter (1984)   | IPO firm risk regarding the post-IPO price   | IPO firm underpricing at end of 1 <sup>st</sup> trading day | Adverse selection<br>Winner's curse  | +  | 1028 IPO firms from between 1977 & 1982 (including the "hot market" IPOs of Jan. 1980 to Mar. 1981) comparing natural resource to non-natural resource issues |
| Rock (1986)   | Level of interest by uninformed investors in IPO   | IPO firm underpricing                                       | Risk of trading against private information<br>Adverse selection<br>"Winner's curse" | +  | (Theorized)   |
| Time (1988)   | Pre-SEC vs. Post-SEC IPO firms   | IPO firm underpricing<br>+ Underwriter prestige             | Legal liabilities of issuer & underwriter  | -<br>-   | 70 pre-SEC IPO firms from between 1923 & 1930 and 134 post-SEC IPO firms from between 1966 & 1971 (The Securities Act of 1933 created the SEC)                |
| Chemmanur (1993)  | Number of IPO bidders<br>Cost information production<br>IPO firm's intent to return to markets for a follow-on offering soon after the IPO<br>Probability that the IPO firm is of high value<br>IPO gross proceeds | IPO underpricing  | Amount of private information<br>"Hot markets"                                       | +(Theorized)<br>+(Theorized)<br>+(Theorized)<br>- (Theorized)<br>- (Theorized) |   |

Table 1 (continued): Prior Research on IPO Valuation.\*

| Study:  | Independent Variables:   | Conception of Valuation:   | Theorized Mechanism:                              | Results:  | Sample:   |
|---|--|--|---|---|---|
| <i>Environmental factors as independent variables (continued)</i> |  |  |   |   |   |
| Hanley (1993)   | IPO offer amount<br>Absolute change in market during IPO quiet period<br>Size of IPO overallocation option<br>IPO underwriter market share<br>% of issue held by institutions 1 quarter after IPO<br>Width of IPO offering price range | (1) Absolute revision in IPO offering price<br>(2) % change in shares offered in IPO<br>(3) Initial IPO return |   | (1) NS<br>(2) +<br>(3) NS<br>NS<br>+<br>+       | 1430 IPO firms from between 1983 & 1987   |
| Lerner (1994)   | Hot Market<br>• Venture-backed<br>• Going public   |  | Market knowledge                                  | +<br>+  | 350 private venture-backed and non venture-backed biotech firms between 1978 & 1992 |
| Wolfe, Cooperman, & Ferris (1994)                                 | Stock market volatility<br>Speculative IPO firms<br>IPO market activity  | (1) # of prestigious underwriters involved in IPO market<br>Prestige of underwriter<br>(1)                     | Risk<br>Reputational capital                      | +<br>+<br>+                                     | 1192 IPO firms from between 1977 & 1988   |
| <i>IPO firm underpricing as an independent variable</i>           |  |  |   |   |   |
| Beatty & Ritter (1986)  | Ex ante uncertainty about an IPO's value<br>Underwriters who underprice too much or too little   | Underpricing<br>Loss of underwriter market share   | Risk of damaging underwriter's reputation capital | +<br>+  | 1082 IPO firms from 1977 to 1982  |
| Allen & Faulhaber (1989)  | Underpricing IPO offer price   | Returning to the equity markets post-IPO   | IPO firm signaling its quality to market          | + (Theorized)                                   |   |
| Henveniste & Spindt (1989)  | IPO underpricing   | Ex ante value of investors' information level of IPO presales<br>Level of IPO premarket interest               | Information asymmetry                             | + (Theorized)<br>+ (Theorized)<br>+ (Theorized) |   |

Table 1 (continued): Prior Research on IPO Valuation:<sup>a</sup>

| Study:  | Independent Variables:  | Conception of Valuation:  | Theorized Mechanism:   | Results:  | Sample:   |
|---|---|---|--|---|---|
| <i>IPO firm underpricing as an independent variable (continued)</i> |   |   |  |   |   |
| Grimblatt & Hwang (1989)  | IPO firm value<br>IPO underpricing<br>IPO firm value  | (1) IPO underpricing<br>(2) IPO firm's remaining fractional holdings in the firm<br>(2)                         | Signaling<br>asymmetry   | ↑ (Theorized)<br>↑ (Theorized)<br>↑ (Theorized) |   |
| <i>Firm factors as independent variables</i>                        |   |   |  |   |   |
| Ritter (1987)   | Best-efforts vs. firm commitment IPO  | IPO firm's post-IPO volatility  | IPO underpricing less severe for more uncertain new issues                   | ↑<br>NS   | 926 IPO firms from between 1977 & 1982                  |
| Young & Zaima (1988)  | Firm age<br>Industry  | Post-IPO performance  | Risk-return  | ↑<br>NS   | 312 small business IPOs between 1980 and 1984           |
| Welch (1989)  | IPO firm quality  | (1) IPO underpricing<br>(2) IPO firm returns  | Signaling private information<br>High-quality firms value being under-priced | ↑ (Theorized)<br>↑ (Theorized)                  |   |
| Welbourne & Andrews (1996)  | Human resource value<br>Organization-based rewards  | (1) Perceived market potential<br>(1) $\sigma$ , price premium over book value<br>(2) Tobin's Q<br>(3) Survival | Population Ecology   | (1) NS<br>(2) NS<br>(3) ↑                       | 136 nonfinancial IPOs in 1988                           |
| Deeds, DeCarolis, & Coombs (1997)                                   | Geographic proximity of other firms in IPO firm's industry<br>New products in development for IPO firm<br>IPO firm's R&D expenditures<br>Credibility of IPO firm's scientists<br>IPO firm's number of patents | Capital raised by IPO firm (net of underwriter fees)  | Market signaling   | ↑<br>NS<br>↑<br>NS                              | 92 biotech firms that went public between 1982 and 1992 |

Table 1 (continued): Prior Research on IPO Valuation.\*

| Study   | Independent Variables   | Conception of Valuation  | Theorized Mechanism   | Results                        | Sample                                    |
|---|---|--|---|--------------------------------|---|
| <i>Firm factors as independent variables (continued)</i>          |   |  |   |                                |   |
| Rajan & Servaes (1997)  | # of IPOs in a given year<br>IPO firm size<br>Degree an IPO firm is underpriced   | # of analysts following firm 3-years post-IPO  | Analyst optimism  | NS<br>+<br>+                   | 1410 IPO firms from between 1975 & 1987   |
| <i>Agency Theory as basis for independent variables</i>           |   |  |   |                                |   |
| McMahon & Krause (1989)   | Percentage shares owned by insiders<br>Dividends paid out<br>Growth in earnings<br>Debt-to-equity ratio<br>Underwriter's spread | Post-IPO P/E Ratio   | Agency Theory   | +<br>-<br>-<br>NS<br>-         | 759 IPOs between 1978 and 1985            |
| Jain & Kini (1994)  | Dilution in management ownership at IPO   | 3-year post-IPO firm change in ROA<br>3-year post-IPO firm change in cash flow         | Agency theory   | -<br>-                         | 682 IPO firms between 1976 & 1988         |
| <i>Ties to prestigious third parties as independent variables</i> |   |  |   |                                |   |
| Titman & Trueman (1986)   | Underwriter prestige<br>Auditor prestige  | IPO firm initial return  | Information quality   | + (Theorized)<br>+ (Theorized) |   |
| Balvers, McDonald & Miller (1988)                                 | Underwriter prestige at IPO<br>* Auditor prestige at IPO<br>Auditor prestige at IPO   | (1) Auditor prestige at IPO<br>(2) Underpricing of IPO firm                            | Asymmetry of information<br>Signaling quality<br>Underpricing equilibrium | (1)<br>+<br>-<br>-             | 1182 IPO firms from between 1981 and 1985 |
| Beatty (1989)   | Auditor prestige at IPO<br>Premium charged by auditor   | Underpricing of IPO firm   | Asymmetry of information  | Mixed<br>-                     | 2567 IPO firms from 1975 to 1984          |
| Carter & Manaster (1990)  | Underwriter prestige  | IPO firm 1 <sup>st</sup> day price run-up<br>IPO firm 1 <sup>st</sup> day price run-up | Fewer uninformed investors  | -<br>-                         | 501 IPOs from 1979 to 1983                |

Table 1 (continued): Prior Research on IPO Valuation:

| Study:  | Independent Variables:   | Conception of Valuation:  | Theorized Mechanism:                                 | Results: | Sample:   |
|---|--|---|--|----------|---|
| <i>Ties to prestigious third parties as independent variables (continued)</i> |  |   |  |          |   |
| Meggison & Weiss (1991)   | Venture-capital (VC) backed vs. non-VC backed IPO firms  | Prestige of IPO underwriter & auditor<br>Institutional investors<br>IPO underpricing<br>IPO costs | Reducing information asymmetry through certification | +        | 320 VC backed IPOs matched with 320 non-VC backed IPOs from between 1983 to 1987                          |
| Gompers (1996)  | Venture capital firm age   | Age at IPO  |  | -        | 433 venture-backed IPOs taken public between 1978 & 1987 and 62 venture capital funds between 1983 & 1993 |
|   |  | Amount offered in IPO   |  | +        |   |
|   |  | Net proceeds to the firm from IPO   |  | +        |   |
| Carter, Dark, & Singh (1998)  | Underwriter prestige   | Length of time before taking their portfolio companies public                                     | Reputation-building                                  | +        | 2292 IPO firms between 1979 & 1991  |
|   |  | Underpricing of portfolio firm at IPO date  | "Grandstanding"                                      | -        |   |
|   |  | Portfolio firm offering size  |  | +        |   |
|   |  | % equity held in portfolio IPO firm by VC   |  | NS       |   |
|   |  | Age of portfolio firm at IPO  |  | +        |   |
| Pollock (1998)  | Institutional investor capitalization<br>Underwriter reputation<br>Firm investment potential<br>Underwriter embeddedness with<br>insider investors<br>Underwriter embeddedness with<br>venture capitalists<br>Venture capitalist backing | Underwriter prestige for portfolio IPO firm   |  | +        | 246 IPOs from 1992  |
|   |  | 1 <sup>st</sup> -day IPO performance  | Quality certification                                | -        |   |
|   |  | 3-year IPO performance  |  | +        |   |
| Mayhew (1999)   | Underwriter prestige at IPO  | (1) Stock price premium at IPO  | Social Networks                                      | (1)      | 631 IPO firms between 1986 and 1989   |
|   |  | (2) Ownership concentration of stock post-IPO   | Embeddedness   | NS       |   |
|   |  | (3) Underwriter commission  |  | +        |   |
|   |  |   |  | +        |   |
|   |  |   |  | NS       |   |
|   |  |   |  | +        |   |
| Mayhew (1999)   | Underwriter prestige at IPO  | Amount of post-IPO analyst coverage   | Matthew effect                                       | +        | 631 IPO firms between 1986 and 1989   |
|   |  | Post-IPO trading volume   |  | +        |   |
|   |  | Post-IPO institutional investors  |  | +        |   |
|   |  | Holding secondary offerings   |  | +        |   |



Table 1 (continued): Prior Research on IPO Valuation:

| Study:  | Independent Variables:  | Conception of Valuation:   | Theorized Mechanism:                 | Results:   | Sample:  |
|---|---|--|--------------------------------------|--|--|
| <i>Ties to prestigious third parties as independent variables (continued)</i> |   |  |                                      |  |  |
| Stuart, Hoang, & Hybels (1999)  | (A) Firm's strategic alliance partner's prominence<br>(B) Firm's owners' prominence<br>(C) Firm's investment bank's prominence<br>(A) • uncertainty of firm's quality<br>(B) • uncertainty of firm's quality<br>(C) • uncertainty of firm's quality   | (1) Rate of going public<br>(2) IPO firm market capitalization   | Social networks                      | (1) (2)<br>NS Mixed<br>+ Mixed<br>+<br>Mixed Mixed +<br>+                              | 301 biotech IPO firms from between 1978 & 1991 |
| <i>Top management team/board characteristics as independent variables</i>     |   |  |                                      |  |  |
| Andrews (1995)  | # of independent directors<br>Prestige of outside directors   | (1) Firm valuation at IPO<br>(2) Increase in sales & profitability post-IPO<br>(3) Firm 5-year post-IPO survival   | Legitimacy                           | (1) (2) (3)<br>+ NS NS<br>NS NS NS   | 136 IPO firms from 1988                        |
| Finkle (1998)   | Board size at IPO<br># of directors from a prestigious VC firm at IPO<br># of directors from a prestigious underwriter at IPO<br># of directors who are university scientists at IPO<br>Firm with CEO who is former university scientists at IPO<br>Firm with CEO who has a financial background at IPO | (1) IPO firm net proceeds<br>(2) 1-year IPO post-IPO risk-adjusted return<br>(3) 2-year IPO post-IPO risk-adjusted return                                | Resource dependence<br>Agency theory | (1) (2) (3)<br>NS NS NS<br>+ NS NS<br>+ NS NS<br>NS NS NS<br>+ NS NS<br>+ NS NS        | 125 biotech IPO firms from between 1980 & 1994 |
| Nelson (1998)   | Founder CEO at IPO<br>Equity holdings of CEO<br>Founder Chair/CEO at IPO<br>Founder active in firm at IPO   | (1) Proportion of insiders at IPO<br>(2) # of directors at IPO<br>(3) CEO duality at IPO<br>(4) Stock price premium at IPO<br>(5) Post-IPO firm survival | Firm founder effects                 | (1) (2) (3) (4) (5)<br>NS + NS NS NS<br>+ - - NS Mixed<br>NS NS NS NS<br>NS + NS NS NS | 234 IPOs from 1991                             |

Table 1 (continued): Prior Research on IPO Valuation.\*

| Study:  | Independent Variables:   | Conception of Valuation:   | Theorized Mechanism:              | Results:   | Sample:  |
|---|--|--|-----------------------------------|--|--|
| <i>Top management team board characteristics as independent variables (continued)</i> |  |  |                                   |  |  |
| Zimmerman (1998)  | Firm endorsements by press<br>Firm identification with prestigious actors at IPO<br>Firm member networks (board ties)<br>CEO duality<br>R&D intensity<br>Board independence<br>Firm member credentials   | (1) Firm I/SR 2-years post-IPO<br>(2) Firm sales growth 2-years post-IPO | Legitimacy                        | (1) NS<br>(2) Mixed<br>NS<br>NS<br>NS<br>NS<br>Mixed | 121 software firms that held IPOs between 1993 & 1996    |
| Higgins & Cudam (1999)  | Downstream IPO team social capital<br>Intraindustry IPO team social capital<br>Upstream IPO team social capital<br>Range of social capital types on IPO team<br>Complementarity of CEO's social capital with rest of IPO team's social capital | (1) Underwriter prestige at IPO<br>(2) IPO Valuation                     | Social capital<br>Social networks | (1) +<br>(2) +<br>NS<br>+<br>NS                      | 295 biotech firms that went public between 1979 and 1996 |
| Welbourne & Cyr (1999)  | HRM executive on top management team<br>• Firm growth<br>• Firm Size<br>• Small Firm & Firm Growth   | (1) 3-year post-IPO I/SR<br>(2) 3-year post-IPO EPS                      | HR Management                     | (1) NS<br>(2) +<br>NS<br>+<br>NS                     | 476 firms that went public in 1993                       |

\* Significant results (denoted by + or -) were based on  $p < .05$  or better

Table 2: Prior Research on Top management team/Board Human Capital-like Effects on Organizational Outcomes:<sup>a</sup>

| Study   | Dependent Variables                            | Independent Variables   | Theorized Mechanism   | Results  | Sample   |
|---|--|---|-----------------------|--|--|
| <i>Top management team Human Capital-like independent variables</i> |  |   |                       |  |  |
| Gupta & Govindarajan (1984)   | SBU performance                                | (A) CIM marketing/sales experience<br>(B) CIM willingness to take risks<br>(C) CIM tolerance for ambiguity<br>(D) SBU "build" strategy<br>(A) * (D)<br>(B) * (D)<br>(C) * (D)   | Fitness of background | +<br>+<br>+<br>+   | 58 SBUs in 8 Fortune 500 firms in 1980   |
| Eisenhardt & Schoonhoven (1996)                                     | Rate of alliance formation                     | Number of firm competitors<br>Emergent-stage market<br>Growth-stage market<br>Mature-stage market<br>Innovative firm strategy<br>Number of previous industry employers of Top management team members<br>Level of previous jobs held by TMT members<br>TMT size   | Resource-based view   | Mixed<br>+<br>+<br>NS<br>+<br>+<br>+<br>+  | 102 semiconductor firms from between 1978 and 1985   |
| Bueker (1997)   | Focal firm's adoption of competitor's strategy | (A) Acquiring a top manager from a competitor<br>(A) * top manager's functional background in R&D, product engineering, marketing or sales<br>(A) * top manager's ranking<br>(A) * top manager's industry tenure<br>(A) * top manager's former firm's size<br>(A) * focal firm's average TMT tenure<br>(A) * focal firm's TMT tenure heterogeneity<br>(A) * focal firm's TMT size | Upper-echelons        | +<br>Mixed (only R&D, Engineering) private firms from Silicon Valley from between 1976 and 1993<br>- (former direct reports to CEO)<br>+<br>NS<br>-<br>NS<br>+ | 67 semiconductor producers (public and private) from Silicon Valley from between 1976 and 1993 |

**Table 2 (continued): Prior Research on Top management team/Board Human Capital-like Effects on Organizational Outcomes:<sup>a</sup>**

| Study:  | Dependent Variables: | Independent Variables:  | Theorized Mechanism:   | Results:        | Sample:   |
|---|----------------------|---|--|-----------------|---|
| <i>Top management team Human Capital-like independent variables</i> |                      |   |  |                 |   |
| Gimeno, Folta, Cooper, & Woo (1997)                                 | Exit from business   | General human capital<br>Specific human capital<br>Psychic income from entrepreneurship<br>Switching costs (entrepreneur age) | Income availability from other employment<br>Economic NS performance | Mixed<br>.<br>. | Surveyed 4814 entrepreneurs who ran their own firms in 1985 |

<sup>a</sup> Significant results (denoted by + or -) were based on  $p < .05$  or better

Table 3: Prior Research on Top Management Team/Board Social Capital-like Effects on Organizational Outcomes:<sup>a</sup>

| Study  | Dependent Variables   | Independent Variables   | Theorized Mechanism                  | Results   | Sample  |
|--|---|---|--------------------------------------|---|---|
| <i>Top management team Social Capital-like independent variables</i>                                 |   |   |                                      |   |   |
| D'Aveni (1990)   | Bankruptcy  | TMT prestige  | Social connections<br>Team resources | -   | 57 matched pairs of large bankruptcies and survivors between 1972 and 1982                      |
| Boeker (1997)  | Focal firm's adoption of competitor's strategy                | (A) Acquiring a top manager from a competitor<br>(A) * top manager's functional background in R&D, product engineering, marketing or sales<br>(A) * top manager's ranking<br>(A) * top manager's industry tenure<br>(A) * top manager's former firm's size<br>(A) * focal firm's average TMT tenure<br>(A) * focal firm's TMT tenure heterogeneity<br>(A) * focal firm's TMT size | Upper-echelons                       | +<br>Mixed (only R&D, Engineering)<br>- (former direct reports to CEO)<br>+<br>NS<br>-<br>NS<br>- | 67 semiconductor producers (public and private) from Silicon Valley from between 1976 and 1993  |
| <i>Gietzkatycz &amp; Hambrick (1997) (1) Strategic conformity<br/>(2) Organizational performance</i> |   |   |                                      |   |   |
|  |   | (A) TMT intraindustry ties<br>(B) TMT extraindustry ties<br>(1) * Uncertain environment<br>(1) * (A)<br>(1) * (B)   | Strategic choice<br>Social networks  | (1)<br>NS<br>-<br>+<br>NS<br>Mixed  | 30 large, publicly-traded firms from the branded foods and computer industries for 1983 to 1987 |
| <i>Board Social Capital-like independent variables</i>   |   |   |                                      |   |   |
| Provan (1980)  | Firm performance (i.e., funding received from the United Way) | Board prestige<br>Board linkages of other human service agencies<br>Board size<br>% males   | Power<br>Agency theory               | NS<br>+<br>-<br>NS  | 46 nonprofit human service agencies in the northeastern US                                      |

**Table 3 (continued): Prior Research on Top Management Team/Board Social Capital-like Effects on Organizational Outcomes:<sup>a</sup>**

| Study:   | Dependent Variables:   | Independent Variables:  | Theorized Mechanism:  | Results:                          | Sample:   |
|--|--|---|---|-----------------------------------|---|
| <i>Board Social Capital-like independent variables</i> |  |   |   |                                   |   |
| Davis (1991)   | Adoption of poison pills                                     | % inside directors<br>Inside directors' equity<br>Network centrality<br>Ties to adopters  | Agency theory<br>Social class theory<br>& interorganizational<br>cohesion | NS<br>-<br>+<br>+                 | 440 Fortune 500 firms<br>between 1981 and 1989  |
| D'Aveni & Kesner (1993)                                | Resistance to tender offers                                  | # of inside directors compared<br>to # of outside directors<br>% CEO family directors<br>Inside directors' tenure<br>% directors with vice-chair or<br>chair titles<br>% lawyers on board           | Social class theory<br>Resource dependence<br>Agency theory               | -<br>-<br>NS<br>+                 | 106 tender offers between<br>1984 and 1986  |
| Hannusch (1993)  | # of acquisitions in a year                                  | # of acquisitions by firms<br>in which inside directors sit<br>on the board<br># of firms in which inside<br>directors sit on the board   | Institutional theory  | +, & inverted-U<br><br>Inverted-U | 327 medium and large<br>firms between 1981 and<br>1990  |
| Palmer, Jennings, &<br>Zhou (1993)                     | Adoption of multi-divisional<br>form (MDF)                   | Family directors with 5% equity<br>Banking representation on board<br>Institutional theory<br>with 5% equity<br>Director interlocks with non-<br>MDF firms<br>Director interlocks with MDF<br>firms | Political theory<br>Institutional theory                                  | NS<br>NS<br>NS<br>Mixed           | 105 Fortune 500 firms<br>between 1963 and 1968<br>with a unitary organization<br>form in 1962 |
| Stearns & Mizumachi (1993)                             | Corporate long-term,<br>short-term, and private<br>borrowing | Presence of different types of<br>financial representatives on<br>board   | Resource dependence   | +                                 | 22 Fortune 500 firms<br>between 1956 and 1983   |

Table 3 (continued): Prior Research on Top Management Team/Board Social Capital-like Effects on Organizational Outcomes:<sup>a</sup>

| Study:  | Dependent Variables:        | Independent Variables:  | Theorized Mechanism: | Results: | Sample:                                |
|---|-----------------------------|---|----------------------|----------|--|
| <i>Board Social Capital-like independent variables (continued)</i>          |                             |   |                      |          |  |
| Hannuschild (1994)  | Size of acquisition premium | Average premium paid by firms in which inside directors sit on the board<br>• Target firm uncertainty | Institutional theory | +        | 240 acquisitions between 1986 and 1993 |
| • Significant results (denoted by + or -) were based on $p < .05$ or better |                             |   |                      |          |  |

Table 4: Prior Research on Top management team/board Social Structure Effects on Organizational Outcomes.\*

| Study:  | Dependent Variables:  | Independent Variables:  | Theorized Mechanism:   | Results:   | Sample:  |
|---|---|---|--|--|--|
| <i>Top management team Social Structure independent variables</i> |   |   |  |  |  |
| Wagner, Pfeffer, & O'Reilly (1984)                                | Likelihood of top manager remaining                               | TMF age heterogeneity<br>TMF firm tenure heterogeneity<br>Prior firm performance  | Consensus  | -<br>-<br>+  | 31 randomly-selected 1976 <i>Fortune</i> 500 firms       |
| Bantel & Jackson (1989)   | Innovativeness  | Age heterogeneity<br>Firm tenure heterogeneity<br>Educational specialization heterogeneity<br>Dominant functional heterogeneity<br>Team size                      | Cognitive diversity  | NS<br>NS<br>NS<br>+<br>NS                                    | 199 banks  |
| Murray (1989)   | (1) Short-term firm performance<br>(2) Long-term firm performance | (A) Temporal heterogeneity<br>(B) Occupational heterogeneity<br>Industry Rivalry<br>Industry Change   | "Clannishness"   | (1) (2)<br>NS +<br>Mixed NS<br>NS Mixed<br>NS Mixed<br>NS NS | 84 firms in oil and food industries between 1967 & 1981  |
| O'Reilly, Caldwell, & Barnett (1989)                              | (1) Organization innovation<br>(2) Return on equity               | (A) Firm tenure heterogeneity<br>(B) Age heterogeneity<br>Team size<br>Industry   | Social integration   | (1) (2)<br>Mixed NS<br>Mixed NS<br>NS NS<br>NS NS            | 40 firms in 4 industries in 1983                         |
| Eisenhardt & Schoonhoven (1990)                                   | Growth among new firms  | (1) Previous joint work experience<br>(2) Industry tenure heterogeneity<br>(3) Team size<br>(4) Index of (1), (2), and (3)<br>(5) Growth-stage market<br>Firm age | Speed in decision making<br>Constructive conflict<br>Specialization in decision making | Mixed +<br>+<br>+<br>+<br>NS<br>NS<br>+<br>+<br>+            | 92 new semiconductor firms founded between 1978 and 1985 |



Table 4 (continued): Prior Research on Top management team/Board Social Structure Effects on Organizational Outcomes:<sup>a</sup>

| Study:  | Dependent Variables:   | Independent Variables:  | Theorized Mechanism:   | Results:  | Sample:  |
|---|--|---|--|---|--|
| <i>Top management team Background heterogeneity independent variables</i> |  |   |  |   |  |
| Hambrick & D'Aveni (1992)   | Bankruptcy   | Firm tenure heterogeneity<br>CEO dominance<br>Team size   | Social structure<br>Team resources   | Mixed<br>Mixed<br>Mixed   | 57 matched pairs of large bankruptcies and survivors between 1972 and 1982 |
| Wiersema & Bantel (1992)  | Corporate strategic change   | Age heterogeneity<br>Organizational tenure heterogeneity<br>Executive team heterogeneity<br>Educational specialization heterogeneity<br>Team size                                   | Diversity of Information sources and perspectives<br>Creative-innovative decision making | NS<br>NS<br>NS<br>+   | 87 Fortune 500 firms between 1980 and 1983                                 |
| Glick, Miller, & Huber (1993)   | (1) Performance diversity<br>(2) Belief diversity<br>(3) Comprehensiveness<br>(4) Communication effectiveness<br>(5) Cohesion<br>(6) Open systems effectiveness<br>(7) Profitability | Functional diversity<br>Age diversity<br>TMT tenure diversity   | Creativity and change<br>Social cohesion   | (1)(2) (3) (4) (5)(6) (7)<br>NS M NS NS NS NS NS<br>NS M NS NS NS + NS<br>NS NS NS NS NS NS NS<br>NS NS NS NS NS NS + | 78 RUs of firms  |
| Hatchellian & Finkelstein (1993)  | Firm performance   | Environmental turbulence<br>• CEO dominance<br>• Team size  | Information-processing capabilities  | •<br>+  | 47 firms in the computer & natural gas industries between 1978 & 1982      |
| Michel & Hambrick (1992)  | Interdependence of diversification posture<br>Return on Assets   | (1) TMT tenure homogeneity<br>(2) Dominant functional homogeneity<br>(3) Average number of interunit moves<br>Interdependence of diversification posture<br>• (1)<br>• (2)<br>• (3) | Social cohesion<br>Knowledge base  | •<br>NS<br>NS<br>NS<br>NS<br>NS<br>NS   | 134 Fortune 500 firms between 1971 & 1974                                  |

Table 4 (continued): Prior Research on Top Management Team/Board Social Structure Effects on Organizational Outcomes:<sup>a</sup>

| Study:  | Dependent Variables:  | Independent Variables:   | Theorized Mechanism:  | Results:   | Sample:  |
|---|---|--|---|--|--|
| <i>Top management team Social Structure independent variables</i> |   |  |   |  |  |
| Smith, Smith, Olian, Sims, O'Bannon, & Scully (1994)              | (1) Return on Investment<br>(2) Sales growth<br>(3) Social integration<br>(4) Informal communication<br>(5) Communication frequency   | Tenure heterogeneity<br>Education heterogeneity<br>Dominant functional heterogeneity<br>Team size<br>Social integration<br>Communication frequency<br>Informal communication | Social integration<br>Informal communication<br>Communication frequency | (1) (2) (3) (4) (5)<br>- NS NS - NS<br>+ + NS NSNS<br>NS NS NS NSNS<br>NS NS NS - NS<br>+ +<br>- +<br>NS + | 53 small technology-based firms  |
| Sutcliffe (1994)  | Accuracy of TMT's perception of<br>(1) environmental instability<br>(2) environmental munificence   | Functional diversity<br>Team size  | Information diversity   | (1) (2)<br>NS +<br>NS NS   | 65 single-business firms   |
| Hambrick, Cho, & Chen (1996)                                      | (1) Firm's action propensity<br>(2) Strategic significance of firm's actions<br>(3) Noteworthiness of firm's actions<br>(4) Scope of firm's actions<br>(5) Firm's execution speed<br>(6) Firm's response propensity<br>(7) Noteworthiness of firm's responses<br>(8) Scope of firm's responses<br>(9) Firm's response generation speed<br>(10) Firm's response execution speed<br>(11) Overall performance improvements in turbulent industry | TMT educational background heterogeneity<br>TMT company tenure heterogeneity<br>TMT functional background heterogeneity  | Upper-echelons  | (1)(2)(3)(4)(5)(6)(7)(8)(9)(10)(11)<br>+NS++ + + NSNSNS++<br>+NSNSNSNS+NSNS+NSM<br>NS+++ + + + + + + +     | Competitive moves of 32 major airlines (i.e., > \$100 MM in annual revenues) between 1979 and 1986 |
| Burton, Sorensen, & Beckman (1999)                                | (1) Likelihood of firm pursuing innovation strategy<br>(2) Probability of firm obtaining external financing at founding   | Prominence of prior employers of new venture's founding TMT  | Social structure<br>Social networks                                     | (1) (2)<br>+ Mixed   | 173 high-tech firms from Silicon Valley between 1994 & 1995  |

<sup>a</sup> Significant results (denoted by + or -) were based on  $p < .05$  or better

**Table 5: The overall number of and funds raised for IPOs between 1970 - 2000:**

| Year: | # of IPOs: | Funds Raised (in \$ billions): |
|-------|------------|--------------------------------|
| 1970  | 160        | .5                             |
| 1971  | 203        | 1.0                            |
| 1972  | 406        | 2.1                            |
| 1973  | 81         | 1.4                            |
| 1974  | 7          | .1                             |
| 1975  | 6          | .2                             |
| 1976  | 33         | .3                             |
| 1977  | 21         | .2                             |
| 1978  | 19         | .2                             |
| 1979  | 78         | .4                             |
| 1980  | 78         | 1.1                            |
| 1981  | 196        | 2.5                            |
| 1982  | 76         | 1.1                            |
| 1983  | 491        | 11.8                           |
| 1984  | 202        | 3.2                            |
| 1985  | 230        | 6.0                            |
| 1986  | 494        | 17.1                           |
| 1987  | 346        | 16.0                           |
| 1988  | 136        | 5.9                            |
| 1989  | 128        | 5.8                            |
| 1990  | 116        | 4.4                            |
| 1991  | 292        | 16.3                           |
| 1992  | 405        | 22.5                           |
| 1993  | 540        | 32.5                           |
| 1994  | 420        | 21.6                           |
| 1995  | 464        | 28.2                           |
| 1996  | 723        | 47.5                           |
| 1997  | 523        | 37.7                           |
| 1998  | 329        | 34.7                           |
| 1999  | 505        | 65.7                           |
| 2000  | 429        | 73.2                           |

Source: Broady and Ehrlich, 1999; Willoughby, 1999

**Table 6: Four-digit SIC codes with more than 10 IPOs between 1994 and 1998:**

| Industry:                            | Unlevered Beta: | <i>Number of IPOs in the following years:</i> |       |       |       |       | Total: |
|--------------------------------------|-----------------|---|-------|-------|-------|-------|--------|
|                                      |                 | 1994:   | 1995: | 1996: | 1997: | 1998: |        |
| Computer Prog. Svcs. (7371):         | 1.535           | 6   | 12    | 22    | 17    | 7     | 64     |
| Semiconductors (3674):               | 1.385           | 7   | 19    | 6     | 14    | 11    | 57     |
| Comm. Phys. & Bio. Res. (8731):      | 1.235           | 8   | 8     | 17    | 6     | 6     | 45     |
| Computer Integ. Designs (7373):      | 1.218           | 7   | 15    | 29    | 19    | 11    | 81     |
| Telephone and telegraph (3661):      | 1.145           | 11  | 7     | 9     | 8     | 3     | 38     |
| Computer Software (7372):            | .955            | 27  | 69    | 78    | 28    | 29    | 231    |
| Pharmaceuticals (2834):              | .947            | 16  | 15    | 27    | 16    | 6     | 80     |
| Diagnostic Medical Equip. (3841):    | .861            | 5   | 9     | 25    | 5     | 2     | 46     |
| Computer Manufacturing (3577):       | .716            | 9   | 15    | 8     | 10    | 2     | 44     |
| Restaurants (5812):                  | .485            | 11  | 11    | 16    | 7     | 5     | 50     |
| Life Insurance (6311):               | .464            | 1   | 6     | 2     | 1     | 5     | 15     |
| Crude Petrol. and Nat. Gas (1311):   | .391            | 2   | 1     | 7     | 7     | 1     | 18     |
| Hotels (7011):                       | .341            | 8   | 5     | 10    | 3     | 2     | 28     |
| Radiotelephone Commun. (4812):       | .258            | 9   | 6     | 16    | 2     | 3     | 36     |
| Personal Credit Institutions (6141): | .225            | 2   | 9     | 7     | 1     | 0     | 19     |
| <b>Total IPOs per year:</b>          |                 | 129   | 207   | 279   | 144   | 93    | 852    |

Source: Securities Data Corp. Global New Issues Database

**Table 7: Frequencies for all 15 SICs for 1994 - 1996 (compared to overall # of IPOs):**

| Year:    | IPOs for 15 SICs: | Total # of IPOs: | Total IPOs represented by 15 SICs: |
|----------|-------------------|------------------|------------------------------------|
| 1994     | 150               | 420              | 36%                                |
| 1995     | 219               | 464              | 47%                                |
| 1996     | 296               | 723              | 41%                                |
| Average: | 222               | 536              | 41%                                |

Source: Securities Data Corp. Global New Issues Database

**Table 8: Industry Unlevered Betas from 1994 to 1996:**

| <u>Industry:</u>                | <u>SIC code:</u> | <u>Unlevered Beta:</u> |
|---------------------------------|------------------|------------------------|
| Computer Programming Services   | 7371             | 1.535                  |
| Semiconductors                  | 3674             | 1.385                  |
| Biotech                         | 8731             | 1.235                  |
| Computer Integrated Designs     | 7373             | 1.218                  |
| Telephone and telegraph         | 3661             | 1.145                  |
| Computer Software               | 7372             | .955                   |
| Pharmaceuticals                 | 2834             | .947                   |
| Diagnostic Medical Equipment    | 3841             | .861                   |
| Computer Manufacturing          | 3577             | .716                   |
| Restaurants                     | 5812             | .485                   |
| Life Insurance                  | 6311             | .464                   |
| Crude Petroleum and Natural Gas | 1311             | .391                   |
| Hotels                          | 7011             | .341                   |
| Radiotelephone Communications   | 4812             | .258                   |
| Personal Credit Institutions    | 6141             | .225                   |

Source: CRSP/COMPUSTAT

**Table 9: List of Variables:**

| <b>Proposed Construct:</b>                       | <b>Variable Name/Measure:</b>  |
|--|--|
| <b><i>TMT Human Capital:</i></b>                 | <p><b>Factor 1 – Relevant Experience:</b></p> <ol style="list-style-type: none"> <li>1. Percentage with Industry Experience</li> <li>2. Average Prior Position Level</li> <li>3. Average Focal Company Tenure</li> </ol> <p><b>Factor 2 - Prestigious Education (in Supplemental Analyses only):</b></p> <ol style="list-style-type: none"> <li>1. Average Years of Formal Education</li> <li>2. Percentage from Elite College</li> <li>3. Percentage from Elite Graduate School</li> </ol> <p><b>Factor 3 – Percentage of Team with Prior Joint Work Experience</b></p> |
| <b><i>TMT Social Capital:</i></b>                | <p><b>Factor 1 –Industry Social Capital</b></p> <ol style="list-style-type: none"> <li>1. Average Board Ties to Prominent Focal Industry Firms</li> <li>2. Average Past Work Ties to Prominent Focal Industry Firms</li> </ol> <p><b>Factor 2 - “Blue-Chip” Social Capital</b></p> <ol style="list-style-type: none"> <li>1. Average Board ties to “Blue-Chip” Firms</li> <li>2. Average Past Work Ties to “Blue-Chip” Firms</li> </ol>  |
| <b><i>Board Human Capital:</i></b>               | <p><b>Factor 1 – Relevant Experience</b></p> <ol style="list-style-type: none"> <li>1. Percentage with Focal Industry Experience</li> <li>2. Average Focal Board Tenure</li> <li>3. Average Age</li> </ol>   |
| <b><i>Board Social Capital:</i></b>              | <p><b>Factor 1 – Industry Social Capital</b></p> <ol style="list-style-type: none"> <li>1. Average Interlocking Ties to Elite Focal Industry Firms</li> <li>2. Average Past Work Ties to Elite Focal Industry Firms</li> </ol> <p><b>Factor 2 - “Blue-Chip” Social Capital</b></p> <ol style="list-style-type: none"> <li>1. Average Interlocking Ties to “Blue-Chip” Firms</li> <li>2. Average Past Work Ties to “Blue-Chip” Firms</li> </ol>   |
| <b><i>Ties to Prestigious Third Parties:</i></b> | <p>A) Underwriter Prestige</p> <p>B) Prominent Venture Capitalist-Backed (=1)</p>  |
| <b><i>IPO Valuation:</i></b>                     | Market valuation of the firm at the time of IPO less net proceeds to the firm  |

**Table 9 (continued): List of Variables:**

| <b>Proposed Construct:</b>   | <b>Variable Name/Measure:</b>   |
|------------------------------|---|
| <i>Post-IPO Performance:</i> | <p>A) Stock performance</p> <ol style="list-style-type: none"> <li>1. Total Shareholder Returns - 1 year post-IPO</li> <li>2. Total Shareholder Returns - 2 years post-IPO</li> </ol> <p>B) Operating performance</p> <ol style="list-style-type: none"> <li>1. Sales growth 1 year post-IPO</li> <li>2. Sales growth 2 years post-IPO</li> <li>4. Return on sales 1 year post-IPO</li> <li>5. Return on sales 2 years post-IPO</li> </ol>  |
| <i>Controls:</i>             | <p>A) Pre-IPO Firm Potential = <math>f(\text{Firm Age at IPO, Firm Size at IPO, Pre-IPO Firm Capitalization})</math></p> <p>B) Market Conditions = <math>f(\text{IPO Market Conditions at IPO, General Market Conditions at IPO, and Specific Industry Conditions at IPO})</math></p> <p>C) Firm Profitability and IPO Float Factor = <math>f(\text{Firm Profitability at IPO and IPO Float})</math></p> <p>D) Lambda (Saved Probabilities from 1<sup>st</sup> Stage Regression)</p> <p>E) 1 Year Post-IPO Conditions = <math>f(\text{1 Year Market and Industry Stock Performance})</math></p> <p>F) 2 Year Post-IPO Conditions = <math>f(\text{2 Year Market and Industry Stock Performance})</math></p> <p>G) IPO Market Valuation</p> |



**Table 10:****Differences between Private and Public Firms in Sample:****Private Firms:**

| <b>Variable:</b>                | <b>Mean:</b> | <b>St. Dev.:</b> | <b>N:</b> | <b>Min:</b> | <b>Max:</b> |
|---------------------------------|--------------|------------------|-----------|-------------|-------------|
| Age in 1994:                    | 20.57        | 17.61            | 413       | 1           | 168         |
| Revenues (\$MM)<br>in 1994:     | 26.82        | 67.67            | 350       | 1           | 600         |
| Number of<br>Employees in 1994: | 529.25       | 1735.51          | 407       | 3           | 16000       |
| Percentage from a<br>Hot State: | .0783        | .2691            | 421       | 0           | 1           |
| Software Dummy                  | .2637        | .4411            | 421       | 0           | 1           |

**Public Firms:**

| <b>Variable:</b>                | <b>Mean:</b> | <b>St. Dev.:</b> | <b>N:</b> | <b>Min:</b> | <b>Max:</b> |
|---------------------------------|--------------|------------------|-----------|-------------|-------------|
| Age in 1994:                    | 8.92         | 9.66             | 146       | .25         | 62.75       |
| Revenues (\$MM)<br>in 1994:     | 53.73        | 149.35           | 152       | 1.1         | 1619.3      |
| Number of<br>Employees in 1994: | 1182.1       | 2851.76          | 151       | 7           | 24000       |
| Percentage from a<br>Hot State: | .1353        | .343             | 170       | 0           | 1           |
| Software Dummy:                 | .5588        | .4980            | 170       | 0           | 1           |

**Table 11:****Analysis of Variance for Private and Public Firm Variables:**

| <b>Variables</b>                | <b>F</b> | <b><i>p</i></b> |
|---------------------------------|----------|-----------------|
| Age in 1994:                    | 57.67    | <.001           |
| Revenues (\$MM)<br>in 1994:     | 7.73     | <.01            |
| Number of<br>Employees in 1994: | 10.69    | <.005           |
| Percentage from a<br>Hot State: | 4.59     | <.05            |
| Software Dummy:                 | 50.26    | <.001           |

**Table 12:****Differences between Firms' IPO Years in Sample:**

| <b>Variable:</b>  | <b>Mean:</b> | <b>St. Dev.:</b> | <b>N:</b> | <b>Min:</b> | <b>Max:</b> |
|---|--------------|------------------|-----------|-------------|-------------|
| <b>Age at IPO:</b>  |              |                  |           |             |             |
| 94  | 12.76        | 14.35            | 17        | .75         | 50          |
| 95  | 4.46         | 6.17             | 12        | .25         | 17.75       |
| 96  | 9.27         | 8.36             | 61        | .25         | 34.75       |
| 97  | 9.88         | 11.21            | 37        | .25         | 62.75       |
| 98  | 5.3          | 4.2              | 19        | .75         | 13.5        |
| <b>Revenues (\$MM) at IPO:</b>                                |              |                  |           |             |             |
| 94  | 42.4         | 57               | 18        | 1.7         | 213         |
| 95  | 39.88        | 78.74            | 13        | 1.1         | 295.1       |
| 96  | 65.66        | 205.47           | 65        | 1.3         | 1619.3      |
| 97  | 58.46        | 118.47           | 36        | 2           | 706.5       |
| 98  | 25.66        | 27.95            | 20        | 1.5         | 126.5       |
| <b>Number of Employees at IPO:</b>                            |              |                  |           |             |             |
| 94  | 2485.35      | 3335.87          | 17        | 30          | 11600       |
| 95  | 1560.67      | 1458.96          | 12        | 104         | 3560        |
| 96  | 1084.76      | 2607.1           | 63        | 7           | 18000       |
| 97  | 1064.28      | 3797.78          | 39        | 11          | 24000       |
| 98  | 383.55       | 483.5            | 20        | 23          | 1900        |
| <b>Percentage from a Hot State:</b>                           |              |                  |           |             |             |
| 94  | 0            | 0                | 18        |             |             |
| 95  | 0            | 0                | 14        |             |             |
| 96  | .20          | .40              | 75        | 0           | 1           |
| 97  | .15          | .36              | 41        | 0           | 1           |
| 98  | .09          | .29              | 22        | 0           | 1           |
| <b>Software Dummy:</b>  |              |                  |           |             |             |
| 94  | 0            | 0                | 18        |             |             |
| 95  | 0            | 0                | 14        |             |             |
| 96  | .64          | .48              | 75        | 0           | 1           |
| 97  | .78          | .42              | 41        | 0           | 1           |
| 98  | .68          | .48              | 22        | 0           | 1           |
| <b>Market Capitalization at IPO Less Net Proceeds (\$MM):</b> |              |                  |           |             |             |
| 94  | 20.86        | 22.94            | 18        | 5.00        | 99.69       |
| 95  | 30.34        | 38.69            | 14        | 4.00        | 140.00      |
| 96  | 37.33        | 39.62            | 75        | 4.00        | 196.36      |
| 97  | 30.72        | 30.97            | 41        | 5.00        | 180.00      |
| 98  | 35.59        | 20.13            | 22        | 5.00        | 77.62       |

**Table 12 (continued):****Differences between Firms' IPO Years in Sample:**

| <b>Variable:</b>  | <b>Mean:</b> | <b>St. Dev.:</b> | <b>N:</b> | <b>Min:</b> | <b>Max:</b> |
|---|--------------|------------------|-----------|-------------|-------------|
| <b>Logged Market Capitalization at IPO Less Net Proceeds:</b> |              |                  |           |             |             |
| 94  | 16.46        | .86              | 18        | 15.42       | 18.42       |
| 95  | 16.61        | 1.12             | 14        | 15.2        | 18.76       |
| 96  | 17.01        | .93              | 75        | 15.2        | 19.1        |
| 97  | 16.88        | .85              | 41        | 15.42       | 19.01       |
| 98  | 17.14        | .83              | 22        | 15.42       | 18.17       |
| <b>Net Income After Taxes (\$MM):</b>                         |              |                  |           |             |             |
| 94  | 1.54         | 1.92             | 17        | -0.40       | 7.2         |
| 95  | -2.80        | 11.01            | 11        | -34.5       | 8           |
| 96  | 0.77         | 10.53            | 72        | -61.6       | 42          |
| 97  | -0.76        | 11.63            | 39        | -63.4       | 20.2        |
| 98  | -6.21        | 13.91            | 19        | -58.6       | 4.8         |
| <b>Underwriter Prestige:</b>                                  |              |                  |           |             |             |
| 94  | .12          | .39              | 18        | 0           | 1.67        |
| 95  | .10          | .18              | 14        | 0           | .55         |
| 96  | .57          | .74              | 74        | 0           | 2.32        |
| 97  | .51          | .73              | 41        | 0           | 2.32        |
| 98  | .78          | .82              | 22        | 0           | 2.32        |
| <b>Logged Underwriter Prestige:</b>                           |              |                  |           |             |             |
| 94  | -5.79        | 2.41             | 18        | -7.6        | .51         |
| 95  | -5.38        | 2.93             | 14        | -7.6        | -0.6        |
| 96  | -3.15        | 3.30             | 74        | -7.6        | .84         |
| 97  | -3.58        | 3.30             | 41        | -7.6        | .84         |
| 98  | -2.04        | 3.08             | 22        | -7.6        | .84         |
| <b>Prominent Venture Capitalist-Backed (=1)</b>               |              |                  |           |             |             |
| 94  | .06          | .24              | 18        | 0           | 1           |
| 95  | .07          | .27              | 14        | 0           | 1           |
| 96  | .37          | .49              | 75        | 0           | 1           |
| 97  | .27          | .45              | 41        | 0           | 1           |
| 98  | .36          | .49              | 22        | 0           | 1           |

**Table 13:****Differences between Firms' Industry Uncertainty in Sample:**

| <b>Variable:</b>  | <b>Mean:</b> | <b>St. Dev.:</b> | <b>N:</b> | <b>Min:</b> | <b>Max:</b> |
|---|--------------|------------------|-----------|-------------|-------------|
| Age at IPO:   |              |                  |           |             |             |
| Software  | 8.58         | 7.52             | 81        | .25         | 34.75       |
| Non-Software  | 9.35         | 11.85            | 65        | .25         | 62.75       |
| Revenues (\$MM) at IPO:                                 |              |                  |           |             |             |
| Software  | 53.5         | 175.57           | 87        | 1.3         | 1619.3      |
| Non-Software  | 54.04        | 105.86           | 65        | 1.1         | 706.5       |
| Number of Employees at IPO:                             |              |                  |           |             |             |
| Software  | 464.64       | 809.01           | 86        | 8           | 6000        |
| Non-Software  | 2131.35      | 4072.41          | 65        | 7           | 24000       |
| Market Capitalization at IPO Less Net Proceeds (\$ MM): |              |                  |           |             |             |
| Software  | 33.54        | 28.14            | 95        | 4.95        | 180.00      |
| Non-Software  | 32.75        | 40.52            | 73        | 4.00        | 196.35      |
| Logged Market Capitalization at IPO Less Net Proceeds:  |              |                  |           |             |             |
| Software  | 17.04        | .80              | 95        | 15.41       | 19.01       |
| Non-Software  | 16.74        | 1.03             | 73        | 15.2        | 19.1        |
| Net Income After Taxes (\$MM):                          |              |                  |           |             |             |
| Software  | -1.63        | 13.06            | 92        | -63.4       | 42          |
| Non-Software  | .80          | 6.66             | 66        | -34.5       | 20.6        |
| Underwriter Prestige:                                   |              |                  |           |             |             |
| Software  | .66          | .78              | 95        | 0           | 2.32        |
| Non-Software  | .28          | .55              | 74        | 0           | 1.77        |
| Logged Underwriter Prestige:                            |              |                  |           |             |             |
| Software  | -2.83        | 3.33             | 95        | -7.6        | .84         |
| Non-Software  | -4.54        | 3.05             | 74        | -7.6        | .57         |
| Prominent Venture Capitalist-Backed (=1)                |              |                  |           |             |             |
| Software  | .43          | .50              | 95        | 0           | 1           |
| Non-Software  | .11          | .31              | 75        | 0           | 1           |

**Table 14:**  
**Descriptive Statistics:**

| <b>Variable:</b>   | <b>Mean:</b> | <b>St. Dev.:</b> | <b>N:</b> | <b>Min:</b> | <b>Max:</b> |
|--|--------------|------------------|-----------|-------------|-------------|
| <b><u>Dependent Variables:</u></b>                                 |              |                  |           |             |             |
| <b><i>IPO Valuation:</i></b>                                       |              |                  |           |             |             |
| • IPO Market Capitalization Less Net Proceeds to the Firm (\$MM)   | 33.00        | 33.05            | 170       | 4.00        | 200.00      |
| • IPO Market Capitalization Less Net Proceeds to the Firm (Logged) | 16.91        | .92              | 170       | 15.2        | 19.1        |
| <b><i>Post-IPO Performance:</i></b>                                |              |                  |           |             |             |
| <b><i>Stock Performance</i></b>                                    |              |                  |           |             |             |
| • 1 Year Post-IPO  | 27.64        | 117.05           | 153       | -100        | 656.25      |
| • 1 Year Post-IPO (Logged)   | 4.46         | 1.1              | 153       | 0           | 6.63        |
| • 2 Years Post-IPO   | 28.64        | 234.66           | 115       | -100        | 1364.60     |
| • 2 Years Post-IPO (Logged)  | 3.82         | 1.75             | 115       | 0           | 7.29        |
| <b><i>Operating Performance</i></b>                                |              |                  |           |             |             |
| • 1 Year Post-IPO Sales Growth                                     | 4.33         | 11.16            | 122       | .01         | 95.02       |
| • 1 Year Post-IPO Sales Growth (Logged)                            | .73          | 1.01             | 122       | -4.61       | 4.55        |
| • 2 Years Post-IPO Sales Growth                                    | 7.13         | 17.77            | 98        | .01         | 145.21      |
| • 2 Years Post-IPO Sales Growth (Logged)                           | 1.02         | 1.35             | 98        | -4.61       | 4.98        |
| • 1 Year Post-IPO Return on Sales                                  | -.46         | 1.92             | 131       | -19.64      | .29         |
| • 1 Year Post-IPO Return on Sales (Reverse Scaled & Logged)        | -.16         | .40              | 131       | -2.02       | .34         |
| • 2 Years Post-IPO Return on Sales                                 | -.48         | 1.89             | 101       | -12.50      | .18         |
| • 2 Years Post-IPO Return on Sales (Reverse Scaled & Logged)       | -.11         | .27              | 101       | -1.22       | .19         |

**Table 14 (continued):****Descriptive Statistics:**

| <b>Variable:</b>  | <b>Mean:</b> | <b>St. Dev.:</b> | <b>N:</b> | <b>Min:</b> | <b>Max:</b> |
|---|--------------|------------------|-----------|-------------|-------------|
| <b><u>Independent Variables:</u></b>                                      |              |                  |           |             |             |
| <b><i>TMT Human Capital:</i></b>  |              |                  |           |             |             |
| <b><i>Relevant Experience:</i></b>  |              |                  |           |             |             |
| • Percentage with Industry Experience                                     | .66          | .33              | 159       | 0           | 1           |
| • Average Prior Position Level  | 3.38         | .56              | 158       | 1.83        | 4.83        |
| • Average Company Tenure  | 4.39         | 3.62             | 157       | .50         | 17.50       |
| • Average Company Tenure (Logged)   | 1.13         | .88              | 157       | -.69        | 2.86        |
| • <i>Relevant Experience Factor</i>                                       | 0            | 1                | 156       | -2.21       | 2.09        |
| <b><i>Prestigious Education (Used in Supplemental Analyses only):</i></b> |              |                  |           |             |             |
| • Average Years of Education  | 17.08        | .83              | 72        | 14          | 20          |
| • Percentage from Elite College   | .18          | .24              | 69        | 0           | 1           |
| • Percentage from Elite College (Logged)                                  | .15          | .19              | 69        | 0           | .69         |
| • Percentage from Elite Graduate School                                   | .34          | .38              | 66        | 0           | 1           |
| • <i>Prestigious Education Factor (Logged)</i>                            | .58          | .49              | 63        | -.62        | 1.73        |
| • Team Perc. With Joint Work Experience                                   | .21          | .29              | 170       | 0           | 1.00        |
| • Team Perc. With Joint Work Experience (Logged)                          | .17          | .22              | 170       | 0           | .69         |

**Table 14 (continued):****Descriptive Statistics:**

| <b>Variable:</b>  | <b>Mean:</b> | <b>St. Dev.:</b> | <b>N:</b> | <b>Min:</b> | <b>Max:</b> |
|---|--------------|------------------|-----------|-------------|-------------|
| <b><i>TMT Social Capital:</i></b>                             |              |                  |           |             |             |
| <b><i>Industry:</i></b>                                       |              |                  |           |             |             |
| • Average Board Ties to Prominent Industry Firms              | .04          | .32              | 159       | 0           | 4.00        |
| • Average Board Ties to Prominent Industry Firms (Logged)     | .02          | .14              | 159       | 0           | 1.61        |
| • Average Past Work Ties to Prominent Industry Firms          | .11          | .34              | 159       | 0           | 3.50        |
| • Average Past Work Ties to Prominent Industry Firms (Logged) | .08          | .19              | 159       | 0           | 1.50        |
| • <i>Industry Factor:</i>                                     | -.16         | .46              | 159       | -.38        | 2.42        |
| <b><i>"Blue-Chip":</i></b>                                    |              |                  |           |             |             |
| • Average Board ties to "Blue-Chip" Firms                     | .01          | .07              | 159       | 0           | .75         |
| • Average Board ties to "Blue-Chip" Firms (Logged)            | 0            | .04              | 159       | 0           | .47         |
| • Average Past Work Ties to "Blue-Chip" Firms                 | .17          | .26              | 159       | 0           | 1.50        |
| • Average Past Work Ties to "Blue-Chip" Firms (Logged)        | .13          | .19              | 159       | 0           | .92         |
| • <i>"Blue-Chip" Factor:</i>                                  | -.29         | .70              | 159       | -.83        | 2.15        |
| <b><i>Board Human Capital:</i></b>                            |              |                  |           |             |             |
| <b><i>Relevant Experience:</i></b>                            |              |                  |           |             |             |
| • Percentage with Industry Experience                         | .35          | .32              | 152       | 0           | 1           |
| • Average Company/Board Tenure                                | 2.24         | 2.15             | 124       | .50         | 11.00       |
| • Average Company/Board Tenure (Logged)                       | .43          | .87              | 124       | -.69        | 2.40        |
| • Average Age   | 50.07        | 7.01             | 152       | 28          | 66          |
| • <i>Relevant Exp. Factor</i>                                 | 0            | 1                | 124       | -2.07       | 3.26        |



**Table 14 (continued):****Descriptive Statistics:**

| <b>Variable:</b>   | <b>Mean:</b> | <b>St. Dev.:</b> | <b>N:</b> | <b>Min:</b> | <b>Max:</b> |
|--|--------------|------------------|-----------|-------------|-------------|
| <b><i>Board Social Capital:</i></b>                          |              |                  |           |             |             |
| <b><i>Industry:</i></b>                                      |              |                  |           |             |             |
| • Average Interlocking Ties to Elite Industry Firms          | .04          | .17              | 152       | 0           | 1.00        |
| • Average Interlocking Ties to Elite Industry Firms (Logged) | .03          | .12              | 152       | 0           | .69         |
| • Average Past Work Ties to Elite Industry Firms             | .04          | .13              | 151       | 0           | 1.00        |
| • Average Past Work Ties to Elite Industry Firms (Logged)    | .03          | .10              | 151       | 0           | .69         |
| • <i>Industry Factor: (Logged)</i>                           | -.21         | .54              | 151       | -.44        | 2.10        |
| <b><i>"Blue-Chip":</i></b>                                   |              |                  |           |             |             |
| • Average Interlocking Ties to "Blue-Chip" Firms             | .03          | .15              | 152       | 0           | 1.50        |
| • Average Interlocking Ties to "Blue-Chip" Firms (Logged)    | .02          | .10              | 152       | 0           | .92         |
| • Average Past Work Ties to "Blue-Chip" Firms                | .11          | .24              | 152       | 0           | 1.50        |
| • Average Past Work Ties to "Blue-Chip" Firms (Logged)       | .09          | .17              | 152       | 0           | .92         |
| • <i>"Blue-Chip" Factor: (Logged)</i>                        | -.29         | .68              | 152       | -.71        | 1.91        |

**Table 14 (continued):****Descriptive Statistics:**

| <b>Variable:</b>  | <b>Mean:</b> | <b>St. Dev.:</b> | <b>N:</b> | <b>Min:</b> | <b>Max:</b> |
|---|--------------|------------------|-----------|-------------|-------------|
| <b><u>Mediating Variable:</u></b>                                       |              |                  |           |             |             |
| <b><i>Ties to Prestigious Third Parties:</i></b>                        |              |                  |           |             |             |
| • Underwriter Prestige  | .49          | .71              | 169       | 0           | 2.32        |
| • Underwriter Prestige (Logged)   | -3.58        | 3.31             | 169       | -7.6        | .84         |
| • Prominent Venture Capitalist-Backed (=1)                              | .29          | .45              | 170       | 0           | 1           |
| <b><u>Moderating Variable:</u></b>                                      |              |                  |           |             |             |
| <b><i>Industry Uncertainty:</i></b>                                     |              |                  |           |             |             |
| • High Uncertainty Industry (=1)  | .56          | .50              | 170       | 0           | 1           |
| <b><u>Primary Control Variables:</u></b>                                |              |                  |           |             |             |
| • Firm Age at IPO   | 8.92         | 9.66             | 146       | .25         | 62.75       |
| • Firm Age at IPO (Logged)  | 1.58         | 1.26             | 146       | -1.39       | 4.14        |
| • Firm Size at IPO (by Revenues, \$MM)                                  | 53.73        | 149.35           | 152       | 1.10        | 1619.30     |
| • Firm Size at IPO (by Revenues, Logged)                                | 2.98         | 1.35             | 152       | .10         | 7.39        |
| • Pre-IPO Firm Capitalization (\$MM)                                    | 58.40        | 107.63           | 162       | 2.90        | 746.60      |
| • Pre-IPO Firm Capitalization (Logged)                                  | 3.25         | 1.18             | 162       | 1.06        | 6.62        |
| • Pre-IPO Potential Factor  | 0            | 1.00             | 133       | -2.55       | 3.22        |
| • IPO Market Conditions at IPO (Average IPO Proceeds for that IPO Year) | 78.30        | 14.54            | 170       | 60.87       | 113.59      |

**Table 14 (continued):****Descriptive Statistics:**

| <b>Variable:</b>   | <b>Mean:</b> | <b>St. Dev.:</b> | <b>N:</b> | <b>Min:</b> | <b>Max:</b> |
|--|--------------|------------------|-----------|-------------|-------------|
| • IPO Market Conditions at IPO (Average IPO Proceeds for that IPO Year, Logged)      | 4.35         | .17              | 170       | 4.11        | 4.73        |
| • Market Conditions at IPO (DJIA Perf. for that IPO Year)                            | 1.11         | .04              | 170       | 1.01        | 1.17        |
| • Industry Conditions at IPO (Ind. Perf. for that IPO Year)                          | .01          | .01              | 170       | -.03        | .02         |
| • Industry Conditions at IPO (Ind. Perf. for that IPO Year, Reverse Scaled & Logged) | -3.84        | .37              | 170       | -4.64       | -2.87       |
| • Firm Profitability at IPO (\$MM)   | -.61         | 10.89            | 158       | -63.4       | 42          |
| • IPO Float  | .32          | .15              | 166       | .04         | .95         |
| • IPO Float (Reverse Scaled & Logged)  | 1.25         | .50              | 166       | .05         | 3.17        |
| • Lambda   | .45          | .20              | 145       | .00         | .99         |
| • Lambda (Logged)  | -.98         | .74              | 145       | -5.45       | -.01        |

**Other Control Variables (for Post-IPO models):**

|  |     |     |     |       |      |
|--|-----|-----|-----|-------|------|
| • Market Performance 1 Year Post-IPO   | .23 | .10 | 167 | -.05  | .46  |
| • Market Performance 2 Year Post-IPO   | .50 | .11 | 131 | .30   | .76  |
| • Industry Performance 1 Year Post-IPO | 0   | .02 | 170 | -.05  | .06  |
| • Industry Performance 2 Year Post-IPO | 0   | .01 | 148 | -.02  | .03  |
| • 1 Year Post-IPO Conditions Factor    | 0   | 1   | 167 | -2.97 | 2.13 |
| • 2 Year Post-IPO Conditions Factor    | 0   | 1   | 131 | -2.47 | 2.22 |

**Table 15: Correlation Matrix**

| Variable   | 1     | 2     | 3     | 4     | 5     | 6     | 7     | 8     | 9      | 10    | 11    |
|--|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|
| 1. Logged IPO Market Capitalization Less Net Proceeds to the Firm      |       |       |       |       |       |       |       |       |        |       |       |
| 2. 1 Year Post-IPO Stock Change  | .30** |       |       |       |       |       |       |       |        |       |       |
| 3. 2 Years Post-IPO Stock Change                                       | .37** | .67** |       |       |       |       |       |       |        |       |       |
| 4. 1 Year Post-IPO Sales Growth (Logged)                               | .33** | .29** | .36** |       |       |       |       |       |        |       |       |
| 5. 2 Years Post-IPO Sales Growth (Logged)                              | .29** | .36** | .43** | .89** |       |       |       |       |        |       |       |
| 6. 1 Year Post-IPO Return on Sales (Reverse Scaled & Logged)           | .28** | .31** | .51** | .25** | .37** |       |       |       |        |       |       |
| 7. 2 Years Post-IPO Return on Sales (Reverse Scaled & Logged)          | .21*  | .49** | .47** | .13   | .19   | .59** |       |       |        |       |       |
| 8. TMT Relevant Experience   | -.09  | .11   | -.10  | -.10  | -.05  | -.15  | -.01  |       |        |       |       |
| 9. TMT Joint Work Experience (Logged)                                  | .11   | .08   | -.04  | .16   | .21*  | -.02  | -.01  | .30** |        |       |       |
| 10. TMT Industry Social Capital  | .10   | .09   | .01   | -.03  | .07   | -.13  | -.06  | .12   | -.06   |       |       |
| 11. TMT "Blue-Chip" Social Capital                                     | -.07  | .07   | .10   | -.13  | .01   | -.06  | -.05  | .15   | .02    | -.13  |       |
| 12. Board Relevant Experience  | .09   | .17   | -.05  | .09   | -.06  | .02   | .01   | .28** | -.05   | -.03  | .05   |
| 13. Board Industry Social Capital (Logged)                             | .11   | .08   | -.07  | .09   | .15   | -.01  | -.03  | .18*  | .55**  | -.11  | .06   |
| 14. Board "Blue-Chip" Social Capital (Logged)                          | .09   | .07   | .05   | .07   | .05   | -.10  | -.00  | .21*  | .13    | .12   | -.09  |
| 15. Underwriter Prestige (Logged)                                      | .71** | .30** | .24** | .33** | .31** | .17*  | .13   | .12   | .10    | .13   | -.11  |
| 16. Prominent Venture Capitalist-Backed (=1)                           | .21** | .14   | .01   | .08   | .05   | .06   | .03   | .24** | .11    | .20*  | .04   |
| 17. High Uncertainty Industry (=1)                                     | .16*  | .11   | .12   | .07   | -.07  | -.21* | -.02  | .04   | -.32** | .41** | -.16* |
| 18. Pre-IPO Potential  | .64** | .34** | .28** | -.09  | -.13  | .42** | .43** | -.07  | -.00   | .13   | -.10  |
| 19. IPO Market Conditions at IPO and Market Conditions at IPO (Factor) | .20** | .25** | .07   | .05   | .02   | -.06  | .15   | .21*  | .15    | .08   | -.01  |
| 20. IPO Float and Firm Profitability at IPO (Factor)                   | .21** | .22** | .30** | .08   | .10   | .13   | .15   | -.11  | -.10   | .14   | -.09  |
| 21. Lambda (Logged)  | .12   | .05   | .09   | .06   | .05   | -.17  | -.07  | .17   | .07    | .17   | -.01  |
| 22. 1 Year Post-IPO Conditions   | .09   | .18*  | -.05  | -.08  | -.07  | -.13  | -.11  | .12   | .07    | -.01  | .04   |
| 23. 2 Year Post-IPO Conditions   | .02   | -.03  | .01   | .08   | .05   | .06   | -.11  | -.11  | .23*   | -.10  | .02   |

\*  $p < .05$ ; \*\*  $p < .01$

Table 15 (continued): Correlation Matrix

| Variable | 12    | 13    | 14  | 15    | 16     | 17     | 18     | 19    | 20   | 21  | 22  |
|----------|-------|-------|-----|-------|--------|--------|--------|-------|------|-----|-----|
| 1.       |       |       |     |       |        |        |        |       |      |     |     |
| 2.       |       |       |     |       |        |        |        |       |      |     |     |
| 3.       |       |       |     |       |        |        |        |       |      |     |     |
| 4.       |       |       |     |       |        |        |        |       |      |     |     |
| 5.       |       |       |     |       |        |        |        |       |      |     |     |
| 6.       |       |       |     |       |        |        |        |       |      |     |     |
| 7.       |       |       |     |       |        |        |        |       |      |     |     |
| 8.       |       |       |     |       |        |        |        |       |      |     |     |
| 9.       |       |       |     |       |        |        |        |       |      |     |     |
| 10.      |       |       |     |       |        |        |        |       |      |     |     |
| 11.      |       |       |     |       |        |        |        |       |      |     |     |
| 12.      |       |       |     |       |        |        |        |       |      |     |     |
| 13.      | .18*  |       |     |       |        |        |        |       |      |     |     |
| 14.      | -.04  | .08   |     |       |        |        |        |       |      |     |     |
| 15.      | .19*  | .09   | .14 |       |        |        |        |       |      |     |     |
| 16.      | .29** | .07   | .16 | .32** |        |        |        |       |      |     |     |
| 17.      | .17   | -.20* | .04 | .19*  | .24**  |        |        |       |      |     |     |
| 18.      | .13   | -.07  | .16 | .43** | .07    | .08    |        |       |      |     |     |
| 19.      | -.06  | .04   | .05 | .21** | .09    | .26**  | .06    |       |      |     |     |
| 20.      | .04   | .04   | .16 | .27** | .13    | .21*   | .20*   | .01   |      |     |     |
| 21.      | -.07  | .14   | .01 | .07   | .08    | .26**  | -.31** | .23** | -.04 |     |     |
| 22.      | .05   | .18*  | .10 | .08   | -.06   | -.12   | .08    | .14   | -.11 | .09 |     |
| 23.      | -.13  | -.01  | .04 | -.04  | -.30** | -.49** | .01    | -.02  | -.08 | .02 | .10 |

\*  $p < .05$ ; \*\*  $p < .01$

**Table 16: Logit Estimates of Whether a Firm is Backed by a Prominent Venture Capitalist Firm at IPO**

| Variable   | Model 1          | Model 2           | Model 3             |
|--|------------------|-------------------|---------------------|
| Pre-IPO Potential  | -.167<br>(.344)  | -.133<br>(.405)   | -.615<br>(.606)     |
| IPO Market Conditions at IPO                             | .082<br>(.467)   | .481<br>(.746)    | 3.700<br>(2.759)    |
| Lambda   | -.063<br>(.432)  | -.645<br>(.646)   | -1.151<br>(1.085)   |
| Underwriter Prestige                                     | .843**<br>(.292) | .703*<br>(.345)   | .469<br>(.704)      |
| High Uncertainty Industry (=1)                           | 1.543*<br>(.694) | 3.377+<br>(1.738) | 16.973<br>(11.059)  |
| TMT Relevant Experience                                  |                  | .713<br>(.465)    | 3.885<br>(2.829)    |
| TMT Industry Social Capital                              |                  | 1.382<br>(1.458)  | -.988<br>(5.333)    |
| TMT "Blue-Chip" Social Capital                           |                  | -.132<br>(.587)   | -6.445<br>(6.948)   |
| TMT Joint Work Experience                                |                  | .328<br>(2.017)   | 18.179<br>(15.171)  |
| Board Relevant Experience                                |                  | .361<br>(.410)    | -1.049<br>(3.762)   |
| Board Industry Social Capital                            |                  | .914<br>(.871)    | 4.696<br>(3.272)    |
| Board "Blue-Chip" Social Capital                         |                  | .434<br>(.456)    | 11.066<br>(7.875)   |
| Underwriter Prestige X High Uncertainty Ind.             |                  |                   | .283<br>(.311)      |
| TMT Relevant Experience X High Uncertainty Ind.          |                  |                   | -3.125<br>(2.892)   |
| TMT Industry Social Capital X High Uncertainty Ind.      |                  |                   | .279<br>(5.768)     |
| TMT "Blue-Chip" Social Capital X High Uncertainty Ind.   |                  |                   | 7.184<br>(7.121)    |
| TMT Joint Work Experience X High Uncertainty Ind.        |                  |                   | -18.714<br>(15.523) |
| Board Relevant Experience X High Uncertainty Ind.        |                  |                   | 1.608<br>(3.753)    |
| Board Industry Social Capital X High Uncertainty Ind.    |                  |                   | -1.571<br>(3.508)   |
| Board "Blue-Chip" Social Capital X High Uncertainty Ind. |                  |                   | -11.240<br>(7.862)  |
| Constant   | -3.383<br>(.867) | -4.879<br>(1.747) | -18.918<br>(11.214) |
| R <sup>2</sup>   | .265             | .458              | .573                |
| Adjusted R <sup>2</sup>                                  | .154             | .294              | .368                |
| N  | 132              | 95                | 95                  |

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

**Table 17: OLS Estimates of a Firm's Underwriter Prestige at IPO**

| <b>Variable</b>  | <b>Model 1</b>   | <b>Model 2</b>   | <b>Model 3</b>    |
|--|------------------|------------------|-------------------|
| Pre-IPO Potential  | .538**<br>(.104) | .403**<br>(.142) | .465**<br>(.142)  |
| IPO Market Conditions at IPO                                     | .159<br>(.100)   | .084<br>(.133)   | .157<br>(.137)    |
| Firm Profitability at IPO/IPO Float                              | .168+<br>(.096)  | .210+<br>(.119)  | .244*<br>(.117)   |
| Lambda   | .281*<br>(.140)  | .270<br>(.176)   | .205<br>(.184)    |
| Prominent Venture Capitalist Backed (=1)                         | .835**<br>(.268) | .616+<br>(.324)  | 1.217*<br>(.520)  |
| High Uncertainty Industry (=1)                                   | .055<br>(.215)   | .203<br>(.366)   | .244<br>(.448)    |
| TMT Relevant Experience  |                  | .171<br>(.163)   | -.112<br>(.273)   |
| TMT Industry Social Capital                                      |                  | .282<br>(.421)   | -.161<br>(.578)   |
| TMT "Blue-Chip" Social Capital                                   |                  | -.101<br>(.199)  | .142<br>(.319)    |
| TMT Joint Work Experience  |                  | -.506<br>(.628)  | .263<br>(.885)    |
| Board Relevant Experience  |                  | .124<br>(.137)   | .212<br>(.284)    |
| Board Industry Social Capital                                    |                  | -.148<br>(.316)  | .418<br>(.443)    |
| Board "Blue-Chip" Social Capital                                 |                  | .177<br>(.183)   | .167<br>(.345)    |
| Prominent Venture Capitalist Backed (=1) X High Uncertainty Ind. |                  |                  | -.853<br>(.616)   |
| TMT Relevant Experience X High Uncertainty Ind.                  |                  |                  | .544<br>(.342)    |
| TMT Industry Social Capital X High Uncertainty Ind.              |                  |                  | 1.641+<br>(.864)  |
| TMT "Blue-Chip" Social Capital X High Uncertainty Ind.           |                  |                  | -.583<br>(.414)   |
| TMT Joint Work Experience X High Uncertainty Ind.                |                  |                  | -1.223<br>(1.234) |
| Board Relevant Experience X High Uncertainty Ind.                |                  |                  | -.166<br>(.316)   |
| Board Industry Social Capital X High Uncertainty Ind.            |                  |                  | -1.671*<br>(.646) |
| Board "Blue-Chip" Social Capital X High Uncertainty Ind.         |                  |                  | .027<br>(.397)    |
| Constant   | .341<br>(.230)   | .346<br>(.350)   | .319<br>(.399)    |
| R <sup>2</sup>   | .336             | .361             | .463              |
| Adjusted R <sup>2</sup>  | .304             | .254             | .302              |
| N  | 129              | 92               | 92                |

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

**Table 18: OLS Estimates of the Log of a Firm's IPO Market Capitalization Less Net Proceeds**

| Variable   | Model 1            | Model 2            | Model 3            |
|--|--------------------|--------------------|--------------------|
| Pre-IPO Potential  | .556**<br>(.056)   | .528**<br>(.069)   | .518**<br>(.074)   |
| IPO Market Conditions at IPO   | -.072<br>(.052)    | .028<br>(.064)     | .039<br>(.070)     |
| Firm Profitability at IPO/IPO Float                                  | -.003<br>(.051)    | -.011<br>(.058)    | -.007<br>(.059)    |
| Lambda   | .333**<br>(.074)   | .276**<br>(.085)   | .280**<br>(.091)   |
| Prom. Ven. Cap. Backed/Underwriter Prestige                          | .269**<br>(.053)   | .254**<br>(.061)   | .242*<br>(.116)    |
| High Uncertainty Industry (=1)                                       | -.042<br>(.112)    | .275<br>(.175)     | .123<br>(.224)     |
| TMT Relevant Experience  |                    | -.154+<br>(.078)   | -.228+<br>(.136)   |
| TMT Industry Social Capital  |                    | .426*<br>(.202)    | .489+<br>(.287)    |
| TMT "Blue-Chip" Social Capital                                       |                    | -.023<br>(.095)    | -.162<br>(.158)    |
| TMT Joint Work Experience  |                    | -.024<br>(.300)    | -.218<br>(.442)    |
| Board Relevant Experience  |                    | -.042<br>(.066)    | -.042<br>(.141)    |
| Board Industry Social Capital  |                    | .045<br>(.151)     | .218<br>(.224)     |
| Board "Blue-Chip" Social Capital                                     |                    | -.021<br>(.088)    | .119<br>(.175)     |
| Prominent Ven. Cap. Backed/Underwriter Pres. X High Uncertainty Ind. |                    |                    | .002<br>(.135)     |
| TMT Relevant Experience X High Uncertainty Ind.                      |                    |                    | .101<br>(.169)     |
| TMT Industry Social Capital X High Uncertainty Ind.                  |                    |                    | -.177<br>(.434)    |
| TMT "Blue-Chip" Social Capital X High Uncertainty Ind.               |                    |                    | .215<br>(.206)     |
| TMT Joint Work Experience X High Uncertainty Ind.                    |                    |                    | .634<br>(.617)     |
| Board Relevant Experience X High Uncertainty Ind.                    |                    |                    | .000<br>(.158)     |
| Board Industry Social Capital X High Uncertainty Ind.                |                    |                    | -.337<br>(.325)    |
| Board "Blue-Chip" Social Capital X High Uncertainty Ind.             |                    |                    | -.131<br>(.205)    |
| Constant   | 17.320**<br>(.119) | 17.124**<br>(.167) | 17.131**<br>(.198) |
| R <sup>2</sup>   | .623               | .657               | .687               |
| Adjusted R <sup>2</sup>  | .604               | .600               | .593               |
| N  | 129                | 92                 | 92                 |

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$



**Table 19: OLS Estimates of the Firm's One-Year Post-IPO Stock Performance**

| Variable   | Model 1          | Model 2          | Model 3            |
|--|------------------|------------------|--------------------|
| Pre-IPO Potential  | .254+<br>(.142)  | .254<br>(.175)   | .243<br>(.185)     |
| IPO Market Conditions at IPO                                     | .195*<br>(.098)  | .114<br>(.121)   | .107<br>(.136)     |
| Firm Profitability at IPO/IPO Float                              | .145<br>(.091)   | .071<br>(.105)   | .088<br>(.107)     |
| Lambda   | .023<br>(.146)   | .035<br>(.166)   | -.054<br>(.184)    |
| 1 Year Post-IPO Conditions                                       | .085<br>(.102)   | .105<br>(.122)   | .099<br>(.123)     |
| Prom. Ven. Cap. Backed/Underwriter Prestige                      | .066<br>(.106)   | .127<br>(.129)   | .112<br>(.230)     |
| High Uncertainty Industry (=1)                                   | .167<br>(.217)   | .239<br>(.356)   | .698<br>(.441)     |
| IPO Market Valuation   | .124<br>(.173)   | .181<br>(.228)   | .271<br>(.245)     |
| TMT Relevant Experience  |                  | .041<br>(.156)   | -.033<br>(.264)    |
| TMT Industry Social Capital                                      |                  | .125<br>(.392)   | .130<br>(.556)     |
| TMT "Blue-Chip" Social Capital                                   |                  | .056<br>(.185)   | .308<br>(.290)     |
| TMT Joint Work Experience  |                  | .265<br>(.591)   | 1.354<br>(.857)    |
| Board Relevant Experience  |                  | .074<br>(.138)   | .012<br>(.305)     |
| Board Industry Social Capital                                    |                  | .027<br>(.313)   | -.040<br>(.477)    |
| Board "Blue-Chip" Social Capital                                 |                  | -.177<br>(.174)  | -.403<br>(.320)    |
| Prominent Ven. Cap. Backed/Und. Prestige X High Uncertainty Ind. |                  |                  | -.086<br>(.265)    |
| TMT Relevant Experience X High Uncertainty Ind.                  |                  |                  | .247<br>(.335)     |
| TMT Industry Social Capital X High Uncertainty Ind.              |                  |                  | .320<br>(.853)     |
| TMT "Blue-Chip" Social Capital X High Uncertainty Ind.           |                  |                  | -.591<br>(.400)    |
| TMT Joint Work Experience X High Uncertainty Ind.                |                  |                  | -2.562*<br>(1.218) |
| Board Relevant Experience X High Uncertainty Ind.                |                  |                  | .107<br>(.339)     |
| Board Industry Social Capital X High Uncertainty Ind.            |                  |                  | -.014<br>(.694)    |
| Board "Blue-Chip" Social Capital X High Uncertainty Ind.         |                  |                  | .210<br>(.388)     |
| Constant   | 2.327<br>(3.005) | 1.257<br>(3.913) | -.511<br>(4.197)   |
| R <sup>2</sup>   | .247             | .305             | .377               |
| Adjusted R <sup>2</sup>  | .190             | .147             | .131               |
| N  | 116              | 82               | 82                 |

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

**Table 20: OLS Estimates of the Firm's Two-Year Post-IPO Stock Performance**

| Variable   | Model 1           | Model 2          | Model 3            |
|--|-------------------|------------------|--------------------|
| Pre-IPO Potential  | .257<br>(.255)    | .715*<br>(.324)  | .642+<br>(.339)    |
| IPO Market Conditions at IPO                                 | -.122<br>(.166)   | -.164<br>(.231)  | -.099<br>(.255)    |
| Firm Profitability at IPO/IPO Float                          | .276<br>(.201)    | .423<br>(.290)   | .425<br>(.316)     |
| Lambda   | .247<br>(.244)    | .462<br>(.299)   | .464<br>(.314)     |
| 2 Year Post-IPO Conditions                                   | .203<br>(.211)    | .052<br>(.279)   | .078<br>(.284)     |
| Prom. Ven. Cap. Backed/Underwriter Prestige                  | -.196<br>(.224)   | -.075<br>(.318)  | -.610<br>(.590)    |
| High Uncertainty Industry (=1)                               | .780+<br>(.446)   | 1.109<br>(.702)  | 1.843*<br>(.795)   |
| IPO Market Valuation   | .510<br>(.319)    | .097<br>(.412)   | .486<br>(.455)     |
| TMT Relevant Experience                                      |                   | -.124<br>(.321)  | .161<br>(.514)     |
| TMT Industry Social Capital                                  |                   | .771<br>(.733)   | -.699<br>(1.033)   |
| TMT "Blue-Chip" Social Capital                               |                   | -.315<br>(.331)  | .028<br>(.484)     |
| TMT Joint Work Experience                                    |                   | 1.175<br>(1.194) | 3.961*<br>(1.634)  |
| Board Relevant Experience                                    |                   | -.126<br>(.266)  | .275<br>(.519)     |
| Board Industry Social Capital                                |                   | .143<br>(.585)   | -.107<br>(.917)    |
| Board "Blue-Chip" Social Capital                             |                   | -.260<br>(.379)  | -.408<br>(.562)    |
| Prom. Ven. Cap. Backed/Und. Prestige X High Uncertainty Ind. |                   |                  | .481<br>(.625)     |
| TMT Relevant Experience X High Uncertainty Ind.              |                   |                  | -.255<br>(.725)    |
| TMT Industry Social Capital X High Uncertainty Ind.          |                   |                  | 3.222+<br>(1.658)  |
| TMT "Blue-Chip" Social Capital X High Uncertainty Ind.       |                   |                  | -.709<br>(.790)    |
| TMT Joint Work Experience X High Uncertainty Ind.            |                   |                  | -4.990*<br>(2.418) |
| Board Relevant Experience X High Uncertainty Ind.            |                   |                  | -.420<br>(.591)    |
| Board Industry Social Capital X High Uncertainty Ind.        |                   |                  | -.720<br>(1.376)   |
| Board "Blue-Chip" Social Capital X High Uncertainty Ind.     |                   |                  | .231<br>(.787)     |
| Constant   | -4.892<br>(5.521) | 1.818<br>(7.094) | -5.081<br>(7.897)  |
| R <sup>2</sup>   | .234              | .370             | .529               |
| Adjusted R <sup>2</sup>                                      | .157              | .156             | .228               |
| N  | 88                | 60               | 60                 |

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

**Table 21: OLS Estimates of the Firm's One-Year Post-IPO Sales Growth**

| Variable   | Model 1              | Model 2              | Model 3            |
|--|----------------------|----------------------|--------------------|
| Pre-IPO Potential  | -.569**<br>(.122)    | -.625**<br>(.159)    | -.470**<br>(.163)  |
| IPO Market Conditions at IPO                                 | -.098<br>(.090)      | -.142<br>(.131)      | -.167<br>(.151)    |
| Firm Profitability at IPO/IPO Float                          | .041<br>(.078)       | .078<br>(.098)       | .090<br>(.096)     |
| Lambda   | -.131<br>(.12)       | -.154<br>(.157)      | -.208<br>(.166)    |
| 1 Year Post-IPO Conditions                                   | -.105<br>(.089)      | -.039<br>(.118)      | .000<br>(.114)     |
| Prom. Ven. Cap. Backed/Underwriter Prestige                  | -.029<br>(.094)      | -.028<br>(.123)      | -.023<br>(.218)    |
| High Uncertainty Industry (=1)                               | -.024<br>(.193)      | .435<br>(.335)       | .617<br>(.399)     |
| IPO Market Valuation   | .792**<br>(.148)     | .631**<br>(.202)     | .564**<br>(.204)   |
| TMT Relevant Experience                                      |                      | -.050<br>(.152)      | .252<br>(.322)     |
| TMT Industry Social Capital                                  |                      | .779+<br>(.409)      | -.373<br>(.656)    |
| TMT "Blue-Chip" Social Capital                               |                      | -.222<br>(.170)      | -.346<br>(.276)    |
| TMT Joint Work Experience                                    |                      | -.659<br>(.587)      | -.173<br>(.872)    |
| Board Relevant Experience                                    |                      | .078<br>(.138)       | -.549<br>(.364)    |
| Board Industry Social Capital                                |                      | -.232<br>(.284)      | .820+<br>(.427)    |
| Board "Blue-Chip" Social Capital                             |                      | .190<br>(.168)       | .501<br>(.334)     |
| Prom. Ven. Cap. Backed/Und. Prestige X High Uncertainty Ind. |                      |                      | -.018<br>(.243)    |
| TMT Relevant Experience X High Uncertainty Ind.              |                      |                      | -.221<br>(.366)    |
| TMT Industry Social Capital X High Uncertainty Ind.          |                      |                      | 2.231*<br>(.861)   |
| TMT "Blue-Chip" Social Capital X High Uncertainty Ind.       |                      |                      | -.162<br>(.361)    |
| TMT Joint Work Experience X High Uncertainty Ind.            |                      |                      | -1.091<br>(1.186)  |
| Board Relevant Experience X High Uncertainty Ind.            |                      |                      | .679+<br>(.385)    |
| Board Industry Social Capital X High Uncertainty Ind.        |                      |                      | -1.848**<br>(.598) |
| Board "Blue-Chip" Social Capital X High Uncertainty Ind.     |                      |                      | -.398<br>(.386)    |
| Constant   | -12.707**<br>(2.560) | -10.083**<br>(3.459) | -9.076*<br>(3.490) |
| R <sup>2</sup>   | .300                 | .355                 | .487               |
| Adjusted R <sup>2</sup>                                      | .239                 | .191                 | .256               |
| N  | 100                  | 75                   | 75                 |

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

**Table 22: OLS Estimates of the Firm's Two-Year Post-IPO Sales Growth**

| Variable   | Model 1            | Model 2            | Model 3            |
|--|--------------------|--------------------|--------------------|
| Pre-IPO Potential  | -.559**<br>(.176)  | -.872**<br>(.210)  | -.775**<br>(.246)  |
| IPO Market Conditions at IPO                                 | -.019<br>(.124)    | -.239<br>(.151)    | -.311+<br>(.173)   |
| Firm Profitability at IPO/IPO Float                          | .212<br>(.145)     | .223<br>(.189)     | .119<br>(.207)     |
| Lambda   | -.034<br>(.184)    | -.257<br>(.204)    | -.211<br>(.246)    |
| 2 Year Post-IPO Conditions                                   | -.016<br>(.159)    | -.097<br>(.199)    | -.059<br>(.227)    |
| Prom. Ven. Cap. Backed/Underwriter Prestige                  | .021<br>(.161)     | .060<br>(.186)     | .255<br>(.317)     |
| High Uncertainty Industry (=1)                               | -.228<br>(.312)    | .157<br>(.421)     | .658<br>(.568)     |
| IPO Market Valuation   | .615**<br>(.210)   | .540*<br>(.234)    | .631*<br>(.256)    |
| TMT Relevant Experience                                      |                    | -.075<br>(.201)    | .377<br>(.346)     |
| TMT Industry Social Capital                                  |                    | 1.208*<br>(.534)   | -.033<br>(.909)    |
| TMT "Blue-Chip" Social Capital                               |                    | .212<br>(.225)     | .081<br>(.396)     |
| TMT Joint Work Experience                                    |                    | -1.380<br>(.845)   | -.617<br>(1.135)   |
| Board Relevant Experience                                    |                    | -.263<br>(.179)    | -.610<br>(.401)    |
| Board Industry Social Capital                                |                    | -.162<br>(.354)    | .332<br>(.553)     |
| Board "Blue-Chip" Social Capital                             |                    | -.001<br>(.243)    | .047<br>(.419)     |
| Prom. Ven. Cap. Backed/Und. Prestige X High Uncertainty Ind. |                    |                    | -.365<br>(.383)    |
| TMT Relevant Experience X High Uncertainty Ind.              |                    |                    | -.286<br>(.494)    |
| TMT Industry Social Capital X High Uncertainty Ind.          |                    |                    | 2.262+<br>(1.354)  |
| TMT "Blue-Chip" Social Capital X High Uncertainty Ind.       |                    |                    | -.283<br>(.584)    |
| TMT Joint Work Experience X High Uncertainty Ind.            |                    |                    | -2.845<br>(1.952)  |
| Board Relevant Experience X High Uncertainty Ind.            |                    |                    | .326<br>(.440)     |
| Board Industry Social Capital X High Uncertainty Ind.        |                    |                    | -.995<br>(.894)    |
| Board "Blue-Chip" Social Capital X High Uncertainty Ind.     |                    |                    | -.369<br>(.580)    |
| Constant   | -9.155*<br>(3.617) | -7.931+<br>(4.002) | -9.560*<br>(4.373) |
| R <sup>2</sup>   | .226               | .534               | .614               |
| Adjusted R <sup>2</sup>                                      | .128               | .346               | .308               |
| N  | 72                 | 53                 | 53                 |

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

**Table 23: OLS Estimates of the Firm's One-Year Post-IPO Return on Sales**

| Variable   | Model 1          | Model 2          | Model 3          |
|--|------------------|------------------|------------------|
| Pre-IPO Potential  | .130**<br>(.045) | .151*<br>(.063)  | .174*<br>(.068)  |
| IPO Market Conditions at IPO                                 | -.010<br>(.033)  | -.031<br>(.051)  | -.066<br>(.062)  |
| Firm Profitability at IPO/IPO Float                          | .020<br>(.030)   | .016<br>(.041)   | .013<br>(.043)   |
| Lambda   | .002<br>(.047)   | .054<br>(.062)   | .046<br>(.068)   |
| 1 Year Post-IPO Conditions                                   | -.084*<br>(.033) | -.084+<br>(.046) | -.078+<br>(.046) |
| Prom. Ven. Cap. Backed/Underwriter Prestige                  | -.006<br>(.034)  | .044<br>(.048)   | .069<br>(.089)   |
| High Uncertainty Industry (=1)                               | -.129+<br>(.071) | -.147<br>(.131)  | -.086<br>(.163)  |
| IPO Market Valuation   | .014<br>(.056)   | -.043<br>(.081)  | -.036<br>(.086)  |
| TMT Relevant Experience                                      |                  | -.028<br>(.061)  | .194<br>(.131)   |
| TMT Industry Social Capital                                  |                  | -.018<br>(.160)  | -.469+<br>(.269) |
| TMT "Blue-Chip" Social Capital                               |                  | -.069<br>(.066)  | -.135<br>(.112)  |
| TMT Joint Work Experience                                    |                  | -.165<br>(.229)  | -.095<br>(.355)  |
| Board Relevant Experience                                    |                  | -.019<br>(.054)  | -.259+<br>(.148) |
| Board Industry Social Capital                                |                  | -.010<br>(.110)  | .273<br>(.174)   |
| Board "Blue-Chip" Social Capital                             |                  | -.071<br>(.067)  | -.047<br>(.136)  |
| Prom. Ven. Cap. Backed/Und. Prestige X High Uncertainty Ind. |                  |                  | -.020<br>(.099)  |
| TMT Relevant Experience X High Uncertainty Ind.              |                  |                  | -.257+<br>(.150) |
| TMT Industry Social Capital X High Uncertainty Ind.          |                  |                  | .660+<br>(.350)  |
| TMT "Blue-Chip" Social Capital X High Uncertainty Ind.       |                  |                  | .024<br>(.147)   |
| TMT Joint Work Experience X High Uncertainty Ind.            |                  |                  | -.292<br>(.484)  |
| Board Relevant Experience X High Uncertainty Ind.            |                  |                  | .263+<br>(.157)  |
| Board Industry Social Capital X High Uncertainty Ind.        |                  |                  | -.451+<br>(.244) |
| Board "Blue-Chip" Social Capital X High Uncertainty Ind.     |                  |                  | -.026<br>(.157)  |
| Constant   | -.308<br>(.959)  | .713<br>(1.380)  | .551<br>(1.472)  |
| R <sup>2</sup>   | .248             | .286             | .381             |
| Adjusted R <sup>2</sup>                                      | .181             | .102             | .096             |
| N  | 99               | 74               | 74               |

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

**Table 24: OLS Estimates of the Firm's Two-Year Post-IPO Return on Sales**

| <b>Variable</b>  | <b>Model 1</b>   | <b>Model 2</b>   | <b>Model 3</b>   |
|--|------------------|------------------|------------------|
| Pre-IPO Potential  | .167**<br>(.042) | .158**<br>(.054) | .195**<br>(.065) |
| IPO Market Conditions at IPO                                 | .016<br>(.029)   | -.031<br>(.038)  | -.032<br>(.045)  |
| Firm Profitability at IPO/IPO Float                          | .046<br>(.037)   | .048<br>(.058)   | .039<br>(.065)   |
| Lambda   | .052<br>(.043)   | .064<br>(.052)   | .074<br>(.064)   |
| 2 Year Post-IPO Conditions                                   | -.058<br>(.038)  | -.053<br>(.050)  | -.086<br>(.059)  |
| Prom. Ven. Cap. Backed/Underwriter Prestige                  | -.025<br>(.037)  | -.020<br>(.047)  | -.088<br>(.082)  |
| High Uncertainty Industry (=1)                               | -.046<br>(.073)  | -.004<br>(.106)  | .100<br>(.147)   |
| IPO Market Valuation   | -.073<br>(.052)  | -.097<br>(.063)  | -.058<br>(.072)  |
| TMT Relevant Experience                                      |                  | .043<br>(.053)   | .057<br>(.089)   |
| TMT Industry Social Capital                                  |                  | .089<br>(.135)   | -.033<br>(.235)  |
| TMT "Blue-Chip" Social Capital                               |                  | .019<br>(.057)   | .018<br>(.103)   |
| TMT Joint Work Experience                                    |                  | -.170<br>(.213)  | .128<br>(.293)   |
| Board Relevant Experience                                    |                  | -.040<br>(.046)  | -.048<br>(.103)  |
| Board Industry Social Capital                                |                  | -.009<br>(.090)  | -.006<br>(.143)  |
| Board "Blue-Chip" Social Capital                             |                  | -.101<br>(.062)  | -.074<br>(.109)  |
| Prom. Ven. Cap. Backed/Und. Prestige X High Uncertainty Ind. |                  |                  | .046<br>(.099)   |
| TMT Relevant Experience X High Uncertainty Ind.              |                  |                  | .028<br>(.129)   |
| TMT Industry Social Capital X High Uncertainty Ind.          |                  |                  | .387<br>(.352)   |
| TMT "Blue-Chip" Social Capital X High Uncertainty Ind.       |                  |                  | -.078<br>(.152)  |
| TMT Joint Work Experience X High Uncertainty Ind.            |                  |                  | -.631<br>(.503)  |
| Board Relevant Experience X High Uncertainty Ind.            |                  |                  | .015<br>(.114)   |
| Board Industry Social Capital X High Uncertainty Ind.        |                  |                  | -.059<br>(.230)  |
| Board "Blue-Chip" Social Capital X High Uncertainty Ind.     |                  |                  | -.068<br>(.149)  |
| Constant   | 1.194<br>(.889)  | 1.615<br>(1.075) | .919<br>(1.223)  |
| R <sup>2</sup>   | .274             | .326             | .417             |
| Adjusted R <sup>2</sup>                                      | .181             | .045             | -.061            |
| N  | 71               | 52               | 52               |

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

**Table 25: Summary of Propositions:**

| <b><u>Proposition:</u></b>  | <b><u>Predicted Relationship:</u></b> | <b><u>Empirical Finding:</u></b> |
|---|---------------------------------------|----------------------------------|
| <b><u>Proposition 1a:</u></b> Higher levels of top management team human capital yield superior post-IPO firm performance   | Positive                              | Mixed                            |
| <b><u>Proposition 1b:</u></b> Higher levels of top management team human capital yield superior IPO valuation   | Positive                              | Mixed                            |
| <b><u>Proposition 2a:</u></b> Higher levels of board human capital yield superior post-IPO firm performance   | Positive                              | Mixed                            |
| <b><u>Proposition 2b:</u></b> Higher levels of board human capital yield superior IPO valuation   | Positive                              | Mixed                            |
| <b><u>Proposition 3a:</u></b> High levels of top management team social capital yield superior post-IPO firm performance  | Positive                              | Positive                         |
| <b><u>Proposition 3b:</u></b> High levels of top management team social capital yield superior IPO valuation  | Positive                              | Positive                         |
| <b><u>Proposition 4a:</u></b> High levels of board social capital yield superior post-IPO firm performance  | Positive                              | NS                               |
| <b><u>Proposition 4b:</u></b> High levels of board social capital yield superior IPO valuation  | Positive                              | NS                               |
| <b><u>Proposition 5a:</u></b> Upper-echelons capital is a stronger predictor of post-IPO performance in industries with great uncertainty than in industries with low uncertainty | Positive                              | Mixed                            |
| <b><u>Proposition 5b:</u></b> Upper-echelons capital is a stronger predictor of IPO valuation in industries with great uncertainty than in industries with low uncertainty        | Positive                              | Mixed                            |
| <b><u>Proposition 6a:</u></b> High levels of upper-echelons capital yield more firm ties to prestigious third parties   | Positive                              | Mixed                            |
| <b><u>Proposition 6b:</u></b> High levels of firm ties to prestigious third parties yield superior post-IPO firm performance  | Positive                              | Mixed                            |
| <b><u>Proposition 6c:</u></b> High levels of firm ties to prestigious third parties yield superior IPO valuation  | Positive                              | Positive                         |

### **Appendix A:**

#### **Average Prior Position Level Coding Scheme (derived from Eisenhardt and Schoonhoven [1996] and Higgins and Gulati [1999]):**

|   |   |  |
|---|---|--|
| 5 | = | CEO, President, Principal, or equivalent   |
| 4 | = | COO, CFO/Controller/Treasurer, CIO, CAO, General Counsel, General Manager, or<br>Senior VP/Manager |
| 3 | = | VP, Partner, Academic Chair/Head/Dean  |
| 2 | = | Director, or Professor (Full)  |
| 1 | = | Manager, Senior Associate, Associate, or Assistant Director  |
| 0 | = | Secretary, Scientist, Attorney, Consultant, or other   |



**Appendix B:****Finkelstein's (1992) List of Prominent Undergraduate Colleges:**

Amherst College  
Brown University  
Carleton College  
Cornell University  
Dartmouth College  
Grinnell College  
Harvard University  
Haverford College  
Johns Hopkins University  
Massachusetts Institute of Technology  
New York University  
Oberlin College  
Pomona College  
Princeton University  
Stanford University  
Swarthmore College  
United States Military Academy  
United States Naval Academy  
University of California, Berkeley  
University of California, Los Angeles  
University of Chicago  
University of Michigan  
University of Pennsylvania  
Wellesley College  
Williams College  
Yale University

**Appendix C: *Gourman Report* Rankings, 1989, 1993:**

**Top 15 Business Schools (16 Total):**

Carnegie-Mellon University  
 Columbia University  
 Cornell University (Johnson)  
 Dartmouth College (Tuck)  
 Harvard  
 Indiana University (Bloomington)  
 MIT (Sloan)  
 Northwestern University (Kellogg)  
 NYU (Stern)  
 Stanford University  
 UC, Berkeley (Haas)  
 UCLA (Anderson)  
 University of Chicago  
 University of Illinois (Urbana-Champaign)  
 University of Michigan (Ann Arbor)  
 University of Pennsylvania (Wharton)

**Top 15 Law Schools (15 Total):**

Columbia University (NY)  
 Cornell (NY)  
 Duke University  
 Harvard University  
 New York University  
 Northwestern (Chicago)  
 Stanford University  
 The University of Chicago  
 The University of Michigan (Ann Arbor)  
 University of California, Berkeley (Boalt Hall)  
 University of California, Los Angeles  
 University of Pennsylvania  
 University of Texas (Austin)  
 University of Virginia  
 Yale University

**Appendix C (continued): *Gourman Report* Rankings, 1989, 1993:**

**Top 15 Engineering Schools (15 Total):**

California Institute of Technology (Cal Tech)  
 Carnegie-Mellon University  
 Cornell University  
 Georgia Institute of Technology  
 Massachusetts Institute of Technology  
 Ohio State University  
 Purdue University  
 Stanford University  
 University of California, Berkeley  
 University of Illinois at Urbana-Champaign  
 University of Michigan  
 University of Minnesota  
 University of Pennsylvania  
 University of Texas at Austin  
 University of Wisconsin-Madison

**Top 15 Computer Science Graduate Schools (16 Total):**

California Institute of Technology (Cal Tech)  
 California, Berkeley  
 Carnegie-Mellon  
 Cornell (NY)  
 Illinois (Urbana)  
 Maryland (College Park)  
 MIT  
 Princeton  
 Stanford  
 Texas (Austin)  
 UCLA  
 USC (California)  
 Utah  
 Washington (Seattle)  
 Wisconsin (Madison)  
 Yale

**Appendix C (continued): *Gourman Report* Rankings, 1989, 1993:****Top 15 Graduate Schools (15 Total):**

Cal Tech  
California, Berkeley  
Chicago  
Columbia (NY)  
Cornell (NY)  
Harvard  
Michigan (Ann Arbor)  
Minnesota (Minneapolis)  
MIT  
Pennsylvania  
Princeton  
Stanford  
UCLA  
Wisconsin (Madison)  
Yale

**Appendix D: Prominent Industry Firms, 1990 - 1994****Prominent Computer Integrated Design Firms, 1990 - 1994:**

ANALYSTS INTERNATIONAL CORP  
CONSILIUM INC  
CSK CORP  
KEANE INC  
LOGICON INC

**Prominent Computer Programming Service Firms, 1990 - 1994:**

ASK GROUP INC  
BBN CORP  
BELL INDUSTRIES INC  
CACI INTL INC  
CELLULAR TECHNICAL SERVICES  
CERNER CORP  
COMPUTER DATA SYSTEMS INC  
CONTROL DATA SYS INC  
ELECTRONIC DATA SYSTEMS CORP  
ELITE INFORMATION GROUP INC  
HBO & CO  
HENRY (JACK) & ASSOCIATES  
INTERGRAPH CORP  
LANDMARK GRAPHICS CORP  
MEDIC COMPUTER SYSTEMS INC  
MENTOR GRAPHICS CORP  
RECOGNITION INTL INC  
SHARED MEDICAL SYSTEMS CORP  
SHL SYSTEMHOUSE INC  
SONIC SOLUTIONS  
TECHNOLOGY SOLUTIONS CO  
TREEV INC  
UNISYS CORP  
VITALINK COMMUNICATIONS CORP

**Appendix D: Prominent Industry Firms, 1990 - 1994 (continued):**

**Prominent Restaurant Chains, 1990 - 1994:**

ADVANTICA RESTAURANT GP INC  
 APPLEBEES INTL INC  
 AVADO BRANDS INC  
 BERTUCCIS INC  
 BOB EVANS FARMS  
 BOSTON CHICKEN INC  
 BRINKER INTL INC  
 BUFFETS INC  
 CBRL GROUP INC  
 CEC ENTERTAINMENT INC  
 CHECKERS DRIVE-IN RESTAURANT  
 CHEESECAKE FACTORY INC  
 CKE RESTAURANTS INC  
 COOKER RESTAURANT/OH  
 DAVCO RESTAURANTS INC  
 DF&R RESTAURANTS INC  
 FOODMAKER INC  
 FRESH CHOICE INC  
 FRISCH'S RESTAURANTS INC  
 HOMETOWN BUFFET INC  
 ICH CORP  
 KRYSTAL CO  
 LANDRYS SEAFOOD RESTAURANTS  
 LONE STAR STEAKHOUSE SALOON  
 LUBYS INC  
 MCDONALDS CORP  
 MORTONS RESTAURANT GROUP INC  
 NPC INTERNATIONAL INC  
 OUTBACK STEAKHOUSE INC  
 PANERA BREAD CO  
 PAPA JOHNS INTERNATIONAL INC  
 PERKINS FAMILY RESTS -LP  
 PICCADILLY CAFETERIAS INC  
 POLLO TROPICAL INC  
 RALLYS HAMBURGERS INC  
 RARE HOSPITALITY INTL INC  
 ROCK BOTTOM RESTAURANTS INC  
 RUBY TUESDAY INC  
 RYAN'S FAMILY STK HOUSES INC  
 SBARRO INC  
 SHONEY'S INC  
 SIZZLER INTL INC  
 SONIC CORP  
 SPAGHETTI WHSE INC  
 TACO CABANA+N33  
 TPI ENTERPRISES INC  
 UNO RESTAURANT CORP  
 VICORP RESTAURANTS INC  
 WENDY'S INTERNATIONAL INC

**Appendix D: Prominent Industry Firms, 1990 - 1994 (continued):****Prominent Hotel Chains, 1990 - 1994:**

AVATEX CORP  
CLUB MED INC  
DOUBLETREE CORP  
HILTON HOTELS CORP  
LA QUINTA INNS INC  
MARCUS CORP  
MARRIOTT INTL INC  
PRIME HOSPITALITY CORP  
RED LION INNS  
SHOLODGE INC

**Appendix E:****Prominent *Fortune 100* Firms, 1989 - 1994 (117 Total):**

Abbot Laboratories  
Alcoa  
AlliedSignal  
Aluminum Co. of America  
Amerada Hess  
American Brands  
American Cyanamid  
American Home Products  
Amoco  
Anheuser-Busch  
Apple Computer  
Archer-Daniels-Midland  
Ashland Oil  
Atlantic Richfield  
BASF  
Baxter International  
Bayer USA  
Bethlehem Steel  
Boeing  
Borden  
Bristol-Myers Squibb  
Campbell Soup  
Caterpillar  
Champion International  
Chevron  
Chrysler  
Citgo Petroleum  
Coastal  
Coca-Cola  
Colgate-Palmolive  
Compaq Computer  
Conagra  
Cooper Industries  
CPC International  
Dana  
Deere  
Digital Equipment  
Dow Chemical  
E.I. Du Pont De Nemours  
Eastman Kodak  
Eli Lilly  
Emerson Electric  
Exxon  
Ford Motor  
General Dynamics  
General Electric  
General Mills  
General Motors  
Georgia-Pacific



**Appendix E (continued):**

**Prominent *Fortune* 100 Firms, 1989 - 1994 (117 Total):**

Gillette  
 Goodyear Tire  
 H.J. Heinz  
 Hanson Industries NA  
 Hewlett-Packard  
 Hoechst Celanese  
 Honeywell  
 IBP  
 Intel  
 International Business Machines  
 International Paper  
 James River Corp. of Virginia  
 Johnson & Johnson  
 Johnson Controls  
 Kellogg  
 Kimberly-Clark  
 Levi Strauss Associates  
 Litton Industries  
 Lockheed  
 LTV  
 Lyondell Petrochemical  
 Martin Marietta  
 McDonnell Douglas  
 Merck  
 Miles  
 Minnesota Mining and Mfg.  
 Mobil  
 Monsanto  
 Motorola  
 NCR  
 North American Philips  
 Northrop  
 Occidental Petroleum  
 Pepsico  
 Pfizer  
 Philip Morris  
 Phillips Petroleum  
 PPG Industries  
 Procter & Gamble  
 Quaker Oats  
 Ralston Purina  
 Raytheon  
 Reynold Metals  
 RJR Nabisco Holdings  
 Rockwell International  
 Sara Lee  
 Scott Paper  
 Shell Oil  
 Stone Container

**Appendix E (continued):****Prominent *Fortune 100* Firms, 1989 - 1994 (117 Total):**

Sun  
Tenneco  
Texaco  
Texas Instruments  
Textron  
Time Warner  
TRW  
Unilever U.S.  
Union Carbide  
Unisys  
United Technologies  
Unocal  
USX  
W.R. Grace  
Warner-Lambert  
Westinghouse Electric  
Weyerhaeuser  
Whirlpool  
Xerox

## Appendix F:

### Prominent (Top 10) Venture Capital Firms, 1990 - 1994 (46 Total)

Abingdon Venture Capital  
 Accel Partners  
 Advent  
 ALTA  
 APA Excelsior  
 Asset Management Associates  
 Austin Ventures  
 Battery Ventures  
 BCI Growth (Bridge Capital)  
 Brentwood Associates  
 Canaan Capital Partnership  
 Centennial  
 Charles River  
 Connecticut Future Fund  
 Domain Associates  
 Edison Venture Fund  
 Enterprise Partners  
 Frontenac  
 Greylock  
 Hancock Venture Partners  
 Healthcare Ventures  
 Highland Capital Partners  
 Institutional Venture Partners  
 InterWest Partners  
 Kleiner Perkins Caufield & Byers  
 Marquette Venture Partners  
 Matrix Partners  
 Mayfield  
 Media/Communication Partners  
 Menlo Venture  
 Merrill, Pickard, Anderson & Eyre  
 Mohr, Davidow Ventures  
 Nazem & Co.  
 New Enterprise Associates  
 Norwest Equity Partners  
 Oak Investment Partners  
 Prudential Equity  
 Sequoia Capital  
 Sevin Rosen Fund  
 Sierra Ventures  
 Sigma Partners  
 Sprout Capital  
 Summit Ventures  
 Weston Presidio Capital  
 J.H. Whitney  
 WPG Ventures Associates

Source: *Venture Capital Journal*, Top 10 VC Funds in Capital Raised (1990; 1991; 1992; 1993; 1994)

**Appendix G: Carter *et al.* (1998) Rankings of Underwriter Prestige:**

| <b>Investment Bank:</b>        | <b>Ranking (0 - 9; with 9 = highest):</b> |
|--------------------------------|---|
| Adams, James, Foor & Co.       | 2.50                                      |
| Advest                         | 7.13                                      |
| Akroyd & Smithers              | 0.50                                      |
| Allen & Co.                    | 7.00                                      |
| Bacon, Stifel Nicolaus         | 5.75                                      |
| Baer & Co.                     | 5.00                                      |
| Baird, Patrick                 | 3.50                                      |
| Baird, R. W. & Co.             | 5.75                                      |
| Baker, Watts & Co.             | 6.00                                      |
| Bateman Eichler, Hill Richards | 5.83                                      |
| Baum, George K.                | 5.17                                      |
| Bear, Stearns & Co.            | 8.75                                      |
| Birr, Wilson Securities        | 6.50                                      |
| Blackstock & Co.               | 5.50                                      |
| Blair, D. H. & Co.             | 8.00                                      |
| Blinder, Robinson & Co.        | 1.00                                      |
| Buckingham Research            | 2.00                                      |
| Blunt, Ellis & Loewi           | 7.17                                      |
| Boettcher & Co.                | 6.00                                      |
| Bradford, J. C. & Co.          | 7.38                                      |
| Brean Murray, Foster           | 5.00                                      |
| Brown, Alex & Sons             | 8.88                                      |
| Burgess & Leith                | 1.00                                      |
| Butcher & Singer               | 6.75                                      |
| Cable, Howse & Ragen           | 6.75                                      |
| Carolina Securities Corp.      | 4.25                                      |
| Chesler & Dunn                 | 1.00                                      |
| Christopher, B. C. Securities  | 5.50                                      |
| Cohn, S. D. & Co.              | 0.00                                      |
| Commonwealth Association       | 4.50                                      |
| Covey & Co.                    | 1.00                                      |
| Cowen & Co.                    | 5.50                                      |
| Craig-Hallum                   | 4.50                                      |
| Cralin & Co.                   | 1.00                                      |
| Crowell, Weeden & Co.          | 5.25                                      |
| Dain Bosworth                  | 7.63                                      |
| Daiwa Securities America       | 8.13                                      |
| Dean Witter Reynolds           | 8.50                                      |

**Appendix G (continued): Carter *et al.* (1998) Rankings of Underwriter Prestige:**

| Investment Bank:                     | Ranking (0 - 9; with 9 = highest): |
|--------------------------------------|------------------------------------|
| Dickenson, R. G. & Co.               | 5.50                               |
| Dillon Read                          | 8.63                               |
| Donald, N. & Co. Sec.                | 3.00                               |
| Donaldson, Lufkin & Jenrette         | 8.75                               |
| Drexel Burnham Lambert               | 8.83                               |
| Duane, James J. & Co.                | 2.00                               |
| Eberstadt Flemming                   | 5.00                               |
| Edwards, A. G. & Sons                | 8.00                               |
| Engler & Budd                        | 6.00                               |
| Eppler, Guerin & Turner              | 6.25                               |
| Ernst & Co.                          | 2.50                               |
| Evans & Co.                          | 6.50                               |
| Ferris & Co.                         | 5.13                               |
| First Affiliated Securities          | 5.00                               |
| First Albany Corp.                   | 6.00                               |
| First Boston Corp.                   | 9.00                               |
| First Equity Corp.                   | 4.00                               |
| First Financial Securities           | 0.00                               |
| First of Michigan                    | 5.63                               |
| First Wilshire Sec. Mgmt.            | 1.50                               |
| Fitzgerald, DeArmon & Roberts        | 1.50                               |
| Foster & Marshall                    | 4.50                               |
| Furman Selz Mager Dietz              | 6.38                               |
| Gant, J. W.                          | 1.00                               |
| Gifford Securities                   | 2.00                               |
| Gintel & Co.                         | 3.00                               |
| Goldman, Sachs & Co.                 | 9.00                               |
| Greentree Securities                 | 1.00                               |
| Gruntal & Co.                        | 5.88                               |
| Gulfstream Financial Assoc.          | 4.00                               |
| Hambrecht & Quist                    | 9.00                               |
| Hanifen, Imhoff & Sanford            | 5.00                               |
| Herzfeld & Stern                     | 1.00                               |
| Hopper, Soliday & Co.                | 4.50                               |
| Howard, Weil & Labouisse, Friedrichs | 6.77                               |
| Hutton, E. F. & Co.                  | 8.00                               |
| Institutional Equity                 | 2.50                               |
| Interstate/Johnson Lane              | 6.00                               |

**Appendix G (continued): Carter *et al.* (1998) Rankings of Underwriter Prestige:**

| <b>Investment Bank:</b>          | <b>Ranking (0 - 9; with 9 = highest):</b> |
|----------------------------------|---|
| Invermed Associates              | 6.50                                      |
| Investment Corp. of Virginia     | 6.00                                      |
| Janney Montgomery Scott          | 6.00                                      |
| Jeffries & Co.                   | 5.33                                      |
| Jerold Securities & Co.          | 1.00                                      |
| Jesup & Lamont                   | 0.00                                      |
| Johnson Lane Space Smith & Co.   | 5.25                                      |
| Johnston, Lemon & Co.            | 4.88                                      |
| Josephthal & Co.                 | 5.38                                      |
| Keane Securities                 | 3.00                                      |
| Keefe Bruyette & Woods           | 8.33                                      |
| Kidder, Peabody & Co.            | 8.83                                      |
| Kinnard, J. G. & Co.             | 5.17                                      |
| Kleinwort Bensen                 | 6.75                                      |
| Ladenburg, Thalmann & Co.        | 6.00                                      |
| Laidlaw Adams & Peck             | 6.50                                      |
| Larkin, Emmett A. & Co.          | 4.00                                      |
| Lazard Freres & Co.              | 8.75                                      |
| Legg, Mason Woodwalker           | 7.13                                      |
| Lehman Brothers, Kuhn Loeb, Inc. | 7.50                                      |
| Lovett Mitchell Webb Garrison    | 5.50                                      |
| Manley, Bennett & McDonald       | 2.00                                      |
| Marantette                       | 3.00                                      |
| McDonald & Co.                   | 7.00                                      |
| McKinley Square Allsop Sec.      | 4.50                                      |
| Merrill Lynch White Weld Cap.    | 8.88                                      |
| Meyers, H. J.                    | 3.33                                      |
| Montgomery Securities            | 8.75                                      |
| Moore, Schley, Cameron & Co.     | 6.50                                      |
| Morgan Olmstead Kennedy          | 3.75                                      |
| Morgan Stanley & Co.             | 8.88                                      |
| Mosley Hallgarten                | 5.75                                      |
| Muller & Co.                     | 5.00                                      |
| Needham & Co.                    | 6.00                                      |
| Newhard, Cook & Co.              | 6.25                                      |
| Nomura Securities                | 8.25                                      |
| North American Securities        | 4.00                                      |
| Noyes, D. A. & Co.               | 5.00                                      |

**Appendix G (continued): Carter *et al.* (1998) Rankings of Underwriter Prestige:**

| <b>Investment Bank:</b>            | <b>Ranking (0 - 9; with 9 = highest):</b> |
|------------------------------------|---|
| O'Berweis Securities               | 3.75                                      |
| Oppenheimer & Co.                  | 7.88                                      |
| Paine, Webber, Jackson Curtis      | 8.75                                      |
| Parker/Hunter                      | 4.88                                      |
| Paulson Investment Co.             | 5.00                                      |
| Piper, Jaffray & Hopwood           | 7.75                                      |
| Pittcock, E. J. & Co.              | 1.00                                      |
| Prescott, Ball & Turben            | 7.50                                      |
| Prudential-Bache                   | 8.75                                      |
| Quinn & Co.                        | 0.00                                      |
| Raucher Pierce                     | 6.25                                      |
| Raymond, James & Assoc.            | 5.63                                      |
| Reich & Co.                        | 4.00                                      |
| Robertson, Stephens & Co.          | 8.75                                      |
| Robinson-Humphrey Co.              | 7.38                                      |
| Roney & Co.                        | 4.75                                      |
| Rooney Pace                        | 6.38                                      |
| Rosenkrantz, Lyon & Ross           | 5.00                                      |
| Rotan Mosle                        | 5.67                                      |
| Rothschild, L. F. Unterberg Towbin | 8.25                                      |
| Ryan, Beck & Co.                   | 7.00                                      |
| Salomon Brothers                   | 9.00                                      |
| San Diego Securities               | 5.50                                      |
| Schneider, Bernet & Hickman        | 6.00                                      |
| Scott & Stringfellow               | 5.50                                      |
| Seidler, Amdec Securities          | 5.13                                      |
| Shearson, Hayden & Stone           | 8.33                                      |
| Shearson Lehmann                   | 8.83                                      |
| Sherwood Securities                | 1.00                                      |
| Shoenberg & Heiber                 | 1.00                                      |
| Simon, IM & Co.                    | 6.00                                      |
| Smith Barney, Harris Upham         | 8.75                                      |
| Starr Securities, Inc.             | 6.00                                      |
| Steichen, R. J. & Co.              | 1.00                                      |
| Steiner Diamond & Co.              | 5.00                                      |
| Stephens                           | 6.75                                      |
| Stern Brothers                     | 6.50                                      |
| Stifel Nicholas & Co.              | 5.75                                      |

**Appendix G (continued): Carter *et al.* (1998) Rankings of Underwriter Prestige:**

| <b>Investment Bank:</b>        | <b>Ranking (0 - 9; with 9 = highest):</b> |
|--------------------------------|---|
| Stuart James                   | 6.00                                      |
| Summit Investment              | 1.50                                      |
| Sutro & Co.                    | 6.00                                      |
| Swartwood, Hesse               | 1.00                                      |
| Swergold Chefitz               | 5.75                                      |
| The Chicago Corp.              | 5.50                                      |
| The Milwaukee Corp.            | 3.50                                      |
| The Ohio Co.                   | 5.50                                      |
| Thomson McKinnon Securities    | 7.75                                      |
| Tucker, Anthony & Day          | 7.00                                      |
| Underwood, Neuhaus & Co.       | 7.00                                      |
| Van Kasper & Co.               | 3.50                                      |
| Volpe & Covington              | 5.00                                      |
| Wall Street West               | 0.00                                      |
| Warbug, Paribus & Beclar       | 6.67                                      |
| Weber, Hall, Sale & Assoc.     | 3.00                                      |
| Wedbush, Noble, Cooke          | 4.00                                      |
| Wegard, J. C. & Co.            | 2.00                                      |
| Werbel-Roth Securities         | 4.00                                      |
| Wertheim & Co.                 | 8.83                                      |
| Weinrich, Zitzmann & Whitehead | 1.50                                      |
| Wessels, Arnold & Henderson    | 5.33                                      |
| Whale Securities Corp.         | 3.33                                      |
| Wheat, First Securities        | 7.75                                      |
| Williams Securities Corp.      | 5.17                                      |
| Wolf, F. N. & Co.              | 2.00                                      |
| Woodruff, William K. & Co.     | 4.38                                      |
| Woolcott                       | 3.75                                      |
| Yamaichi                       | 7.75                                      |
| Yorke McCarter                 | 3.00                                      |



**Appendix H: Lead Underwriter Proceeds Per IPO for Top 15 SIC Codes in IPOs,  
1990 - 1994:**

| <b>Underwriter:</b>          | <b>Proceeds Per Deal (\$MM):</b> |
|------------------------------|----------------------------------|
| Goldman Sachs & Co.          | 82.9                             |
| Merrill Lynch & Co.          | 79.3                             |
| Crédit Suisse First Boston   | 69.5                             |
| Salomon Smith Barney         | 66.5                             |
| Morgan Stanley Dean Witter   | 58.9                             |
| JP Morgan & Co.              | 54.6                             |
| Donaldson, Lufkin & Jenrette | 53.4                             |
| Lehman Brothers              | 51.4                             |
| Bear Stearns                 | 51.0                             |
| Prudential Securities        | 39.9                             |

### Appendix I: List of Firms included in Sample:

| <u>Firm:</u>                         | <u>Industry :</u> | <u>Description:</u>           |
|--------------------------------------|-------------------|-------------------------------|
| Advanced Communication Systems, Inc. | 7373              | Computer Integrated Designs   |
| American Family Restaurants, Inc.    | 5812              | Restaurant Chain              |
| American Wagering Inc                | 7011              | Hotel Chain                   |
| Apache Medical Systems, Inc.         | 7373              | Computer Integrated Designs   |
| Applied Intelligence Group, Inc.     | 7371              | Computer Programming Services |
| Ashton Technology Group, Inc.        | 7371              | Computer Programming Services |
| Asymetrix Learning Systems, Inc.     | 7371              | Computer Programming Services |
| Augment Systems, Inc.                | 7373              | Computer Integrated Designs   |
| Austins Steaks & Saloon Inc          | 5812              | Restaurant Chain              |
| Aware, Inc.                          | 7373              | Computer Integrated Designs   |
| BAB Holdings, Inc.                   | 5812              | Restaurant Chain              |
| Bell Technology Group Ltd            | 7373              | Computer Integrated Designs   |
| Boardwalk Casino, Inc.               | 7011              | Hotel Chain                   |
| Borealis Technology Corporation      | 7371              | Computer Programming Services |
| BrightStar Information Technology Gr | 7373              | Computer Integrated Designs   |
| Bristol Hotel Company                | 7011              | Hotel Chain                   |
| Broadcast.com Inc                    | 7373              | Computer Integrated Designs   |
| Bugaboo Creek Steak House, Inc.      | 5812              | Restaurant Chain              |
| Candlewood Hotel Company Inc.        | 7011              | Hotel Chain                   |
| CapStar Hotel Company                | 7011              | Hotel Chain                   |
| Casa Ole Restaurants, Inc.           | 5812              | Restaurant Chain              |
| Cavanaughs Hospitality Corporation   | 7011              | Hotel Chain                   |
| CCC Information Services Group Inc.  | 7371              | Computer Programming Services |
| CellNet Data Systems, Inc.           | 7373              | Computer Integrated Designs   |
| Champps Entertainment, Inc.          | 5812              | Restaurant Chain              |
| Chic Chick Inc                       | 5812              | Restaurant Chain              |
| Chicago Pizza & Brewery, Inc.        | 5812              | Restaurant Chain              |
| Ciao Cucina Corporation              | 5812              | Restaurant Chain              |
| CluckCorp International, Inc.        | 5812              | Restaurant Chain              |
| Coffee People, Inc.                  | 5812              | Restaurant Chain              |
| Command Systems Inc                  | 7371              | Computer Programming Services |
| Complete Business Solutions, Inc.    | 7371              | Computer Programming Services |
| CompuRAD Inc                         | 7371              | Computer Programming Services |
| Cotelligent Group, Inc.              | 7371              | Computer Programming Services |
| Creative Host Services, Inc.         | 5812              | Restaurant Chain              |
| Credit Management Solutions          | 7371              | Computer Programming Services |
| Data Processing Resources Corp       | 7373              | Computer Integrated Designs   |
| DecisionOne Holdings Corp.           | 7373              | Computer Integrated Designs   |
| Deltek Systems, Inc.                 | 7371              | Computer Programming Services |
| DIDAX Inc.                           | 7371              | Computer Programming Services |
| Digital River, Inc.                  | 7373              | Computer Integrated Designs   |
| Doubletree Corporation               | 7011              | Hotel Chain                   |
| DSET Corp.                           | 7371              | Computer Programming Services |
| Eclipsys Corporation                 | 7373              | Computer Integrated Designs   |
| Einstein Bros Bagel Corp.            | 5812              | Restaurant Chain              |
| Exchange Applications, Inc.          | 7373              | Computer Integrated Designs   |
| Extended Stay America, Inc.          | 7011              | Hotel Chain                   |
| Famous Dave's of America, Inc.       | 5812              | Restaurant Chain              |
| Fine Host Corp                       | 5812              | Restaurant Chain              |

**Appendix I (continued): List of Firms included in Sample:**

| <u>Firm:</u>                         | <u>Industry :</u> | <u>Description:</u>           |
|--------------------------------------|-------------------|-------------------------------|
| Friendly Ice Cream Corporation       | 5812              | Restaurant Chain              |
| Galvestons Steakhouse Corporation    | 5812              | Restaurant Chain              |
| Garden Fresh Restaurant Corp.        | 5812              | Restaurant Chain              |
| Golf Enterprises, Inc.               | 5812              | Restaurant Chain              |
| Hall Kinion & Associates, Inc.       | 7371              | Computer Programming Services |
| Harveys Casino Resorts               | 7011              | Hotel Chain                   |
| Heuristic Development Group          | 7371              | Computer Programming Services |
| HomeCom Communications, Inc.         | 7371              | Computer Programming Services |
| Homegate Hospitality, Inc.           | 7011              | Hotel Chain                   |
| Host America Corporation             | 5812              | Restaurant Chain              |
| Hotel Discovery Inc.                 | 5812              | Restaurant Chain              |
| HTE, Inc.                            | 7373              | Computer Integrated Designs   |
| Hypercom Corporation                 | 7373              | Computer Integrated Designs   |
| Icon CMT Corp.                       | 7373              | Computer Integrated Designs   |
| IDT Corporation                      | 7373              | Computer Integrated Designs   |
| Il Fornaio (America) Corporation     | 5812              | Restaurant Chain              |
| ImageMatrix Corporation              | 7373              | Computer Integrated Designs   |
| Intelligroup Inc                     | 7373              | Computer Integrated Designs   |
| Interlink Computer Sciences, Inc.    | 7373              | Computer Integrated Designs   |
| International Integration Incorporat | 7371              | Computer Programming Services |
| International Network Services       | 7373              | Computer Integrated Designs   |
| International Sports Wagering Inc.   | 7373              | Computer Integrated Designs   |
| International Telecommunication Data | 7371              | Computer Programming Services |
| Interstate Hotels Corp               | 7011              | Hotel Chain                   |
| ISOCOR                               | 7371              | Computer Programming Services |
| Italian Oven, Inc.                   | 5812              | Restaurant Chain              |
| JDA Software Group, Inc.             | 7371              | Computer Programming Services |
| Jerry's Famous Deli, Inc.            | 5812              | Restaurant Chain              |
| John Q Hammons Hotels, Inc.          | 7011              | Hotel Chain                   |
| Judge Group Inc.                     | 7373              | Computer Integrated Designs   |
| Landmark Systems Corporation         | 7371              | Computer Programming Services |
| LanVision Systems, Inc.              | 7373              | Computer Integrated Designs   |
| LHS Group Inc.                       | 7371              | Computer Programming Services |
| Linda's Flame Roasted Chicken Incorp | 5812              | Restaurant Chain              |
| Logans Roadhouse Inc.                | 5812              | Restaurant Chain              |
| Macheezmo Mouse Restaurants, Inc.    | 5812              | Restaurant Chain              |
| Manchester Equipment Co., Inc.       | 7371              | Computer Programming Services |
| Mastech Corporation                  | 7371              | Computer Programming Services |
| Medical Manager Corporation          | 7373              | Computer Integrated Designs   |
| MicroStrategy Incorporated           | 7371              | Computer Programming Services |
| Microwave Systems Corporation        | 7373              | Computer Integrated Designs   |
| Muse Technologies, Inc.              | 7373              | Computer Integrated Designs   |
| NAVIDEC, Inc.                        | 7373              | Computer Integrated Designs   |
| NeoMedia Technologies, Inc.          | 7373              | Computer Integrated Designs   |
| NetLive Communications, Inc.         | 7373              | Computer Integrated Designs   |
| NEVstar Gaming Corp                  | 7011              | Hotel Chain                   |
| New Era of Networks, Inc             | 7371              | Computer Programming Services |
| New World Coffee Inc.                | 5812              | Restaurant Chain              |
| New York Bagel Enterprises, Inc.     | 5812              | Restaurant Chain              |

**Appendix I (continued): List of Firms included in Sample:**

| <u>Firm:</u>                         | <u>Industry :</u> | <u>Description:</u>           |
|--------------------------------------|-------------------|-------------------------------|
| NHancement Technologies Inc.         | 7373              | Computer Integrated Designs   |
| Oacis Healthcare Holdings Corp.      | 7371              | Computer Programming Services |
| ObjectSoft Corporation               | 7373              | Computer Integrated Designs   |
| Online System Services, Inc.         | 7373              | Computer Integrated Designs   |
| OpenVision Technologies, Inc.        | 7371              | Computer Programming Services |
| Penn National Gaming, Inc.           | 7011              | Hotel Chain                   |
| Pervasive Software Inc               | 7371              | Computer Programming Services |
| PF Chang's China Bistro, Inc.        | 5812              | Restaurant Chain              |
| Pilot Network Services, Inc.         | 7373              | Computer Integrated Designs   |
| PJ America, Inc.                     | 5812              | Restaurant Chain              |
| Planet Hollywood International, Inc. | 5812              | Restaurant Chain              |
| PowerCerv Corporation                | 7373              | Computer Integrated Designs   |
| Primix Solutions Inc.                | 7371              | Computer Programming Services |
| Printrak International Inc.          | 7373              | Computer Integrated Designs   |
| Prologic Management Systems, Inc.    | 7371              | Computer Programming Services |
| PRT Group Inc                        | 7371              | Computer Programming Services |
| PSW Technologies, Inc.               | 7373              | Computer Integrated Designs   |
| Pudgie's Chicken, Inc.               | 5812              | Restaurant Chain              |
| QuadraMed Corporation                | 7371              | Computer Programming Services |
| Quality Dining, Inc.                 | 5812              | Restaurant Chain              |
| Quizno's Franchise Corporation       | 5812              | Restaurant Chain              |
| Radiant Systems, Inc.                | 7373              | Computer Integrated Designs   |
| Rainforest Café, Inc.                | 5812              | Restaurant Chain              |
| Rattlesnake Holding Company, Inc     | 5812              | Restaurant Chain              |
| RealNetworks, Inc.                   | 7373              | Computer Integrated Designs   |
| Red Roof Inns, Inc.                  | 7011              | Hotel Chain                   |
| ResortQuest International, Inc.      | 7011              | Hotel Chain                   |
| Roadhouse Grill Inc.                 | 5812              | Restaurant Chain              |
| Robocom Systems Inc.                 | 7373              | Computer Integrated Designs   |
| Rock Bottom Restaurants, Inc.        | 5812              | Restaurant Chain              |
| Sagebrush, Inc.                      | 5812              | Restaurant Chain              |
| Sapient Corporation                  | 7373              | Computer Integrated Designs   |
| SCB Computer Technology, Inc.        | 7371              | Computer Programming Services |
| Schlotzskys Inc.                     | 5812              | Restaurant Chain              |
| Securacom, Inc.                      | 7373              | Computer Integrated Designs   |
| Sforza Enterprises Inc.              | 5812              | Restaurant Chain              |
| Shells Seafood Restaurants, Inc.     | 5812              | Restaurant Chain              |
| Signature Resorts, Inc.              | 7011              | Hotel Chain                   |
| Silverleaf Resorts, Inc.             | 7011              | Hotel Chain                   |
| Simulation Sciences Inc.             | 7371              | Computer Programming Services |
| Simulations Plus, Inc.               | 7373              | Computer Integrated Designs   |
| SPR Inc.                             | 7371              | Computer Programming Services |
| Star Buffet, Inc.                    | 5812              | Restaurant Chain              |
| Studio Plus Hotels, Inc.             | 7011              | Hotel Chain                   |
| Suburban Lodges of America, Inc.     | 7011              | Hotel Chain                   |
| Supertel Hospitality, Inc.           | 7011              | Hotel Chain                   |
| Syntel, Inc.                         | 7371              | Computer Programming Services |
| SysComm International Corporation    | 7373              | Computer Integrated Designs   |
| TALX Corporation                     | 7373              | Computer Integrated Designs   |

**Appendix I (continued): List of Firms included in Sample:**

| <u>Firm:</u>                         | <u>Industry :</u> | <u>Description:</u>           |
|--------------------------------------|-------------------|-------------------------------|
| TAM Restaurants, Inc.                | 5812              | Restaurant Chain              |
| Tekgraf, Inc.                        | 7371              | Computer Programming Services |
| Terrace Holdings, Inc.               | 5812              | Restaurant Chain              |
| Tier Technologies, Inc.              | 7373              | Computer Integrated Designs   |
| Total Entertainment Restaurant Corp. | 5812              | Restaurant Chain              |
| Trans World Gaming Corp.             | 7011              | Hotel Chain                   |
| TriTeal Corporation                  | 7371              | Computer Programming Services |
| Trump Hotels & Casino Resorts, Inc.  | 7011              | Hotel Chain                   |
| UBICS, Inc.                          | 7371              | Computer Programming Services |
| Uniservice Corporation               | 5812              | Restaurant Chain              |
| United Restaurants, Inc.             | 5812              | Restaurant Chain              |
| US Franchise Systems, Inc.           | 7011              | Hotel Chain                   |
| USCS International, Inc.             | 7371              | Computer Programming Services |
| USWeb Corporation                    | 7373              | Computer Integrated Designs   |
| Vanstar Corporation                  | 7373              | Computer Integrated Designs   |
| Verisign, Inc.                       | 7371              | Computer Programming Services |
| Viisage Technology, Inc.             | 7373              | Computer Integrated Designs   |
| Visual Networks, Inc.                | 7373              | Computer Integrated Designs   |
| Voxware, Inc.                        | 7373              | Computer Integrated Designs   |
| Walsh International Inc.             | 7371              | Computer Programming Services |
| Woodroast Systems, Inc.              | 5812              | Restaurant Chain              |
| Wyndham Hotel Corporation            | 7011              | Hotel Chain                   |
| Yahoo!                               | 7373              | Computer Integrated Designs   |

# Appendix J:

## Lead Underwriters for top 15 SICs for IPOs From 1990 through 1994 Ranked by Average Investment Bank IPO Proceeds (SMM - Multiplied by $10^{-1}$ )

Source: Thomson Financial Securities Data Global New Issues Database

|      |   |
|------|---|
| 7.96 | Goldman Sachs & Co  |
| 7.49 | Credit Suisse First Boston                                  |
| 7.25 | Merrill Lynch & Co Inc                                      |
| 7.15 | Salomon Smith Barney  |
| 4.51 | Bear Stearns  |
| 4.39 | Lehman Brothers   |
| 4.32 | Morgan Stanley Dean Witter                                  |
| 4.22 | Donaldson, Lufkin & Jenrette                                |
| 3.14 | Prudential Securities Inc                                   |
| 3.09 | Nomura Securities   |
| 3.07 | Deutsche Bank AG (Alex.Brown; Montgomery Securities)        |
| 2.80 | PaineWebber   |
| 2.79 | Fleet Boston Corp (Robertson Stephens)                      |
| 2.76 | First Union Corp  |
| 2.69 | Banc of America Securities LLC                              |
| 2.64 | Raymond James & Associates                                  |
| 2.42 | Chase Manhattan Corp (JP Morgan; H&Q)                       |
| 2.35 | CIBC World Markets (Oppenheimer)                            |
| 2.33 | Warburg Dillon Read (UBS)                                   |
| 2.23 | JC Bradford & Co  |
| 1.95 | Societe Generale (Cowan)                                    |
| 1.83 | US Bancorp (Piper Jaffray)                                  |
| 1.78 | William Blair   |
| 1.55 | Blech (D.) & Co, Inc.                                       |
| 1.43 | Needham   |
| 1.32 | Pennsylvania Merchant Group                                 |
| 1.24 | HJ Meyers & Co  |
| 1.17 | Josephthal  |
| 0.84 | GKN Securities Corp   |
| 0.66 | D. H. Blair   |
| 0.64 | John G Kinnard & Co   |
| 0.63 | Thomas James Associates                                     |
| 0.62 | M. H. Meyerson  |
| 0.60 | Synergistic Holdings Corp                                   |
| 0.58 | Equity Securities Trading                                   |
| 0.29 | Any other investment bank not included in the above ranking |

## **Appendix K:**

### **From Inception to IPO:**

#### **A Case Study Timeline of the development of CacheFlow Inc. [Excerpted from McGee (2000: C1)]**

##### **Stage 1: Birth of CacheFlow Inc.**

**March 13, 1996:** First, an idea. Then, the angels... Everyone wants quicker access to Web pages. Michael Malcolm, former president and CEO of Network Appliance, envisions a new company to do just that. The idea spawns CacheFlow Inc. The key: provide local storage, or “caching” – hence the company’s name – of frequently used Internet data via an appliance added to customers’ computer networks that helps them access most-used Web sites. He and partner Joe Pruskowski raise \$1 million in seed capital loans from a dozen “angel” investors in San Francisco and Seattle.

**August 1996:** Though CacheFlow has cash, venture firms bang on its door trying to get a piece of the action. Benchmark Capital Partners “were pretty aggressive,” Mr. Malcolm recalls.

##### **Stage 2: First financing from a venture-capital firm:**

**October 1996:** Benchmark takes the lead in the first venture-capital financing, buying 3.2 million Series A preferred shares at 87.5 cents each. For its \$2.8 million, Benchmark gets about 25% of CacheFlow. The angel investors turn their loans into Series A shares at the same price. Together, the founders, angel investors and a handful of employees own the remaining 75% of CacheFlow’s shares. The money will be used to hire managers and develop the product.

**January 1997:** Stuart Phillips, a senior executive at Cisco Systems, joins the board as an outside director, invited by Mr. Malcolm, who had worked for Mr. Phillips as a consultant in the late 1980s. Six months later, Mr. Phillips leaves Cisco to join U.S. Venture Partners, a VC firm.

**June 1997:** Mr. Pruskowski steps down as president and CEO of CacheFlow for personal reasons, but keeps his 58,572 Series A shares. Mr. Malcolm becomes interim CEO.

**August 1997:** The company begins getting feedback from users testing its prototype product. But there’s still no sign of revenues. A possible initial public offering seems far off.

### **Appendix K (continued):**

#### **From Inception to IPO:**

#### **A Case Study Timeline of the development of CacheFlow Inc. [Excerpted from McGee (2000: C1)]**

#### **Stage 3: Testing of products:**

**November 1997:** After product tests, CacheFlow seeks cash for marketing. Mr. Phillips convinces his new partners to pitch in some money.

**December 1997:** Still no revenue. But U.S. Venture Partners gets 17% of CacheFlow in return for \$6 million. Benchmark chips in \$1.8 million to maintain its stake at 25%. The Series B shares are priced at \$2.26: the company's value is up 158% in 14 months.

**May 1998:** Finally, revenue! CacheFlow's sales total \$809,000 in the next three months. Its client list grows to include Xerox, Delta Air Lines and Goldman Sachs.

**June 1998:** Investment bankers start to woo CacheFlow's board. Objective: an IPO. A successful IPO would mean big fees for bankers – and big returns for the venture investors.

**March 1999:** Mr. Malcolm hires veteran tech executive Brian NeSmith as CEO. In his second week, Mr. NeSmith talks to venture capitalists about more financing. Technology Crossover Ventures pays \$4.575 for Series C shares, or \$8.7 million for 7% of the firm. Benchmark invests \$3.4 million; U.S. Venture Partners \$2.1 million. But their stakes are cut to 18% and 12% after stock option grants to CacheFlow executives.



**Appendix K (continued):**

**From Inception to IPO:  
A Case Study Timeline of the development of CacheFlow Inc.  
[Excerpted from McGee (2000: C1)]**

**Stage 4: Board interviews bankers:**

**July 1999:** Before selecting bankers, Mr. NeSmith uses the proceeds to hire new managers. Michael Johnson, another tech company veteran, joins as chief financial officer. "I'd been here three weeks when Brian tells me we're taking it public," Mr. Johnson says.

**August 1999:** CacheFlow's directors begin grilling bankers interested in leading their IPO. Goldman Sachs is ruled out early: It has an underwriting commitment to rival Inktomi. By September, the team is chosen: Morgan Stanley Dean Witter will be in charge of the deal (CacheFlow likes its analyst, George Kelly) with Crédit Suisse First Boston as co-lead (Mr. Johnson has ties to Frank Quattrone's technology banking group). Dain Rauscher is a co-manager. Left on the sidelines are Merrill Lynch and Robertson Stephens.

**September 1999:** The company files a registration statement with the Securities and Exchange Commission for the sale of five million shares, or 15.6% of CacheFlow's stock. It reports that in the year ended April 30, it had revenues of \$3.8 million, but a net loss of \$13.2 million. For the quarter ended July 30, revenues were \$2.2 million but losses reached \$6 million. It has been about 120 employees.

## **Appendix K (continued):**

### **From Inception to IPO: A Case Study Timeline of the development of CacheFlow Inc. [Excerpted from McGee (2000: C1)]**

#### **Stage 5: CacheFlow goes public:**

**November 1999:** Underwriters say they'll try to get at least \$13 a share. Marc Andreessen – co-founder of Netscape – joins the board. The buzz around CacheFlow increases, along with the demand for Internet infrastructure investments. Now, underwriters want \$20 a share. The price is finally set still higher, at \$24. The IPO is completed November 19. The stock closes at \$126.375 a share the first day of trading. That gives Series A investors a 14,342% gain, Series B investors a 5,491% gain and Series C holders a 2,662% return. After the IPO, Benchmark owns 14% of the company; U.S. Venture Partners 9%; and Technology Crossover Ventures – which bought more shares in the IPO – 6%

#### **Stage 6: CacheFlow's Aftermarket Performance:**

**February 2000:** CacheFlow's stock now trades at \$112.875 a share, up 370.3% from the IPO price. The stock for which Benchmark paid \$8 million in three stages is now worth \$536.9 million. U.S. Venture's total stake purchased for \$8.1 million in total, is now worth \$351 million; and Technology Crossover Ventures' \$8.7 million investment in the third and thus least-risky financing round, is now worth \$213.3 million. Meanwhile, Mr. Malcolm's 5.1 million shares are now worth \$575.7 million.

**February 2001:** CacheFlow's stock performance mirrors the general NASDAQ market over the past year. The stock price now hovers around \$20, giving it close to an \$800MM market capitalization – down from its record highs, but still close to its IPO price after more than one year trading in the aftermarket. Each of its venture investors have had the opportunity to unload their stakes in CacheFlow well above what they paid for them. Compared to the decline in values of most electronic commerce firms over the past year, CacheFlow has more than held its own in the aftermarket. Company revenues have increased from \$14MM in 1999 to about \$89MM for 2000. Messrs. NeSmith and Johnson remain in control of the company. And the customer list has grown to include General Electric, Disney, HP, Sony, Toyota, Verizon, AOL Time Warner, Motorola, Proctor & Gamble, and Shell Oil.

**September 2001:** CacheFlow's stock now trades at just over \$4 a share, giving it a market capitalization of \$150MM. Mr. NeSmith remains as CEO, but Mr. Johnson has decided to leave the company. The prime reason for the company's decline in share price is its continued lack of profitability – something the company is projecting it will reach by the second quarter of 2002.

**May 2002:** CacheFlow's stock has dropped in price to \$0.72 – 99.5% below its all-time high – giving it a market capitalization of \$32MM. It announces that it will be out of cash to fund its continued operations by the end of October 2002. Five class action lawsuits were filed in the latter half of 2001 against the company's officers and directors by shareholders for the precipitous decline in the company's stock price. Profitability will not be met until the end of 2002 at the earliest.

## Appendix L: Sample IPO Prospectus: eBay

**COMPANY DATA:**

|  |   |
|--|---|
| <b>COMPANY CONFORMED NAME:</b>             | EBAY INC                                  |
| <b>CENTRAL INDEX KEY:</b>                  | 0001065088                                |
| <b>STANDARD INDUSTRIAL CLASSIFICATION:</b> | SERVICES-BUSINESS SERVICES, NEC<br>[7389] |
| <b>IRS NUMBER:</b>                         | 770430924                                 |
| <b>STATE OF INCORPORATION:</b>             | DE  |
| <b>FISCAL YEAR END:</b>                    | 1231                                      |

**FILING VALUES:**

|                         |           |
|-------------------------|-----------|
| <b>FORM TYPE:</b>       | S-1/A     |
| <b>SEC ACT:</b>         |           |
| <b>SEC FILE NUMBER:</b> | 333-75009 |
| <b>FILM NUMBER:</b>     | 99586353  |

**BUSINESS ADDRESS:**

|                  |                   |
|------------------|-------------------|
| <b>STREET 1:</b> | 2005 HAMILTON AVE |
| <b>STREET 2:</b> | STE 350           |
| <b>CITY:</b>     | SAN JOSE          |
| <b>STATE:</b>    | CA                |
| <b>ZIP:</b>      | 95125             |

**MAIL ADDRESS:**

|                  |                   |
|------------------|-------------------|
| <b>STREET 1:</b> | 2005 HAMILTON AVE |
| <b>STREET 2:</b> | STE 350           |
| <b>CITY:</b>     | SAN JOSE          |
| <b>STATE:</b>    | CA                |
| <b>ZIP:</b>      | 95125             |

S-1/A

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AMENDMENT #1 TO FORM S-1

As filed with the Securities and Exchange Commission on April 1, 1999

Registration No. 333-75009

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SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, DC 20549

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Amendment No. 1

to  
FORM S-1  
REGISTRATION STATEMENT UNDER THE SECURITIES ACT OF 1933

-----

eBay Inc.  
(Exact name of Registrant as specified in its charter)

Delaware

7389 77-0430924

(State or other jurisdiction of (Primary standard industrial (I.R.S. employer incorporation or organization) classification code number) identification no.)

2005 Hamilton Avenue, Suite 350  
San Jose, California 95125  
(408) 558-7400

(Address, including zip code, and telephone number, including area code, of  
Registrant's principal executive offices)

-----

**MICHAEL R. JACOBSON**  
 Vice President, Legal Affairs, General Counsel and Secretary  
 2005 Hamilton Avenue, Suite 350  
 San Jose, California 95125  
 (408) 558-7400

(Name, address, including zip code, and telephone number, including area code,  
 of agent for service)

Copies to:

**KENNETH L. GUERNSEY** **KEVIN P. KENNEDY** **MICHAEL J. SULLIVAN** Shearman & Sterling  
**KARYN R. SMITH**  
 1550 El Camino Real  
**VIRGINIA C. EDWARDS**  
 Menlo Park, California 94025  
**ERIN A. SAWYER**  
 (650) 330-2200  
 Cooley Godward LLP One Maritime Plaza, 20th Floor San Francisco, California 94111 (415) 693-2000

Approximate date of commencement of proposed sale to the public:  
 As soon as practicable after the effective date of this Registration Statement.

If any of the securities being registered on this Form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. ☐

If this Form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this Form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If delivery of the prospectus is expected to be made pursuant to Rule 434, please check the following box. ☐

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

-The information in this preliminary prospectus is not complete and may be -  
 -changed. These securities may not be sold until the registration statement -  
 -filed with the Securities and Exchange Commission is effective. This -  
 -preliminary prospectus is not an offer to sell nor does it seek an offer to -  
 -buy these securities in any jurisdiction where the offer or sale is not -  
 -permitted. -

Subject to Completion. Dated April 1, 1999.

6,500,000 Shares

eBay Inc.

[eBAY LOGO]

Common Stock

eBay is offering 4,250,000 shares to be sold in the offering. The selling stockholders identified in this prospectus are offering an additional 2,250,000 shares. eBay will not receive any of the proceeds for the sale of shares by the selling stockholders.

eBay's Common Stock is traded on the Nasdaq National Market under the symbol "EBAY". On March 31, 1999, the last reported sale price for the Common Stock on the Nasdaq National Market was \$137.3125 per share.

See "Risk Factors" beginning on page 6 to read about certain factors you should consider before buying shares of the Common Stock.

Neither the Securities and Exchange Commission nor any other regulatory body has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus. Any representation to the contrary is a criminal offense.

Per Share Total -----  
 Initial public offering price..... \$ \$  
 Underwriting discount..... \$ \$  
 Proceeds, before expenses, to eBay..... \$ \$  
 Proceeds, before expenses, to the selling stockholders..... \$ \$

The underwriters may, under certain circumstances, purchase up to an additional 975,000 shares from the selling stockholders at the initial public offering price less the underwriting discount.

The underwriters expect to deliver the shares against payment in New York, New York on , 1999.

Goldman, Sachs & Co. Morgan Stanley Dean Witter

BancBoston Robertson Stephens

BT Alex. Brown

Donaldson, Lutkin & Jenrette

Prospectus dated , 1999.

[Picture of sample items available for auction by eBay users with the following text at bottom of page: "Still searching the Internet?"]

eBay(TM), the eBay logo, SafeHarbor(TM), Up4Sale(TM) and the "World's Personal Trading Community"(TM) are trademarks of the Company. This prospectus also includes trade dress, trade names and trademarks of other companies. Use or display by eBay of other parties' trademarks, trade dress or products is not intended to and does not imply a relationship with the trademark or trade dress owners.

You should rely only on the information contained in this document or to which we have referred you. We have not authorized anyone to provide you with information that is different. This document may only be used where it is legal to sell these securities. The information in this document may only be accurate on the date of this document.

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#### DESCRIPTION OF ARTWORK:

The gatefold includes a sample picture of the eBay home page with the following caption: "Welcome to eBay! It's where millions of people have already found success. [www.ebay.com](http://www.ebay.com)."

The following text is contained on this gatefold:

[Two page screen shot of eBay home page with textual descriptions of eBay service attributes, surrounded by the following text flowed to both sides:]

[www.ebay.com](http://www.ebay.com)

This is the place where over six million people from more than 50 different countries visit every month.

"The buyers set the price!"

This is the online trading community that's much more than just another internet site. eBay has become a part of millions of people's lives.

With more than 1000 categories, and over one million items available on any given day, eBay is the largest and most popular person-to-person trading site on the internet. All kinds of people, from all different walks of life are turning to eBay to find all kinds of stuff.

"That's a lot of stuff!"

Hobbyists, collectors, even those running small businesses come to eBay to buy, sell, and sometimes just trade information with other people who share the same passions. And a lot of them have found their own personal success trading on eBay.

They're succeeding because they've been able to expand in ways they'd never imagined before eBay (boundaries, countries, even distribution have become irrelevant on eBay).

"Just the tip of the iceberg" [indicating the twelve major categories]

When you buy or sell on eBay, you're dealing directly with another individual-- and someone who knows exactly what they're searching for. And everyone in the eBay community is encouraged to talk about what it's like to do a deal with someone. This feedback and rating system is a very efficient way to check out the integrity of both sellers and buyers. Ask anyone who's been here . . . A positive eBay rating is worth its weight in gold . . . but beware . . . too many negative ratings, and nobody in the community is going to do business with you.

"Great to do business with. Highly recommended. Honest and quick. A++++++"

You can talk to people who like the same stuff you do!! (you might even make a friend!)

So, as we're fond of saying around here at eBay . . . What are you searching for? A rare 1840's Wedgewood Jasperware bowl? Mark McGwire's rookie year trading card? A little personal success?

Come to eBay for a little visit. Who knows . . . you might find even more than you came for. Happy Hunting!

Come for a visit.  
www.ebay.com

The world's personal trading community.

(C) 1999 eBay Inc. All rights reserved. Registered trademarks and brands are the property of their respective owners.

#### PROSPECTUS SUMMARY

You should read the following summary together with the more detailed information regarding our company and the Common Stock being sold in this offering and our financial statements and notes to those statements appearing elsewhere in this prospectus. Unless otherwise indicated, all information in this prospectus (1) reflects a three-for-one stock split of the Common Stock effected in March 1999 and (2) assumes the Underwriters' option to purchase additional shares in the offering will not be exercised. See "Description of Capital Stock" and "Underwriting." References in this prospectus to "eBay," "we," "our," "us" and the "Company" refer to eBay Inc., its California predecessor and its consolidated subsidiary.

This prospectus contains forward-looking statements based on our current expectations about our company and our industry. You can identify these forward-looking statements when you see us using words such as "expect," "anticipate," "estimate" and other similar expressions. These forward-looking statements involve risks and uncertainties. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of the factors described in the "Risk Factors" section and elsewhere in this prospectus. We undertake no obligation to publicly update any forward-looking statements for any reason, even if new information becomes available or other events occur in the future.

#### eBay

We are the world's largest and most popular person-to-person trading community on the Internet, based on the number of items listed, number of users and minutes of usage per month. We pioneered online person-to-person trading. We have developed a Web-based community in which buyers and sellers are brought together in an efficient and entertaining auction format to buy and sell items such as antiques, coins, collectibles, computers, memorabilia, stamps and toys. Our service permits sellers to list items for sale, buyers to bid on items of interest and all eBay users to browse through listed items. Our 24-hour-a-day, seven-day-a-week service is fully automated, topically arranged, intuitive and easy to use.

From December 31, 1997 to December 31, 1998, the number of our registered users grew from approximately 340,000 to over 2.1 million. We hosted over 13.6 million auctions during the fourth quarter of 1998, up from 2.0 million auctions in the fourth quarter of 1997. As of December 31, 1998, we had over 1.0 million auctions listed in more than 1,000 categories. We believe that this critical mass of buyers, sellers and items listed for sale creates a cycle that helps us to continue to grow our user base. Sellers are attracted to our service as a result of the large number of potential buyers, and buyers in turn are attracted to our service by the broad selection of goods listed. Browsers and buyers can search auction listings for specific items or search by category, key word, seller name, recently commenced auctions or auctions about to end. Our auction format creates a sense of urgency among buyers to bid for goods and creates an entertaining and compelling trading environment. We also provide buyers and sellers a place to socialize and to discuss topics of common interest. This compelling trading environment fosters a large and growing commerce-oriented online community.

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Our objective is to enhance our position as the world's leading online person-to-person trading community. Key elements of our strategy include the following:

- . growing the eBay community and strengthening our brand, both to attract new members and to maintain the vitality of the eBay community;
- . broadening our trading platform by growing existing product categories, promoting new product categories and offering services for specific regions;
- . fostering eBay community affinity and increasing community trust and

safety through services such as user verification and insurance;

- enhancing our website features and functionality through the introduction of personalization features such as About Me, which permits users to create their own home page free of charge on our website, and the Gallery, an opportunity for sellers to showcase their items as pictures in a photo catalog;
- expanding pre- and post-trade value-added services, such as assistance with scanning and uploading photographs of listed items, third-party escrow services and arrangements to make shipping of purchased items easier; and
- developing international markets by actively marketing and promoting our website in selected countries.

We were formed as a sole proprietorship in September 1995, incorporated in California in May 1996 and reincorporated in Delaware in April 1998. Our principal executive offices are located at 2005 Hamilton Avenue, Suite 350, San Jose, California 95125. Our telephone number is (408) 558-7400 and our website is located at [www.ebay.com](http://www.ebay.com). Information contained on our website is not a part of this prospectus.

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#### The Offering

Shares offered by eBay..... 4,250,000 shares  
 Shares offered by the selling stockholders..... 2,250,000 shares  
 Shares to be outstanding after the offering..... 125,092,222 shares(1)  
 Use of proceeds..... For general corporate purposes, principally working capital and capital expenditures.  
 Nasdaq National Market symbol..... "EBAY"

#### Summary Financial Information (in thousands, except per share data)

| Year Ended December 31, .....                    | 1996    | 1997     | 1998      |
|--|---------|----------|-----------|
| <b>Statement of Income Data:</b>                 |         |          |           |
| Net revenues.....                                | \$ 372  | \$ 5,744 | \$ 47,352 |
| Gross profit.....                                | 358     | 4,998    | 40,493    |
| Income from operations.....                      | 253     | 1,487    | 6,161     |
| Net income.....                                  | 148     | 874      | 2,398     |
| <b>Net income per share(2):</b>                  |         |          |           |
| Basic.....                                       | \$ 0.02 | \$ 0.04  | \$ 0.05   |
| Weighted average shares—basic.....               | 6,375   | 22,313   | 49,895    |
| Diluted.....                                     | \$ 0.00 | \$ 0.01  | \$ 0.02   |
| Weighted average shares—diluted.....             | 42,945  | 82,660   | 114,590   |
| <b>Supplemental Operating Data:</b>              |         |          |           |
| Number of registered users at end of period..... | 41      | 341      | 2,181     |
| Gross merchandise sales(3).....                  | \$7,279 | \$95,271 | \$745,395 |
| Number of auctions listed.....                   | 289     | 4,394    | 33,668    |

| December 31, 1998 .....                 | Actual As Adjusted(4) |
|---|-----------------------|
| <b>Balance Sheet Data:</b>              |                       |
| Cash and cash equivalents.....          | \$31,790 \$631,110    |
| Short-term investments.....             | 40,401 40,401         |
| Working capital.....                    | 75,347 674,667        |
| Total assets.....                       | 92,483 691,803        |
| Debt and leases, long-term portion..... | — —                   |
| Total stockholders' equity.....         | 84,445 683,765        |

(1) Based on shares of Common Stock outstanding as of March 1, 1999. Excludes:

- 9,888,294 shares of Common Stock issuable upon the exercise of stock options outstanding as of March 1, 1999 at a weighted average exercise price of \$11.14; and

- 14,408,168 shares available for future grant or issuance under the Company's various benefit plans.

See "Capitalization," "Management—Director Compensation," "Description of Capital Stock" and Notes 9 and 10 of Notes to Consolidated Financial Statements.

(2) See Note 1 of Notes to Consolidated Financial Statements for a description of the method used to compute basic and diluted net income per share.

(3) Represents the aggregate sales prices of all goods for which an auction was successfully concluded (i.e., there was at least one bid above the

seller's specified minimum price or reserve price, whichever was higher).  
 (4) Adjusted to give effect to the sale of the 4,250,000 shares of Common Stock offered by the Company hereby, at an assumed public offering price of \$146.375, after deducting the estimated underwriting discount and estimated offering expenses. See "Use of Proceeds" and "Capitalization."

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## RISK FACTORS

You should carefully consider the risks described below before making an investment decision. The risks and uncertainties described below are not the only ones facing our company. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations. If any of the following risks actually occur, our business could be harmed. In such case, the trading price of our Common Stock could decline, and you may lose all or part of your investment.

We have a limited operating history.

Our company was formed as a sole proprietorship in September 1995 and we incorporated in May 1996. We have only a limited operating history on which you can base an evaluation of our business and prospects. As an online commerce company in the early stage of development, we face increased risks, uncertainties, expenses and difficulties. You should consider an investment in our company in light of these risks, uncertainties, expenses and difficulties. To address these risks and uncertainties, we must do the following:

- maintain and increase our number of registered users, items listed on our service and completed auctions;
- maintain and grow our website and customer operations;
- continue to make trading through our service safer for users;
- maintain and enhance our brand;
- successfully execute our business and marketing strategy;
- continue to develop and upgrade our technology and information processing systems;
- continue to enhance our service to meet the needs of a changing market;
- provide superior customer service;
- respond to competitive developments; and
- attract, integrate, retain and motivate qualified personnel.

We may be unable to accomplish one or more of these things, which could cause our business to suffer. In addition, accomplishing one or more of these things might be very expensive, which could harm our financial results.

Our operating results may fluctuate.

Our operating results have varied on a quarterly basis during our short operating history. Our operating results may fluctuate significantly as a result of a variety of factors, many of which are outside our control. Factors that may affect our quarterly operating results include the following:

- our ability to retain an active user base, to attract new users who list items for sale and who complete transactions through our service and to maintain customer satisfaction;
- our ability to keep our website operational and to manage the number of items listed on our service;
- federal, state or local government regulation, including investigations prompted by items improperly listed or sold by our users;
- the introduction of new sites, services and products by us or our competitors;
- the success of our brand building and marketing campaigns;
- the level of use of the Internet and online services;
- increasing consumer acceptance of the Internet and other online services for commerce and, in particular, the trading of products such as those listed on our website;

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- . consumer confidence in the security of transactions on our website;
- . our ability to upgrade and develop our systems and infrastructure to accommodate growth;
- . our ability to attract new personnel in a timely and effective manner;
- . the volume of items listed on our website;
- . the timing, cost and availability of advertising in traditional media and on other websites and online services;
- . the timing of marketing expenses under existing contracts;
- . technical difficulties or service interruptions;
- . the amount and timing of operating costs and capital expenditures relating to expansion of our business, operations and infrastructure;
- . consumer trends and popularity of some categories of collectible items;
- . volume, size, timing and completion rate of trades on our website; and
- . general economic conditions and economic conditions specific to the Internet and electronic commerce industries.

Our limited operating history and the emerging nature of the markets in which we compete make it difficult for us to forecast our revenues or earnings accurately. We believe that period-to-period comparisons of our operating results may not be meaningful and you should not rely upon them as an indication of future performance. We do not have backlog, and almost all of our net revenues each quarter come from auctions that are listed and completed during that quarter. Our operating results in one or more future quarters may fall below the expectations of securities analysts and investors. In that event, the trading price of our common stock would almost certainly decline.

Our failure to manage growth could harm us.

We currently are experiencing a period of significant expansion in our headcount, facilities and infrastructure and we anticipate that further expansion will be required to address potential growth in our customer base and market opportunities. This expansion has placed, and we expect it will continue to place, a significant strain on our management, operational and financial resources. The areas that are put under severe strain by our rate of growth include the following:

- . **The Website.** We must constantly add new hardware, update software and add new engineering personnel to accommodate the increased use of our website. If we are unable to increase the capacity of our systems at least as fast as the growth in demand for this capacity, our website may become unstable and may cease to operate for periods of time. We have experienced periodic unscheduled downtime. Continued unscheduled downtime

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could harm our business and also could discourage users of our website and reduce future revenues.

- . **Customer Support.** We must expand our customer support operations to accommodate the increased number of users and transactions on our website. If we are unable to hire and successfully train sufficient employees or contractors in this area, users of our website may have negative experiences and current and future revenues could suffer.
- . **Customer Accounts.** Our revenues are dependent on prompt and accurate billing processes. If we are unable to grow our transaction processing abilities to accommodate the increasing number of transactions that must be billed, our ability to collect revenue will be harmed.

We must continue to hire, train and manage new employees at a rapid rate. The majority of our employees today have been with us less than one year and we expect that our rate of hiring will continue at a very high pace. To manage the expected growth of our operations and personnel, we will need to improve our transaction processing, operational and financial systems, procedures and controls. Our current and planned personnel, systems, procedures and controls may not be adequate to support our future operations. We may be unable to hire, train, retain and manage required personnel or to identify and take advantage of existing and potential strategic relationships and market opportunities.

We may not maintain profitability.

We believe that our continued profitability and growth will depend in large part on our ability to do the following:

- . increase our brand name awareness;
- . provide our customers with superior community and trading experiences;
- . and

. maintain sufficient transaction volume to attract buyers and sellers.

We are investing heavily in marketing and promotion, further development of our website, technology and operating infrastructure development. We have significant ongoing commitments in some of these areas. As a result, we may be unable to adjust our spending rapidly enough to compensate for any unexpected revenue shortfall, which may harm our profitability. The emergence of competitors, many of whom are offering free auctions to users, may limit our ability to raise user fees in response to declines in profitability or require us to reduce our fees. In addition, we are spending in advance of anticipated growth, which may also harm our profitability. Our growth rates are not sustainable and we expect growth rates will decrease in the future. In view of the rapidly evolving nature of our business and our limited operating history, we believe that period-to-period comparisons of our operating results are not necessarily meaningful. You should not rely upon our historical results as indications of our future performance.

Our business may be harmed by the listing or sale by our users of illegal items.

The law relating to the liability of providers of online services for the activities of their users on their service is currently unsettled. We are aware that certain goods, such as firearms, other weapons, adult material, tobacco products, alcohol and other goods that may be subject to regulation by local, state or federal authorities, have been listed and traded on our service. We may be unable to prevent the sale of unlawful goods, or the sale of goods in an unlawful manner, by users of our service, and we may be subject to civil or criminal liability for unlawful activities carried out by users through our service. In order to reduce our exposure to this liability, we have increased the number of personnel reviewing potentially illegal items and may in the future implement other protective measures that could require us to spend substantial resources and/or to reduce revenues by

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discontinuing certain service offerings. Any costs incurred as a result of liability or asserted liability relating to the sale of unlawful goods or the unlawful sale of goods, could harm our business. In addition, we have received significant media attention relating to the listing or sale of unlawful goods on our website. A continuation of this negative publicity could damage our reputation and diminish the value of our brand name. It also could make users reluctant to continue to use our services.

Our business may be harmed by the listing or sale by our users of pirated items.

We have received in the past, and we anticipate we will receive in the future, communications alleging that certain items listed or sold through our service by our users infringe third-party copyrights, trademarks and tradenames or other intellectual property rights. Although we have actively sought to work with the content community to eliminate infringing listings on our website, some content owners have expressed the view that our efforts are insufficient. An allegation of infringement of third-party intellectual property rights may result in litigation against us. Any such litigation could be costly for us, could result in increased costs of doing business through adverse judgment or settlement, could require us to change our business practices in expensive ways, or could otherwise harm our business.

Our business may be harmed by fraudulent activities on our website.

Our future success will depend largely upon sellers reliably delivering and accurately representing their listed goods and buyers paying the agreed purchase price. We do not take responsibility for delivery of payment or goods to any user of our service. We have received in the past, and anticipate that we will receive in the future, communications from users who did not receive the purchase price or the goods that were to have been exchanged. While we can suspend the accounts of users who fail to fulfill their delivery obligations to other users, we do not have the ability to require users to make payments or deliver goods or otherwise make users whole other than through our limited insurance program. Other than through this program, we do not compensate users who believe they have been defrauded by other users. We also periodically receive complaints from buyers as to the quality of the goods purchased. Any negative publicity generated as a result of fraudulent or deceptive conduct by users of our service could damage our reputation and diminish the value of our brand name. We may in the future receive additional requests from users requesting reimbursement or threatening legal action against us if no reimbursement is made. Any resulting litigation could be costly for us, divert management attention, result in increased costs of doing business, lead to adverse judgments or could otherwise harm our business.

Government inquiries may lead to charges or penalties.

On January 29, 1999, we received requests to produce certain records and information to the federal government relating to an investigation of possible illegal transactions in connection with our website. We have been informed that the inquiry includes an examination of our practices with respect to these transactions. We are fully cooperating with the inquiry. In order to protect the investigation, the court has ordered that no further public disclosures be made with respect to the matter at this time. Should this or any other investigation lead to civil or criminal charges against us, we would likely be harmed by negative publicity, the costs of litigation, the diversion of management time and other negative effects, even if we ultimately prevail. Our business would certainly suffer if we were not to prevail in any action like this.

A large number of transactions occur on our website. As a result, we believe that government regulators have received a substantial number of consumer complaints about us which, while small as a percentage of our total transactions, are large in aggregate numbers. As a result, we have from time to time been contacted by various federal, state and local regulatory agencies and been told that they have questions with respect to the adequacy of the steps we take to protect our users from fraud. For example, the City of New York—Department of Consumer Affairs received complaints from

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users about transactions on our website. In investigating these complaints, the Department of Consumer Affairs requested information about us and these transactions. We have provided the requested information. We are likely to receive additional inquiries from regulatory agencies in the future, which may lead to action against us. We have responded to all inquiries from regulatory agencies by describing our current and planned antifraud efforts. If one or more of these agencies is not satisfied with our response to current or future inquiries, the resultant investigations and potential fines or other penalties could harm our business.

We are subject to risks associated with information disseminated through our service.

The law relating to the liability of online services companies for information carried on or disseminated through their services is currently unsettled. Claims could be made against online services companies under both United States and foreign law for defamation, libel, invasion of privacy, negligence, copyright or trademark infringement, or other theories based on the nature and content of the materials disseminated through their services. Several private lawsuits seeking to impose liability upon other online services companies currently are pending. In addition, federal, state and foreign legislation has been proposed that imposes liability for or prohibits the transmission over the Internet of certain types of information. Our service features a

Feedback Forum, which includes information from users regarding other users. Although all such feedback is generated by users and not by us, it is possible that a claim of defamation or other injury could be made against us for content posted in the Feedback Forum. If we become liable for information provided by our users and carried on our service, we could be directly harmed and we may be forced to implement new measures to reduce our exposure to this liability. This may require us to expend substantial resources and/or to discontinue certain service offerings. In addition, the increased attention focused upon liability issues as a result of these lawsuits and legislative proposals could harm our reputation or otherwise impact the growth of our business. We carry liability insurance, but it may not be adequate to fully compensate us if we become liable for information carried on or through our service. Any costs incurred as a result of this liability or asserted liability could harm our business.

We are subject to intellectual property litigation.

On March 23, 1999 we were sued by Network Engineering Software, Inc. in the U.S. District Court for the Northern District of California for our alleged willful and deliberate violation of a patent. The suit seeks unspecified monetary damages as well as an injunction against our operations. It also seeks treble damages and attorneys' fees and costs. We believe that we have meritorious defenses against this suit and intend to vigorously defend ourselves. We could be forced to incur material expenses during this defense and in the event we were to lose this suit, our business would be harmed.

Other third parties have from time to time claimed and may claim in the future that we have infringed their past, current or future technologies. We expect that participants in our markets increasingly will be subject to infringement claims as the number of services and competitors in our industry segment grows. Any claim like this, whether meritorious or not, could be time-consuming, result in costly litigation, cause service upgrade delays or require us to enter into royalty or licensing agreements. These royalty or licensing agreements might not be available on acceptable terms or at all. As a result, any claim like this could harm our business.

The inability to expand our systems may limit our growth.

We seek to generate a high volume of traffic and transactions on our service. The satisfactory performance, reliability and availability of our website, processing systems and network infrastructure are critical to our reputation and our ability to attract and retain large numbers of users. Our revenues depend on the number of items listed by users, the volume of user auctions that are successfully completed and the final prices paid for the items listed. If the volume of traffic on our website or the

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number of auctions being conducted by customers continues to increase, we will need to expand and upgrade our technology, transaction processing systems and network infrastructure. We may not be able to accurately project the rate or timing of increases, if any, in the use of our service or to timely expand and upgrade our systems and infrastructure to accommodate any increases.

We use internally developed systems to operate our service and for transaction processing, including billing and collections processing. We must continually improve these systems in order to accommodate the level of use of our website. In addition, we may add new features and functionality to our services that would result in the need to develop or license additional technologies. Our inability to add additional software and hardware or to upgrade our technology, transaction processing systems or network infrastructure to accommodate increased traffic or transaction volume could have adverse consequences. These consequences include unanticipated system disruptions, slower response times, degradation in levels of customer support, impaired quality of the users' experience on our service and delays in reporting accurate financial information. Our failure to provide new features or functionality also could result in these consequences. We may be unable to effectively upgrade and expand our systems in a timely manner or to integrate smoothly any newly developed or purchased technologies with our existing systems. These difficulties could harm or limit our ability to expand our business.

System failures could harm our business.

Our future success, and in particular our ability to facilitate trades successfully and provide high quality customer service, will depend on the efficient and uninterrupted operation of our computer and communications hardware and software systems. Substantially all of our computer hardware for operating our service currently is located at the facilities of Exodus Communications, Inc. ("Exodus") in Santa Clara, California. These systems and operations are vulnerable to damage or interruption from earthquakes, floods, fires, power loss, telecommunication failures and similar events. They are also subject to break-ins, sabotage, intentional acts of vandalism and similar misconduct. We do not have fully redundant systems, a formal disaster recovery plan or alternative providers of hosting services, and we do not carry sufficient business interruption insurance to compensate us for losses that may occur. Despite any precautions we may take, the occurrence of a natural disaster or other unanticipated problems at the Exodus facility could result in interruptions in our services. In addition, the failure by Exodus to provide our required data communications capacity could result in interruptions in our service. Any damage to or failure of our systems could result in interruptions in our service. Such interruptions will reduce our revenues and profits, and our future revenues and profits will be harmed if our users believe that our system is unreliable.

In the quarter ended December 31, 1998, we experienced longer and more frequent system interruptions than in the first three quarters of 1998. Our website has been interrupted for periods ranging from five minutes to three hours. In addition to placing increased burdens on our engineering staff, these outages create a flood of user questions and complaints that must be responded to by our customer support personnel. If we experience frequent or persistent system failures, our reputation and brand could be permanently harmed.

Unauthorized break-ins to our service could harm our business.

Our servers are vulnerable to computer viruses, physical or electronic break-ins and similar disruptions, which could lead to interruptions, delays, loss of data or the inability to complete customer auctions. In addition, unauthorized persons may improperly access our data. We recently experienced an unauthorized break-in by a "hacker" who has stated that he can in the future damage or change our system or take confidential information. Any such actions by this or any other individual could harm us. Such actions may be very expensive to remedy and could damage our reputation and discourage new and existing users from using our service.

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Our stock price has been and may continue to be extremely volatile.

The trading price of our common stock has been and is likely to be extremely volatile. Our stock price could be subject to wide fluctuations in response to a variety of factors, including the following:

- actual or anticipated variations in our quarterly operating results;

- . announcements of technological innovations or new services by us or our competitors;
- . changes in financial estimates by securities analysts;
- . conditions or trends in the Internet and online commerce industries;
- . the emergence of online securities trading;
- . changes in the market valuations of other Internet or online service companies;
- . developments in Internet regulations;
- . announcements by us or our competitors of significant acquisitions, strategic partnerships, joint ventures or capital commitments;
- . unscheduled system downtime;
- . additions or departures of key personnel;
- . sales of our common stock or other securities in the open market; and
- . other events or factors that may be beyond our control.

In addition, the trading price of Internet stocks in general, and ours in particular, have experienced extreme price and volume fluctuations in recent months. These fluctuations often have been unrelated or disproportionate to the operating performance of these companies. The valuations of many Internet stocks, including ours, are extraordinarily high based on conventional valuation standards such as price to earnings and price to sales ratios. The trading price of our common stock has increased enormously from the initial public offering price. These trading prices and valuations may not be sustained. Any negative change in the public's perception of the prospects of Internet or e-commerce companies could depress our stock price regardless of our results. Other broad market and industry factors may decrease the market price of our common stock, regardless of our operating performance. Market fluctuations, as well as general political and economic conditions such as recession or interest rate or currency rate fluctuations, also may decrease the market price of our common stock. In the past, following declines in the market price of a company's securities, securities class-action litigation often has been instituted against the company. Litigation of this type, if instituted, could result in substantial costs and a diversion of management's attention and resources.

New and existing regulation of the Internet could harm our business.

We are subject to the same federal, state and local laws as other companies conducting business on the Internet. Today there are relatively few laws specifically directed towards online services. However, due to the increasing popularity and use of the Internet and online services, it is possible that laws and regulations will be adopted with respect to the Internet or online services. These laws and regulations could cover issues such as online contracts, user privacy, freedom of expression, pricing, fraud, content and quality of products and services, taxation, advertising, intellectual property rights and information security. Applicability to the Internet of existing laws governing issues such as property ownership, copyrights and other intellectual property issues, taxation, libel, obscenity and personal privacy is uncertain. The vast majority of these laws were adopted prior to the advent of the Internet and related technologies and, as a result, do not contemplate or address the unique issues of the Internet and related technologies. Those laws that

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do reference the Internet, such as the recently passed Digital Millennium Copyright Act, have not yet been interpreted by the courts and their applicability and reach are therefore uncertain. In addition, numerous states, including the State of California, where our headquarters are located, have regulations regarding how "auctions" may be conducted and the liability of "auctioneers" in conducting such auctions. No legal determination has been made with respect to the applicability of the California regulations to our business to date and little precedent exists in this area. One or more states may attempt to impose these regulations upon us in the future, which could harm our business.

Several states have proposed legislation that would limit the uses of personal user information gathered online or require online services to establish privacy policies. The Federal Trade Commission also has recently settled a proceeding with one online service regarding the manner in which personal information is collected from users and provided to third parties. Changes to existing laws or the passage of new laws intended to address these issues could directly affect the way we do business or could create uncertainty in the marketplace. This could reduce demand for our services, increase the cost of doing business as a result of litigation costs or increased service delivery costs, or otherwise harm our business. In addition, because our services are accessible worldwide, and we facilitate sales of goods to users worldwide, foreign jurisdictions may claim that we are required to comply with their laws. Our failure to comply with foreign laws could subject us to penalties ranging from fines to bans on our ability to offer our services.

In the United States, companies are required to qualify as foreign corporations in states where they are conducting business. As an Internet company, it is unclear in which states we are actually conducting business. We currently are qualified to do business only in California and Ohio. Our failure to qualify as a foreign corporation in a jurisdiction where we are required to do so could subject us to taxes and penalties for the failure to qualify and could result in our inability to enforce contracts in those jurisdictions. Any new legislation or regulation, or the application of laws or regulations from jurisdictions whose laws do not currently apply to our business, could harm our business.

Our business has been seasonal.

Our results of operations historically have been somewhat seasonal in nature because many of our users reduce their activities on our website during the Thanksgiving and Christmas holidays and with the onset of good weather. Our limited operating history makes it difficult to assess the impact of these seasonal factors or whether or not our business is susceptible to cyclical fluctuations in the U.S. economy. In addition, our rapid growth may have overshadowed whatever seasonal or cyclical factors might have influenced our business to date. Seasonal or cyclical variations in our business may become more pronounced over time and may harm our results of operations in the future.

We are dependent on the continued growth of the online person-to-person commerce market.

The market for the sale of goods over the Internet, particularly through person-to-person trading, is a new and emerging market. Our future revenues and profits will be substantially dependent upon the widespread acceptance of the Internet and online services as a medium for commerce by consumers. Rapid growth in the use of and interest in the Web, the Internet and online services is a recent phenomenon. This acceptance and use may not continue. Even if the Internet is accepted, concerns about fraud, privacy and other problems may mean that a sufficiently broad base of consumers will not adopt the Internet as a medium of commerce. In particular, our website requires users to make publicly available their e-mail addresses and other personal information that some potential users may be unwilling to provide. These concerns may increase as additional publicity over privacy issues on eBay or generally over the Internet increase. Market acceptance for recently introduced services and products over the Internet is highly uncertain, and there are few proven

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services and products. In order to expand our user base, we must appeal to and acquire consumers who historically have used traditional means of commerce to purchase goods.

There are many risks associated with international operations.

We are expanding internationally and recently launched separate home pages dedicated to Canada and the United Kingdom. Expansion into international markets will require management attention and resources. We have limited experience in localizing our service to conform to local cultures, standards and policies. We may have to compete with local companies who understand the local market better than we do. We may not be successful in expanding into international markets or in generating revenues from foreign operations. As we continue to expand internationally, we are subject to risks of doing business internationally, including the following:

- . regulatory requirements that may limit or prevent the offering of our services in local jurisdictions;
- legal uncertainty regarding liability for the listings of our users, including less Internet friendly basic law and unique local laws;
- government-imposed limitations on the public's access to the Internet;
- difficulties in staffing and managing foreign operations;
- longer payment cycles, different accounting practices and problems in collecting accounts receivable;
- . cultural nonacceptance of online auctions;
- . political instability;
- . seasonal reductions in business activity;
- . potentially adverse tax consequences; and
- . administrative burdens in collecting local taxes, including value-added taxes.

To the extent we expand our international operations and have additional portions of our international revenues denominated in foreign currencies, we also could become subject to increased difficulties in collecting accounts receivable and risks relating to foreign currency exchange rate fluctuations.

Our business may be subject to sales and other taxes.

We do not collect sales or other similar taxes on goods sold by users through our service. One or more states may seek to impose sales tax collection obligations on companies such as ours that engage in or facilitate online commerce. Several proposals have been made at the state and local level that would impose additional taxes on the sale of goods and services through the Internet. These proposals, if adopted, could substantially impair the growth of electronic commerce, and could diminish our opportunity to derive financial benefit from our activities. The U.S. federal government recently enacted legislation prohibiting states or other local authorities from imposing new taxes on Internet commerce for a period of three years. This tax moratorium will last only for a limited period and does not prohibit states or the Internal Revenue Service from collecting taxes on our income, if any, or from collecting taxes that are due under existing tax rules. A successful assertion by one or more states or any foreign country that we should collect sales or other taxes on the exchange of merchandise on our system could harm our business.

We are dependent on key personnel.

Our future performance will be substantially dependent on the continued services of our senior management and other key personnel. Our future performance also will depend on our ability to

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retain and motivate our other officers and key employees. We have only eight executive officers, and the loss of the services of any of them or other key employees could harm our business. We do not have long-term employment agreements with any of our key personnel and we do not maintain any "key person" life insurance policies. Our future success also will depend on our ability to attract, train, retain and motivate other highly skilled technical, managerial, marketing and customer support personnel. Competition for these personnel is intense, especially for engineers and especially in the San Francisco/Bay Area, and we may be unable to successfully attract, integrate or retain sufficiently qualified personnel. In making employment decisions, particularly in the Internet and high-technology industries, job candidates often consider the value of the stock options they are to receive in connection with their employment. As a result of the recent appreciation in our stock price, we believe that we may be disadvantaged in competing for these employees with other companies whose stocks have not similarly appreciated or who have not yet gone public.

Our market is intensely competitive.

The market for person-to-person trading over the Internet is new, rapidly evolving and intensely competitive, and we expect competition to intensify in the future. Barriers to entry are relatively low, and current and new competitors can launch new sites at a relatively low cost using commercially available software. We currently or potentially compete with a number of other companies. Our direct competitors include various online person-to-person auction services, including Yahoo! Auctions Powered by Onsale and Excite, Inc., both of which are free to sellers and buyers, Auction Universe and a number of other small services, including those that serve specialty or regional markets such as CityAuction. We also compete indirectly with business-to-consumer online auction services such as Onsale, First Auction, Surplus Auction and uBid. A number of traditional auction companies, including Butterfield & Butterfield and Sotheby's, are offering or have announced plans to create Internet auction sites. We potentially face competition from a number of large online communities and services that have expertise in developing online commerce and in facilitating online person-to-person interaction. Amazon.com recently announced the opening of Amazon.com Auctions, a service on its website where users can buy and sell goods similar to those available on our website. Some of these potential competitors, including America Online, Inc. ("AOL"), Lycos, Inc. and Microsoft Corporation, currently offer business-to-consumer trading services and classified ad services. Some of these companies also may introduce person-to-person trading to their large user populations. Other large companies with strong brand recognition and experience in online commerce, such as Cendant Corporation, QVC, USA Network and large newspaper or media companies, also may seek to compete in the online auction market. The principal competitive factors in our market include the following:

- . volume of transactions and selection of goods;
- . community cohesion and interaction;
- . system reliability;
- . customer service;
- . reliability of delivery and payment by users;
- . brand recognition;
- . website convenience and accessibility;
- . level of service fees; and
- . quality of search tools.

Some current and many potential competitors have longer company operating histories, larger customer bases and greater brand recognition in other business and Internet markets than we do. Some of these competitors also have significantly greater financial, marketing, technical and other

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resources. Other online trading services may be acquired by, receive investments from or enter into other commercial relationships with larger, well established and well financed companies. As a result, some of our competitors with other revenue sources may be able to devote more resources to marketing and promotional campaigns, adopt more aggressive pricing policies and devote substantially more resources to website and systems development than we are able to. Increased competition may result in reduced operating margins, loss of market share and diminished value of our brand. Some of our competitors have offered services for free and others may do this as well. We may be unable to compete successfully against current and future competitors.

In order to respond to changes in the competitive environment, we may, from time to time, make pricing, service or marketing decisions or acquisitions that could harm our business. For example, we recently implemented an insurance program that generally insures items up to a value of \$200, with a \$25 deductible, for users with a non-negative feedback rating at no cost to the user. The financial impact of this insurance program is not yet known. New technologies may increase the competitive pressures by enabling our competitors to offer a lower cost service. Some Web-based applications that direct Internet traffic to certain websites may channel users to trading services that compete with us.

Although we have established Internet traffic arrangements with several large online services and search engine companies, these arrangements may not be renewed on commercially reasonable terms. Even if these arrangements are renewed, they may not result in increased usage of our service. In addition, companies that control access to transactions through network access or Web browsers could promote our competitors or charge us substantial fees for inclusion.

Our business is dependent on the development and maintenance of the web infrastructure.

The success of our service will depend largely on the development and maintenance of the Web infrastructure. This includes maintenance of a reliable network backbone with the necessary speed, data capacity and security, as well timely development of complementary products such as high speed modems, for providing reliable Web access and services. Because global commerce and the online exchange of information is new and evolving, we cannot predict whether the Web will prove to be a viable commercial marketplace in the long term. The Web has experienced, and is likely to continue to experience, significant growth in the numbers of users and amount of traffic. If the Web continues to experience increased numbers of users, increased frequency of use or increased bandwidth requirements, the Web infrastructure may be unable to support the demands placed on it. In addition, the performance of the Web may be harmed by increased users or bandwidth requirements.

The Web has experienced a variety of outages and other delays as a result of damage to portions of its infrastructure, and it could face outages and delays in the future. This might include outages and delays resulting from the "Year 2000" problem. See "—Our business could be harmed by Year 2000 compliance issues." These outages and delays could reduce the level of Web usage as well as the level of traffic and the processing of auctions on our service. In addition, the Web could lose its viability due to delays in the development or adoption of new standards and protocols to handle increased levels of activity or due to increased governmental regulation. The infrastructure and complementary products or services necessary to make the Web a viable commercial marketplace for the long term may not be developed successfully or in a timely manner. Even if these products or services are developed, the Web may not become a viable commercial marketplace for services such as those that we offer.

Our business could be harmed by Year 2000 compliance issues.

Many currently installed computer systems and software products are coded to accept only two-digit entries in the date code field. Beginning on January 1, 2000, these code fields will need to accept

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four-digit entries to distinguish 21st century dates from 20th century dates. Many companies' software and/or computer systems may need to be upgraded or replaced in order to correctly process dates beginning in 2000 and to comply with the "Year 2000" requirements. Although we believe our own software is Year 2000 compliant, we may be wrong. If we are wrong, we could face unexpected expenses to fix the problem or unanticipated website outages, either of which could harm our business. We also use third-party equipment and software that may not be Year 2000 compliant. For example, we rely on credit card companies to collect the majority of our revenues from our users. Due to the nature of the credit card system, some industry analysts have questioned the effect of the year 2000 on credit card processing and billing. Failure of our credit card vendors or other third-party equipment or software vendors to properly process dates for the year 2000 and thereafter could require us to incur unanticipated expenses in seeking alternative means of payment or hardware or software replacements. It also could result in loss of revenues or unanticipated outages of our website. Our marketing efforts are also dependent on the continued operation of Internet portals and other Internet sites on which we advertise. Although we have developed contingency plans with respect to collecting payment under these circumstances, we are unable to make contingency plans if any significant number of the computers constituting the Internet fail to properly process dates for the year 2000 and there is a systemwide slowdown or breakdown. Any interruption or significant degradation of Internet operations, whether due to Year 2000 problems or otherwise, could harm our business.

Our business is subject to online commerce security risks.

A significant barrier to online commerce and communications is the secure transmission of confidential information over public networks. Our security measures may not prevent security breaches. Our failure to prevent security breaches could harm our business. Currently, a significant number of our users authorize us to bill their credit card accounts directly for all transaction fees charged by us. We rely on encryption and authentication technology licensed from third parties to provide the security and authentication technology to effect secure transmission of confidential information, including customer credit card numbers. Advances in computer capabilities, new discoveries in the field of cryptography, or other developments may result in a compromise or breach of the technology used by us to protect customer transaction data. Any such compromise of our security could harm our reputation and, therefore, our business. In addition, a party who is able to circumvent our security measures could misappropriate proprietary information or cause interruptions in our operations. An individual recently claimed to have misappropriated some of our confidential information by breaking into our computer system. We may need to expend significant resources to protect against security breaches or to address problems caused by breaches. Security breaches like the recent one could damage our reputation and expose us to a risk of loss or litigation and possible liability. Our insurance policies carry low coverage limits, which may not be adequate to reimburse us for losses caused by security breaches.

We must keep pace with rapid technological change to remain competitive.

The market in which we compete is characterized by rapidly changing technology, evolving industry standards, frequent new service and product introductions and enhancements and changing customer demands. These market characteristics are worsened by the emerging nature of the Internet and the apparent need of companies from a multitude of industries to offer Web-based products and services. Our future success therefore will depend on our ability to adapt to rapidly changing technologies, to adapt our services to evolving industry standards and to continually improve the performance, features and reliability of our service. Our failure to adapt to such changes would harm our business. In addition, the widespread adoption of new Internet, networking or telecommunications technologies or other technological changes could require substantial expenditures to modify or adapt our services or infrastructure.

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We need to develop new services, features and functions in order to expand.

We plan to expand our operations by developing new or complementary services, products or transaction formats or expanding the breadth and depth of services. We may be unable to expand our operations in a cost-effective or timely manner. Even if we do expand, we may not maintain or increase our overall market acceptance. If we launch a new business or service that is not favorably received by consumers, it could damage our reputation and diminish the value of our brand. We anticipate that future services may include pre- and post-trade services, including the following:

- the scanning and uploading of photographs of listed items;
- authentication and appraisal;
- arrangements to facilitate shipment of products; and
- methods to facilitate buyers' payments to sellers, such as credit card services.

We may pursue strategic relationships with third parties to provide many of these services. By using third parties to deliver these services, we may be unable to control the quality of these services and our ability to address problems if any of these third parties fails to perform adequately will be reduced. Expanding our operations in this manner also will require significant additional expenses and development, operations and other resources and will strain our management, financial and operational resources. The lack of market acceptance of any new services could harm our business.

Our growth will depend on our ability to develop our brand.

We believe that our historical growth has been largely attributable to word of mouth. We have benefited from frequent and high visibility media exposure both nationally and locally. We do not expect the frequency or quality of this media exposure to continue. However, we believe that continuing to strengthen our brand will be critical to achieving widespread acceptance of our service. Promoting and positioning our brand will depend largely on the success of our marketing efforts and our ability to provide high quality services. In order to promote our brand, we will need to increase our marketing budget and otherwise increase our financial commitment to creating and maintaining brand loyalty among users. Brand promotion activities may not yield increased revenues, and even if they do, any increased revenues may not offset the expenses we incurred in building our brand. If we do attract new users to our service, they may not conduct transactions over our service on a regular basis. If we fail to promote and maintain our brand or incur substantial expenses in an unsuccessful attempt to promote and maintain our brand, our business would be harmed.

We may be unable to adequately protect or enforce our intellectual property rights.

We regard the protection of our copyrights, service marks, trademarks, trade dress and trade secrets as critical to our success. We rely on a combination of patent, copyright, trademark, service mark and trade secret laws and contractual restrictions to protect our proprietary rights in products and services. We have entered into confidentiality and invention assignment agreements with our employees and contractors, and nondisclosure agreements with parties with which we conduct business in order to limit access to and disclosure of our proprietary information. These contractual arrangements and the other steps taken by us to protect our intellectual property may not prevent misappropriation of our technology or deter independent third-party development of similar technologies. We pursue the registration of our trademarks and service marks in the U.S. and internationally. Effective trademark, service mark, copyright and trade secret protection may not be available in every country in which our services are made available online. We have licensed in the past, and expect to license in the future, certain of our proprietary rights, such as trademarks or copyrighted material, to third parties. These licensees may take actions that might diminish the value of our proprietary rights or harm our reputation. We also rely on certain technologies that we license

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from third parties, such as Oracle Corporation, Microsoft and Sun Microsystems Inc., the suppliers of key database technology, the operating system and specific hardware components for our service. These third-party technology licenses may not continue to be available to us on commercially reasonable terms. The loss of this technology could require us to obtain substitute technology of lower quality or performance standards or at greater cost.

Our business is subject to consumer trends.

We derive substantially all of our revenues from fees received from sellers for listing products for sale on our service and fees received from successfully completed auctions. Our future revenues will depend upon continued demand for the types of goods that are listed by users of our service. The popularity of certain categories of items, such as toys, dolls and memorabilia, among consumers may vary over time due to perceived scarcity, subjective value, and societal and consumer trends in general. For example, during the three months ended December 31, 1998, we had, at times, approximately 7% of our listings involved in "Beanie Babies." A decline in the popularity of, or demand for, certain collectibles or other items sold through our service could reduce the overall volume of transactions on our service, resulting in reduced revenues. In addition, consumer "fads" may temporarily inflate the volume of certain types of items listed on our service, placing a significant strain upon our infrastructure and transaction capacity. These trends also may cause significant fluctuations in our operating results from one quarter to the next.

Any decline in demand for the goods offered through our service as a result of changes in consumer trends could harm our business.

Acquisitions could result in dilution, operating difficulties and other harmful consequences.

If appropriate opportunities present themselves, we intend to acquire businesses, technologies, services or products that we believe are strategic. For example, in June 1998, we acquired Jump Incorporated ("Jump"), the developer and operator of Up4Sale, an advertising-supported online trading service. Although the integration of Jump is largely complete, the process of integrating an acquired business, technology, service or product into our business and operations may result in unforeseen operating difficulties and expenditures. Integration of an acquired company also may require significant management resources that would otherwise be available for ongoing development of our business. Moreover, the anticipated benefits of any acquisition, including Jump, may not be realized. We currently do not have any understandings, commitments or agreements with respect to any other material acquisition and no other material acquisition currently is being pursued. We may be unable to identify, negotiate or finance future acquisitions successfully, or to integrate successfully any acquisitions with our current business. Future acquisitions could result in potentially dilutive issuances of equity securities, the incurrence of debt, contingent liabilities or amortization expenses related to goodwill and other intangible assets, any of which could harm our business. Future acquisitions may require us to obtain additional equity or debt financing, which may not be available on favorable terms or at all. Even if available, this financing may be dilutive.

We are controlled by certain stockholders, executive officers and directors.

Upon completion of this offering, our executive officers and directors (and their affiliates) will own approximately 73% of our outstanding common stock. As a result, they may have the ability to control our company and direct our affairs and business, including the election of directors and approval of significant corporate transactions. This concentration of ownership may have the effect of delaying, deferring or preventing a change in control of our company and may make some transactions more difficult or impossible without the support of these stockholders. Any of these events could decrease the market price of our common stock.

A significant number of shares are eligible for sale and their sale could depress our stock price.

Sales of substantial amounts of our common stock (including shares issued upon the exercise of outstanding options) in the public market after this offering could depress the market price of our

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common stock. These sales also might make it more difficult for us to sell equity or equity-related securities in the future at a time and price that we deem appropriate. Upon completion of this offering, we will have outstanding 125,092,222 shares of common stock (based upon shares outstanding as of March 1, 1999), assuming no exercise of the underwriters' over-allotment option. Of these shares, the 6,500,000 shares sold in this offering are freely tradeable. Of the remaining 118,592,222 shares, approximately 93,004,323 will be subject to a 90-day lock-up agreement with representatives of the underwriters. Upon expiration of these agreements, at the end of the lock-up period or earlier at the discretion of the representatives of the underwriters, these shares are generally freely tradeable, subject to repurchase pursuant to time-based vesting schedules. An exception is that 13,775,508 shares held by Benchmark Capital Partners, L.P. and Benchmark Founders' Fund, L.P. may not be sold to the public pursuant to Rule 144 until January 2000.

Some anti-takeover provisions may affect the price of our common stock.

The Board of Directors has the authority to issue up to 5,000,000 shares of preferred stock and to determine the preferences, rights and privileges of those shares without any further vote or action by the stockholders. The Board of Directors is contemplating recommending to our stockholders an increase in the number of authorized shares of our common stock to 900,000,000 and shares of our preferred stock to 10,000,000. The rights of the holders of common stock may be harmed by the rights of the holders of any preferred stock that may be issued in the future. Some provisions of our certificate of incorporation and bylaws could have the effect of making it more difficult for a third party to acquire a majority of our outstanding voting stock. These include provisions that provide for a classified Board of Directors, prohibit stockholders from taking action by written consent and restrict the ability of stockholders to call special meetings. We are also subject to provisions of Delaware law that prohibit us from engaging in any business



combination with any interested stockholder for a period of three years from the date the person became an interested stockholder, unless certain conditions are met. This could have the effect of delaying or preventing a change of control.

Management will have broad discretion over allocation of proceeds from this offering.

The net proceeds to us from the sale of the 4,250,000 shares of common stock we are offering are estimated to be approximately \$599.3 million after deducting the estimated underwriting discount and estimated offering expenses. We currently have no specific plans for a significant portion of our net proceeds from this offering. Consequently, our management will have the discretion to allocate the net proceeds to uses that stockholders may not deem desirable. We may be unable to yield a significant return on any investment of the proceeds. Substantially all of our proceeds from the offering will be invested in short-term, interest-bearing, investment grade securities immediately following the offering.

You will experience immediate and substantial dilution in the net tangible book value of the stock you purchase.

The assumed public offering price is substantially higher than the net tangible book value per outstanding share of common stock. Purchasers of our common stock will incur immediate and substantial dilution of \$140.92 per share in the net tangible book value of our common stock from the assumed public offering price of \$146.375. Additional dilution will occur upon the exercise of outstanding options.

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#### USE OF PROCEEDS

The net proceeds to the Company from the sale of the 4,250,000 shares of Common Stock offered by the Company hereby, at an assumed public offering price of \$146.375, are estimated to be approximately \$599.3 million after deducting the estimated underwriting discount and estimated offering expenses. The Company expects to use the net proceeds from this offering for general corporate purposes, including working capital. The Company may also use a portion of the net proceeds, currently intended for general corporate purposes, to acquire or invest in businesses, technologies, products or services that are complementary to the Company's business. The Company has no present plans or commitments and is not currently engaged in any negotiations with respect to such transactions that are material. Pending such uses, the Company intends to invest the net proceeds from this offering in short-term, interest-bearing, investment grade securities. The Company will have significant discretion as to the use of the net proceeds from this offering. See "Risk Factors—Management will have broad discretion over allocation of proceeds from this offering." The Company will not receive any proceeds from the sale of the Common Stock by the selling stockholders. See "Principal and Selling Stockholders."

#### PRICE RANGE OF COMMON STOCK

The Company's Common Stock has been quoted on the Nasdaq National Market under the symbol "EBAY" since eBay's initial public offering on September 24, 1998. Prior to such time, there was no public market for the Common Stock of eBay. The following table sets forth, for the periods indicated, the high and low prices per share of the Common Stock as reported on the Nasdaq National Market.

|  |                  |
|--|------------------|
| High Low 1998 -----                              |                  |
| Third Quarter (from September 24, 1998).....     | \$ 18.08 \$13.71 |
| Fourth Quarter.....                              | 103.75 8.42      |
| 1999 First Quarter (through March 31, 1999)..... | 177.38 55.33     |

On March 31, 1999, the reported last sale price of the Common Stock on the Nasdaq National Market was \$137.3125 per share. As of March 1, 1999, there were approximately 500 stockholders of record of the Common Stock.

#### DIVIDEND POLICY

The Company has not declared or paid any cash dividends on its capital stock and does not anticipate paying any cash dividends in the foreseeable future.

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#### CAPITALIZATION

The following table sets forth the capitalization of the Company as of December 31, 1998 on an actual basis and as adjusted to reflect the application of the net proceeds from the sale of the 4,250,000 shares of Common Stock offered by the Company hereby, at an assumed public offering price of \$146.375 per share, after deducting the estimated underwriting discount and estimated offering expenses (in thousands, except share and per share data):

|  |                    |
|--|--------------------|
| December 31, 1998 -----  |                    |
| Actual As Adjusted -----   |                    |
| Stockholders' equity:  |                    |
| Preferred Stock, \$0.001 par value; 5,000,000 shares authorized; |                    |
| No shares issued or outstanding, actual and as adjusted.....     | \$ -- \$ --        |
| Common Stock, \$0.001 par value; 195,000,000 shares authorized;  |                    |
| 121,760,080 issued and outstanding, actual;                      |                    |
| 125,035,080 issued and outstanding, as adjusted (1)....          |                    |
| 121 125 Additional paid-in capital.....                          |                    |
| 86,265 685,581 Notes receivable from stockholders.....           | (1,130) (1,130)    |
| Unearned compensation.....                                       | (4,139) (4,139)    |
| Retained earnings.....   | 3,328 3,328        |
| Total stockholders' equity.....                                  | 84,445 683,765     |
| Total capitalization.....  | \$84,445 \$683,765 |

(1) Based on Common Stock outstanding as of December 31, 1998. Excludes:

9,246,381 shares of Common Stock issuable upon the exercise of stock options outstanding as of December 31, 1998 at a weighted average exercise price of \$3.68; and

15,151,605 shares available for future grant or issuance under the Company's various benefit plans.

Between December 31, 1998 and March 1, 1999, the Company granted options to purchase 830,250 shares of Common Stock, cancelled 32,813 options to purchase Common Stock and repurchased 54,000 shares of Common Stock. Additionally, option holders exercised options to purchase 111,742 shares of

Common Stock. All option grants made subsequent to December 31, 1998 were classified as available for future grant at December 31, 1998 and all cancellations or repurchases made subsequent to December 31, 1998 have been returned to the option plan as available for future grant. See "Capitalization," "Management—Director Compensation," "Description of Capital Stock" and Notes 9 and 10 of Notes to Consolidated Financial Statements.

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#### SELECTED CONSOLIDATED FINANCIAL DATA

The following selected consolidated financial data should be read in conjunction with, and are qualified by reference to, the Consolidated Financial Statements and Notes thereto and "Management's Discussion and Analysis of Financial Condition and Results of Operations" appearing elsewhere in this report. The consolidated statement of income data for the years ended December 31, 1996, 1997 and 1998 and the consolidated balance sheet data at December 31, 1997 and 1998, are derived from, and are qualified by reference to, the audited consolidated financial statements of the Company included elsewhere in this report.

| Year Ended December 31, .....  | 1996(1)  | 1997      | 1998       |
|--|----------|-----------|------------|
| Consolidated Statement of Income Data: (in thousands, except per share data) |          |           |            |
| Net revenues.....  | \$ 372   | \$ 5,744  | \$ 47,352  |
| Cost of net revenues.....  | 14,746   | 6,859     | -----      |
| Gross profit.....  | 358      | 4,998     | 40,493     |
| Operating expenses:  |          |           |            |
| Sales and marketing.....   | 32       | 1,730     | 19,841     |
| Product development.....   | 28       | 831       | 4,606      |
| General and administrative.....  | 45       | 950       | 9,080      |
| Amortization of acquired intangibles.....                                    | --       | --        | 805        |
| Total operating expenses.....  | 105      | 3,511     | 34,332     |
| Income from operations.....  | 253      | 1,487     | 6,161      |
| Interest and other income, net.....  | 1        | 56        | 869        |
| Income before income taxes.....  | 254      | 1,543     | 7,030      |
| Provision for income taxes.....  | (106)    | (669)     | (4,632)    |
| Net income.....  | \$ 148   | \$ 874    | \$ 2,398   |
| Net income per share(2):   |          |           |            |
| Basic.....   | \$ 0.02  | \$ 0.04   | \$ 0.05    |
| Weighted average shares—basic.....   |          |           |            |
|  | 6,375    | 22,313    | 49,895     |
| Diluted.....   |          |           |            |
|  | \$ 0.00  | \$ 0.01   | \$ 0.02    |
| Weighted average shares—diluted....  |          |           |            |
|  | 42,945   | 82,660    | 114,590    |
| Supplemental Operating Data:   |          |           |            |
| Number of registered users at end of period.....                             | 41       | 341       | 2,181      |
| Gross merchandise sales(3).....  | \$ 7,279 | \$ 95,271 | \$ 745,395 |
| Number of auctions listed.....   | 289      | 4,394     | 33,668     |

| December 31, .....   | 1997    | 1998     |
|--|---------|----------|
| Consolidated Balance Sheet Data: (in thousands)  |         |          |
| Cash and cash equivalents.....   | \$3,723 | \$31,790 |
| Short-term investments.....  | --      | 40,401   |
| Working capital.....   | 3,843   | 75,347   |
| Total assets.....  | 5,619   | 92,483   |
| Debt and leases, long-term portion.....  | 305     | --       |
| Series B Mandatorily Redeemable Convertible Preferred Stock and Series B warrants..... | 3,018   | --       |
| Total stockholders' equity.....  | 1,015   | 84,445   |

(1) Includes the results of operations for the Company's predecessor sole proprietorship from September 1995 to December 1995. The sole proprietorship had no revenues and immaterial expenses prior to January 1, 1996.

- (2) See Note 1 of Notes to Consolidated Financial Statements for a description of the method used to compute basic and diluted net income per share, respectively.
- (3) Represents the aggregate sales prices of all goods for which an auction was successfully concluded (i.e., there was at least one bid above the seller's specified minimum price or reserve price, whichever is higher).

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#### SELECTED PRO FORMA CONSOLIDATED FINANCIAL DATA

Effective June 30, 1998, eBay acquired all the outstanding shares of Jump, the developer and operator of Up4Sale, an advertising-supported online trading service in an auction format. The acquisition has been accounted for using the purchase method of accounting, and accordingly the purchase price has been allocated to the tangible and intangible assets acquired and liabilities assumed on the basis of their respective fair values on the acquisition date. The unaudited pro forma consolidated statement of income data reflects the acquisition of Jump as if such acquisition had occurred on January 1, 1998. The pro forma consolidated statement of income data is presented for informational purposes only and may not be indicative of the results of operations had the acquisition occurred on January 1, 1998, nor do they purport to indicate the future results of the operations of eBay.

##### Year Ended December 31, 1998

(in thousands, except per share data)

##### Pro Forma Consolidated Statement of Income Data:

|   |          |
|---|----------|
| Net revenues.....                         | \$47,364 |
| Cost of net revenues.....                 | 6,987    |
| Gross Profit.....                         | 40,377   |
| Operating expenses:                       |          |
| Sales and marketing.....                  | 19,841   |
| Product development.....                  | 4,614    |
| General and administrative.....           | 9,101    |
| Amortization of acquired intangibles..... | 1,310    |
| Total operating expenses.....             | 34,866   |
| Income from operations.....               | 5,511    |
| Interest and other income, net.....       | 868      |
| Income before income taxes.....           | 6,379    |
| Provision for income taxes.....           | (4,632)  |
| Net income.....                           | \$ 1,747 |

##### Pro forma net income per share (1):

|                                      |         |
|--------------------------------------|---------|
| Basic.....                           | \$ 0.02 |
| Weighted average shares—basic.....   | 88,787  |
| Diluted.....                         | \$ 0.01 |
| Weighted average shares—diluted..... | 129,491 |

- (1) See Note C of Notes to Consolidated Pro Forma Financial Information for a description of the method used to compute basic and diluted net income per share.

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#### MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

##### Overview

eBay is the world's largest and most popular person-to-person trading community on the Internet, based on the number of items listed, number of users and minutes of usage per month. eBay pioneered online person-to-person trading by developing a Web-based community in which buyers and sellers are brought together in an efficient and entertaining auction format to buy and sell personal items such as antiques, coins, collectibles, computers, memorabilia, stamps and toys. The eBay service permits sellers to list items for sale, buyers to bid on items of interest and all eBay users to browse through listed items. The Company's 24-hour-a-day, seven-day-a-week service is fully automated, topically arranged, intuitive and easy to use.

eBay was formed as a sole proprietorship in September 1995 and operated its online auction service under the name of "Auction Web." In order to build a critical mass of customers, the Company offered this service without charge until February 1996. The Company was incorporated in May 1996, but had no employees other than the founder until July 1996 and, at December 31, 1996, had only six employees. During its first two years, the Company attracted buyers and sellers almost exclusively through word of mouth. In September 1997, the Company began to target potential customers and to build and promote its brand through online banner ads and promotions and advertisements in targeted publications. Also in September 1997, the Company renamed its auction service "eBay" and launched a second generation of this service with a substantially redesigned user interface and a new robust, scalable "backend" transaction processing architecture. The Company's total number of employees increased to 41 by December 31, 1997 and to 138 by December 31, 1998. From December 31, 1997 to December 31, 1998, the number of registered eBay users grew from approximately 340,000 to over 2.1 million and the number of simultaneous auctions being conducted through eBay increased from approximately 200,000 to over 1.0 million. Total gross

merchandise sales (the aggregate sales prices of all goods for which an auction was successfully concluded) grew from approximately \$100 million in 1997 to over \$740 million in 1998.

Substantially all of the Company's revenues are derived from placement and success fees paid by sellers. The Company does not charge fees to buyers and, to date, has chosen to sell almost no advertising on its website. Sellers pay a nominal placement fee to list items for sale as follows:

- . \$0.25 for an auction with a minimum starting price of less than \$10.00;
- . \$0.50 for a minimum starting price of \$10.00 to \$24.99;
- . \$1.00 for a minimum starting price of \$25.00 to \$49.99; and
- . \$2.00 for a minimum starting price of \$50.00 or more.

By paying additional placement fees, sellers can have items featured in various ways. Sellers can highlight their auctions by utilizing a bold font for the auction heading for an additional fee of \$2.00. Sellers with a favorable feedback rating can have their auctions featured as "Featured Auctions" for \$99.95, which allows their items to be rotated on the eBay home page, or as "Category Featured Auctions" for \$14.95, which allows their items to be featured within a particular eBay product category. Additionally, sellers can add seasonal "icons" (such as a shamrock in connection with St. Patrick's Day) next to their listing for \$1.00, include a photograph of their item in the Gallery section for \$0.25 or feature their item in the Gallery section for \$19.95.

Sellers for whom a three-, five- or seven-day auction is successfully concluded (i.e., there is at least one bid above the seller's specified minimum or reserve price, whichever is higher) also pay a success fee for each item sold that is equal to:

- . 5% of the first \$25 of the purchase price;  
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- . 2.5% of that portion of the purchase price from \$25.01 to \$1,000; and
- . 1.25% of that portion of the purchase price over \$1,000.

Revenues from placement fees are recognized at the time that the item is listed; revenues related to success fees are recognized at the time that the auction is successfully concluded. At no point during the auction process does eBay take possession of either the item being sold or the buyer's payment for the item. Fees to sellers are aggregated and billed on a monthly basis. A substantial majority of customer accounts are settled by directly charging credit card numbers provided by sellers. Provisions for estimated uncollectible accounts and authorized credits are recorded as percentages of revenues and are provided for at the time of revenue recognition. In certain instances, customers will deposit funds with the Company in anticipation of future transactions; these prepayments appear on the Company's balance sheet as customer advances.

eBay's business model is significantly different from many existing online auction and other electronic commerce businesses. Because individual sellers, rather than eBay, sell the items listed, the Company has no cost of goods sold, no procurement, carrying or shipping costs and no inventory risk. The Company's rate of expense growth is primarily driven by increases in personnel and expenditures for advertising and promotion. The Company intends to increase its expenses significantly, and in particular its advertising, promotion and personnel expenses, in an effort to maintain a high level of revenue growth.

Effective June 30, 1998, eBay acquired all of the outstanding shares of Jump Incorporated, the developer and operator of Up4Sale, an advertising-supported online trading service in an auction format. The acquisition was accounted for using the purchase method of accounting, and accordingly the purchase price was allocated to the tangible and intangible assets acquired and liabilities assumed on the basis of their fair values on the acquisition date. The fair value of intangible assets was determined using a combination of methods, including replacement cost estimates for acquired research and development and completed technology, a risk-adjusted income approach for the acquired customer list and the amounts paid for covenants not to compete. The total purchase price of approximately \$2.3 million consisted of 428,544 shares of eBay's common stock with an estimated fair value of approximately \$2.0 million and other acquisition related expenses of approximately \$335,000, consisting primarily of payments for non-compete agreements totaling approximately \$208,000 and legal and other professional fees. Of the total purchase price, approximately \$150,000 was allocated to in-process technology and was immediately charged to operations as the technology had not reached technological feasibility as of the acquisition date and had no alternative future use. The remainder of the purchase price was allocated to net tangible liabilities assumed (\$31,000) and intangible assets, including completed technology (\$500,000), the customer list (\$1.5 million), covenants not to compete (\$208,000) and goodwill (\$24,000). The intangible assets are being amortized over their estimated useful lives, which range from eight to 24 months.

The Company has operated profitably since the first quarter of 1996, when it began charging fees for its auction service. The Company has only a limited operating history on which to base an evaluation of its business and prospects. eBay's prospects must be considered in light of the risks, uncertainties, expenses and difficulties frequently encountered by companies in their early stages of development, particularly companies in new and rapidly evolving markets such as online commerce.

It is difficult for the Company to forecast its revenues or earnings accurately. The Company believes that period-to-period comparisons of its operating results may not be meaningful and should not be relied upon as an indication of future performance. The Company does not have backlog, and almost all of its net revenues each quarter are derived from auctions that are listed and completed during that quarter. In order to respond to competitive developments, the Company may from time to time make pricing, service or marketing decisions that could harm its business. The Company's operating results in one or more future quarters may fall below the expectations of securities analysts and investors. In that event, the trading price of its common stock would almost certainly decline.

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#### Quarterly Results of Operations

The following table sets forth, for the periods presented, certain data from eBay's consolidated statement of income, such data as a percentage of net revenues and certain supplemental operating data. The consolidated statement of income data has been derived from eBay's unaudited consolidated financial statements, which, in management's opinion, have been prepared on substantially the same basis as the audited consolidated financial statements and include all adjustments, consisting only of normal recurring adjustments, necessary for a fair presentation of the financial information for the periods

presented. This information should be read in conjunction with the Consolidated Financial Statements and Notes thereto included elsewhere in this prospectus. The operating results in any quarter are not necessarily indicative of the results that may be expected for any future period.

Three Months Ended

Mar. 31, June 30, Sep. 30, Dec. 31, Mar. 31, June 30, Sep. 30, Dec. 31, 1997 1997 1997 1998 1998 1998 1998  
(in thousands, except percentages; unaudited)

|   |        |          |          |          |          |          |           |           |
|---|--------|----------|----------|----------|----------|----------|-----------|-----------|
| Net revenues.....                         | \$ 604 | \$ 1,054 | \$ 1,459 | \$ 2,627 | \$ 5,981 | \$ 8,941 | \$ 12,935 | \$ 19,495 |
| Cost of net revenues.....                 | 33     | 127      | 253      | 333      | 630      | 1,106    | 2,103     | 3,020     |
| Gross profit.....                         | 571    | 927      | 1,206    | 2,294    | 5,351    | 7,835    | 10,832    | 16,475    |
| Operating expenses:                       |        |          |          |          |          |          |           |           |
| Sales and marketing....                   | 83     | 129      | 369      | 1,149    | 2,106    | 2,504    | 5,476     | 9,755     |
| Product development....                   | 58     | 151      | 257      | 365      | 518      | 1,030    | 1,514     | 1,544     |
| General and administrative.....           | 95     | 138      | 260      | 457      | 1,028    | 3,159    | 2,115     | 2,778     |
| Amortization of acquired intangibles..... | -----  | -----    | -----    | -----    | -----    | 150      | 327       | 328       |
| Total operating expenses.....             | 236    | 418      | 886      | 1,971    | 3,652    | 6,843    | 9,432     | 14,405    |
| Income from operations..                  | 335    | 509      | 320      | 323      | 1,699    | 992      | 1,400     | 2,070     |
| Interest and other income, net.....       | 2      | 2        | 26       | 26       | 22       | 54       | 111       | 682       |
| Income before income taxes.....           | 337    | 511      | 346      | 349      | 1,721    | 1,046    | 1,511     | 2,752     |
| Provision for income taxes.....           | (144)  | (218)    | (147)    | (160)    | (1,573)  | (979)    | (848)     | (1,232)   |
| Net income.....                           | \$ 193 | \$ 293   | \$ 199   | \$ 189   | \$ 148   | \$ 67    | \$ 663    | \$ 1,520  |

As a percentage of net revenues:

|                           |        |        |        |        |        |        |        |        |
|---------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Net revenues.....         | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Cost of net revenues..... | 5.5    | 12.0   | 17.3   | 12.7   | 10.5   | 12.4   | 16.3   | 15.5   |

|                   |      |      |      |      |      |      |      |      |
|-------------------|------|------|------|------|------|------|------|------|
| Gross profit..... | 94.5 | 88.0 | 82.7 | 87.3 | 89.5 | 87.6 | 83.7 | 84.5 |
|-------------------|------|------|------|------|------|------|------|------|

Operating expenses:

|   |       |       |       |       |       |      |      |      |
|---|-------|-------|-------|-------|-------|------|------|------|
| Sales and marketing....                   | 13.7  | 12.3  | 25.3  | 43.7  | 35.2  | 28.0 | 42.3 | 50.1 |
| Product development....                   | 9.6   | 14.3  | 17.6  | 13.9  | 8.7   | 11.5 | 11.7 | 7.9  |
| General and administrative.....           | 15.7  | 13.1  | 17.9  | 17.4  | 17.2  | 35.3 | 16.4 | 14.2 |
| Amortization of acquired intangibles..... | ----- | ----- | ----- | ----- | ----- | 1.7  | 2.5  | 1.7  |

|                               |      |      |      |      |      |      |      |      |
|-------------------------------|------|------|------|------|------|------|------|------|
| Total operating expenses..... | 39.0 | 39.7 | 60.8 | 75.0 | 61.1 | 76.5 | 72.9 | 73.9 |
|-------------------------------|------|------|------|------|------|------|------|------|

|                          |      |      |      |      |      |      |      |      |
|--------------------------|------|------|------|------|------|------|------|------|
| Income from operations.. | 55.5 | 48.3 | 21.9 | 12.3 | 28.4 | 11.1 | 10.8 | 10.6 |
|--------------------------|------|------|------|------|------|------|------|------|

|                                     |     |     |     |     |     |     |     |     |
|-------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Interest and other income, net..... | 0.3 | 0.2 | 1.8 | 1.0 | 0.4 | 0.6 | 0.9 | 3.5 |
|-------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|

|                                 |      |      |      |      |      |      |      |      |
|---------------------------------|------|------|------|------|------|------|------|------|
| Income before income taxes..... | 55.8 | 48.5 | 23.7 | 13.3 | 28.8 | 11.7 | 11.7 | 14.1 |
|---------------------------------|------|------|------|------|------|------|------|------|

|                                 |        |        |        |       |        |        |       |       |
|---------------------------------|--------|--------|--------|-------|--------|--------|-------|-------|
| Provision for income taxes..... | (23.8) | (20.7) | (10.1) | (6.1) | (26.3) | (11.0) | (6.6) | (6.3) |
|---------------------------------|--------|--------|--------|-------|--------|--------|-------|-------|

|                 |       |       |       |      |      |      |      |      |
|-----------------|-------|-------|-------|------|------|------|------|------|
| Net income..... | 32.0% | 27.8% | 13.6% | 7.2% | 2.5% | 0.7% | 5.1% | 7.8% |
|-----------------|-------|-------|-------|------|------|------|------|------|

Supplemental operating data:

|  |         |          |          |          |           |           |           |           |
|--|---------|----------|----------|----------|-----------|-----------|-----------|-----------|
| Number of registered users at end of period..... | 88      | 150      | 223      | 341      | 580       | 851       | 1,265     | 2,181     |
| Gross merchandise sales (1).....                 | \$9,337 | \$17,630 | \$24,281 | \$44,023 | \$104,113 | \$139,633 | \$195,046 | \$306,603 |
| Number of auctions listed.....                   | 443     | 794      | 1,178    | 1,979    | 4,209     | 6,584     | 9,236     | 13,639    |

(1) Represents the aggregate sales prices of all goods for which an auction was successfully concluded (i.e., there was at least one bid above the seller's specified minimum price or reserve price, whichever is higher).

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## Net Revenues

eBay's net revenues increased sequentially during each of the past eight quarters. Substantially all of these increases resulted from growth in the number of items of merchandise listed by sellers for auction on the Company's website and growth in the number of auction transactions successfully concluded. The Company did not increase the amounts of its basic placement fees or success fees in any of the past eight quarters. Increases in fees for specific featured placements and in average transaction size did not have a material impact on net revenue growth. The Company's growth rates are not sustainable and it expects growth rates will decline in the future.

## Cost of Net Revenues

Cost of net revenues primarily consists of costs for customer support and website operations, including fees for independent contractors, compensation for customer support and website operations personnel, ISP connectivity charges, bank processing charges for customer fees paid by credit cards, depreciation of the equipment required for eBay's website operations, amortization of technology acquired in the Jump acquisition in the second quarter of 1998, and costs associated with revenue sharing agreements. The Company's cost of net revenues increased substantially in absolute dollars, and

generally increased as a percentage of net revenues, in each of the past eight quarters. The increases in the 1997 quarters were due primarily to increased personnel expenses and, to a lesser extent, additional ISP connectivity charges and increased bank processing charges.

Rapid growth in net revenues and the fixed nature of certain components of cost of net revenues caused cost of net revenues to decline to 10.5% of net revenues in the first quarter of 1998 from 12.7% in the fourth quarter of 1997. In the third quarter of 1998, the Company significantly increased its customer support personnel, website operations personnel, its use of outside contractors, and accordingly experienced an increase in personnel-related costs. Also in the third quarter of 1998, the Company began a significant build up of its computer network in order to handle the increasing volume of transactions on the eBay service resulting in increased depreciation expense as well as increased ISP connectivity charges. All of these factors, combined with a slowing growth rate of net revenues beginning in the second quarter of 1998, resulted in increases in cost of net revenues as a percentage of net revenues from 10.5% in the first quarter of 1998 and 12.4% in the second quarter of 1998, to 16.3% in the third quarter of 1998. The slight increase in the revenue growth rate in the fourth quarter of 1998 resulted in the decrease of cost of net revenues to 15.5% in the fourth quarter of 1998. Amortization of technology acquired in the Jump acquisition also contributed to the absolute dollar increase in the third and fourth quarters of 1998. The Company anticipates that its costs of net revenues will vary, and may increase, as a percentage of net revenues in future quarters as it expands its website operations group, website facilities and pays royalties for software licenses to enhance the eBay website.

#### Sales and Marketing

eBay's sales and marketing expenses primarily consist of compensation for sales and marketing personnel, advertising, trade show and other promotional costs, expenses for creative design of the eBay website and overhead costs. Sales and marketing expenses increased substantially in absolute dollars and generally increased as a percentage of net revenues in each of the past eight quarters, primarily due to increases in compensation associated with additional personnel and, in the last two quarters of 1997 and each quarter of 1998, increases in advertising and promotional expenses.

A slower expansion of advertising and promotional expenses and an increase in net revenues from the first quarter of 1998 to the second quarter of 1998 caused sales and marketing expenses to decrease to 28.0% of net revenues in the second quarter of 1998. Substantial increases in advertising expenses, including expenses associated with a marketing agreement with AOL, caused sales and marketing expenses to increase to 42.3% of net revenues in the third quarter of 1998.

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These increased expenses, as well as expenses associated with a national print, broadcast and online advertising campaign, caused sales and marketing expenses to increase to 50.1% of net revenues in the fourth quarter of 1998. The Company expects to increase its sales and marketing expenses substantially in future quarters, particularly for advertising and promotion, and, as a result, expects that its sales and marketing expenses will increase in absolute dollars and will vary as a percentage of net revenues for at least the next several quarters. In addition, the Company is obligated to make aggregate payments to AOL of \$12.0 million over the three-year term of the marketing agreement it entered into with AOL in August 1998, of which \$4.0 million was paid and \$1.7 million was expensed during 1998. In March 1999, eBay and AOL expanded the scope of their strategic relationship. Under this new agreement, eBay will pay AOL \$75 million over the four year term of the contract. Under this agreement, the Company's remaining payment obligations to AOL were cancelled. See Notes 6 and 11 of Notes to Consolidated Financial Statements.

#### Product Development

eBay's product development expenses consist primarily of compensation for product development staff and payments to outside contractors and, to a lesser extent, of depreciation on equipment used for development and overhead costs. The Company expenses product development costs as they are incurred. Product development expenses increased substantially in absolute dollars in each quarter throughout the past eight quarters. Compensation and other personnel-related expenses grew most rapidly on a percentage basis between the first quarter of 1997 and the second quarter of 1997. Product development expenses increased to 11.5% of net revenues in the second quarter of 1998 from 8.7% in the first quarter of 1998 as the Company significantly increased its engineering staff and the use of outside contractors, while the rate of growth of net revenues declined. Increases in engineering staff were level with net revenues growth in the third quarter of 1998 and, accordingly, product development expenses as a percentage of net revenues remained relatively constant. In the fourth quarter of 1998, product development expenses remained relatively unchanged from the prior quarter, while net revenues grew. This resulted in a decline in product development expenses to 7.9% of net revenues in the fourth quarter of 1998 from 11.7% in the third quarter of 1998. The Company expects that product development expenses will continue to increase in absolute dollars and will vary as a percentage of net revenues in future quarters primarily due to the addition of headcount relative to the rate of net revenues growth.

#### General and Administrative

eBay's general and administrative expenses consist primarily of compensation for personnel and, to a lesser extent, fees for outside professional advisors and overhead costs. General and administrative expenses increased as a percentage of net revenues in the third quarter of 1997 as personnel-related costs increased. General and administrative expenses increased as a percentage of net revenues to 35.3% in the second quarter of 1998 because, in that quarter, the Company donated 321,750 shares of its common stock, with an estimated fair value of \$1.2 million, to a charitable foundation, recorded compensation expense of \$429,000 associated with purchases of restricted common stock by its outside directors and recorded compensation expense of \$403,000 associated with the grant of stock options to employees. General and administrative expenses decreased as a percentage of net revenues to 16.4% in the third quarter of 1998 and 14.2% in the fourth quarter of 1998 as increases in personnel related costs and professional fees were more than offset by increases in net revenues. The Company expects that general and administrative expenses will continue to increase in absolute dollars in future quarters as the Company continues to build its

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administrative staff and infrastructure, but may eventually decline as a percentage of net revenues, and fluctuate from quarter to quarter depending on the rate of net revenue growth.

#### Amortization of Acquired Intangibles

During the second quarter of 1998, eBay recognized expenses totaling \$150,000 for in-process technology assumed in the acquisition of Jump and charged it to operations because the technology had not reached the stage of technological feasibility at the acquisition date and had no alternative future use. The Company recognized amortization expense of approximately \$328,000 in each of the third and fourth quarters of 1998 associated with the covenants not to compete, customer list and goodwill assumed in the Jump acquisition. Amortization associated with these intangible assets is anticipated to be approximately \$328,000 in each of the first three quarters of 1999, and approximately \$26,000 in each of the fourth quarter of 1999 and the first and second quarters of 2000, assuming no additional acquisitions and no impairment of value resulting in an acceleration of amortization. See Note 2 of Notes to Consolidated Financial Statements.

### Interest and Other Income, Net

Interest and other income, net, consists of interest earned on cash, cash equivalents and short-term investments offset by interest expense. Interest and other income, net, increased in absolute dollars in the third quarter of 1997, due primarily to interest earned on the proceeds from the June 1997 sale of Series B Preferred Stock and warrants and remained relatively constant until the second quarter of 1998. The increase in the second quarter of 1998 was a result of interest earned on proceeds from the May 1998 exercise of these warrants and interest earned from loans made to employees in connection with the exercise of their stock options. The increase in the third quarter of 1998 reflected a full quarter of these earnings. The increase in the fourth quarter of 1998 resulted from income from investment of the proceeds from the Company's initial public offering at the end of the third quarter of 1998. In addition, the Company repaid all borrowings under its line of credit in the fourth quarter of 1998.

### Provision for Income Taxes

eBay's effective federal and state income tax rate was approximately 43.0% in each quarter of 1997, 92.2% in the first two quarters of 1998 and 48.7% in the last two quarters of 1998. The 1998 effective tax rate differed from the combined federal and state statutory rate of approximately 41.8% as a result of the non-deductibility of charges for stock based compensation and expenses related to the acquisition of Jump. The variations in the quarterly 1998 effective tax rates resulted from quarterly adjustments to the estimated annual effective tax rate based on the difference between estimated earnings and actual earnings reported. See Note 7 of Notes to Consolidated Financial Statements.

### Stock-Based Compensation

In connection with the grant of certain stock options from May 1997 through June 30, 1998, the Company recorded aggregate unearned compensation totaling \$6.8 million, which amount is being amortized over the four-year vesting period of such options. Of the total unearned compensation, approximately \$25,000, \$421,000, \$650,000, \$818,000 and \$773,000 was amortized in the quarters ended December 31, 1997 and March 31, June 30, September 30 and December 31, 1998, respectively. The Company expects quarterly amortization of between approximately \$700,000 and \$440,000 during 1999, between approximately \$400,000 and \$270,000 during 2000 and annual amortization of approximately \$720,000 during 2001 and approximately \$80,000 during 2002 related to these options. These amortization amounts were allocated among the operational expense categories based upon the primary activity of the related employees. See Note 10 of Notes to Consolidated Financial Statements.

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### Years Ended December 31, 1996, 1997 and 1998

The following table sets forth, for the periods presented, certain data from eBay's consolidated statement of income as a percentage of net revenues. This information should be read in conjunction with the Consolidated Financial Statements and Notes thereto included elsewhere in this prospectus.

| Year Ended December 31, .....             | 1996   | 1997   | 1998   | ..... |
|---|--------|--------|--------|-------|
| Net revenues.....                         | 100.0% | 100.0% | 100.0% |       |
| Cost of net revenues.....                 | 3.8    | 13.0   | 14.5   | ..... |
| Gross profit.....                         | 96.2   | 87.0   | 85.5   | ..... |
| Operating expenses:                       |        |        |        |       |
| Sales and marketing.....                  | 8.6    | 30.1   | 41.9   |       |
| Product development.....                  | 7.5    | 14.5   | 9.7    |       |
| General and administrative.....           | 12.1   | 16.5   | 19.2   |       |
| Amortization of acquired intangibles..... | —      | —      | 1.7    | ..... |
| Total operating expenses.....             | 28.2   | 61.1   | 72.5   | ..... |
| Income from operations.....               | 68.0   | 25.9   | 13.0   |       |
| Interest and other income, net.....       | 0.3    | 1.0    | 1.9    | ..... |
| Income before income taxes.....           | 68.3   | 26.9   | 14.9   |       |
| Provision for income taxes.....           | (28.5) | (11.7) | (9.8)  | ..... |
| Net income.....                           | 39.8%  | 15.2%  | 5.1%   |       |

### Net Revenues

eBay's net revenues increased from \$372,000 in 1996 to \$5.7 million in 1997 and to \$47.4 million in 1998, primarily as a result of growth in the number of items of merchandise listed by sellers for auction on the eBay website and growth in the number of auction transactions successfully completed. The increase from 1996 to 1997 was, to a lesser extent, the result of small increases in average transaction size and certain increases in the placement fees for various forms of featured placements for listed items.

### Cost of Net Revenues

Cost of net revenues increased from \$14,000, or 3.8% of net revenues, in 1996 to \$746,000, or 13.0% of net revenues, in 1997, and to \$6.9 million, or 14.5% of net revenues, in 1998. The increases primarily resulted from the Company's expansion of its customer support organization, increases in bank processing charges for customer fees paid by credit cards, depreciation of the equipment required for the eBay website operations and ISP connectivity charges.

### Sales and Marketing

eBay's sales and marketing expenses increased from \$32,000, or 8.6% of net revenues, in 1996 to \$1.7 million, or 30.1% of net revenues, in 1997, and to \$19.8 million, or 41.9% of net revenues, in 1998. The increases from 1996 to 1997 primarily resulted from the building of a sales and marketing organization, which began late in the fourth quarter of 1996, and the commencement of significant advertising and promotional activities, which began in the third quarter of 1997. The increases from 1997 to 1998 primarily resulted from substantial increases in advertising and promotional expenses, including costs associated with a national print, broadcast and online advertising campaign and expenses associated with a marketing agreement with AOL, both of which commenced in the second half of 1998, as well as from continued growth in the number of sales and marketing personnel.

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### Product Development

eBay's product development expenses increased from \$28,000, or 7.5% of net revenues, in 1996 to \$831,000, or 14.5% of net revenues, in 1997, and to \$4.6 million, or 9.7% of net revenues, in 1998. The increases in absolute dollars primarily resulted from increases in salaries, benefits and other personnel-related expenses as the Company significantly increased the size of its research and development staff, as well as expenses related to contractors and consultants used to increase the product development department. These increases were more than offset by increases in net revenues in 1998, resulting in the decline in development expenses as a percentage of net revenues from 14.5% in 1997 to 9.7% in 1998.

### General and Administrative

eBay's general and administrative expenses increased from \$45,000, or 12.1% of net revenues, in 1996 to \$950,000, or 16.5% of net revenues, in 1997, and to \$9.1 million, or 19.2% of net revenues, in 1998. The increase from 1996 to 1997 primarily resulted from increases in salaries, benefits and other personnel-related expenses and, to a lesser extent, from increases in the allowance for doubtful accounts, fees for professional services and overhead costs. The increase from 1997 to 1998 primarily resulted from the Company's contribution in June 1998 of 321,750 shares of common stock with an estimated fair value of \$1.2 million to a charitable foundation. In June 1998, the Company also recorded compensation expense of \$429,000 associated with purchases of restricted shares of common stock by the Company's outside directors. The increase from 1997 to 1998 also resulted from the Company recording a compensation expense of approximately \$1.7 million associated with stock options granted to employees. Increases in personnel-related expenses, the allowance for doubtful accounts, fees for professional services and overhead costs also contributed to the increase from 1997 to 1998.

### Amortization of Acquired Intangibles

During 1998, eBay recognized expenses totaling \$150,000 for in-process technology assumed in the acquisition of Jump and charged this amount to operations because the technology had not reached the stage of technological feasibility at the acquisition date and had no alternative future use. The Company also recognized amortization expense of approximately \$655,000 in 1998 associated with the covenants not to compete, the customer list and goodwill assumed in the Jump acquisition. See Note 2 of Notes to Consolidated Financial Statements.

### Interest and Other Income, Net

eBay's interest and other income, net increased from \$1,000 in 1996 to \$56,000 in 1997 and to \$869,000 in 1998. The increase from 1996 to 1997 was a result of interest earned on increased cash, cash equivalents and short-term investments, from the net proceeds of the Company's sales of preferred stock and warrants in June 1997. The increase in 1998 from 1997 resulted from interest earned on the net proceeds from the Company's initial public offering in September 1998 and, to a lesser extent, interest earned on proceeds from the exercise of warrants in May 1998 and interest earned from loans made to employees in connection with the exercise of their stock options.

### Provision for Income Taxes

eBay's effective federal and state income tax rate was 41.7% in 1996, 43.4% in 1997 and 65.9% in 1998. The 1998 effective tax rate differed from the combined federal and state statutory rate of approximately 41.8% as a result of the non-deductibility of charges for stock based compensation and expenses related to the acquisition of Jump. The variation in the effective tax rates for 1996 and

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1997 reflects differences in the deductibility of certain expenses. See Note 7 of Notes to the Consolidated Financial Statements.

### Stock-Based Compensation

In connection with the grant of certain stock options from May 1997 through June 30, 1998, eBay recorded aggregate unearned compensation totaling \$6.8 million, which amount is being amortized over the four-year vesting period of such options. Of the total unearned compensation, approximately \$25,000 was amortized in 1997 and \$2.7 million was amortized in 1998. These amortization amounts were allocated among the operational expense categories based upon the primary activity of the related employees. See Note 10 of Notes to Consolidated Financial Statements.

### Liquidity and Capital Resources

Since eBay's inception, the Company has financed its operations primarily from net cash generated from operating activities. The Company has acquired additional financing from the sale of preferred stock and warrants, proceeds from the exercise of those warrants, proceeds from the exercise of stock options, and in September 1998, net proceeds of \$66.1 million from its initial public offering.

Net cash provided by operating activities was \$113,000 in 1996, \$789,000 in 1997 and \$6.3 million in 1998. Net cash provided by operating activities resulted primarily from the Company's net income before non-cash charges for amortization of unearned compensation, the provision for doubtful accounts and depreciation and amortization, as well as increases in various liability categories, offset in part by increases in accounts receivable.

Net cash used in investing activities was \$25,000 in 1996, \$680,000 in 1997 and \$49.3 million in 1998. Net cash used in investing activities in each of 1996 and 1997 was the result of purchases of property and equipment, primarily computer equipment and furniture and fixtures. During 1998, \$8.9 million in cash was used to purchase property and equipment and \$40.4 million was used to purchase short-term investments.

Net cash provided by financing activities was \$15,000 in 1996, \$3.5 million in 1997 and \$71.0 million in 1998. Net cash provided by financing activities in 1996 resulted almost entirely from sales of common stock and preferred stock. Net cash provided by financing activities in 1997 resulted primarily from the sale of \$3.0 million of preferred stock and warrants and borrowings of \$545,000 against a bank line of credit. See Notes 5 and 8 of Notes to Consolidated Financial Statements. Net cash provided by financing activities in 1998 resulted primarily from net proceeds of \$66.1 million from the Company's initial public offering in September 1998, the exercise of warrants for \$2.0 million and proceeds from sales of restricted common stock in the aggregate amount of \$3.5 million. These proceeds were offset in part by principal payments of \$598,000 on a bank line of credit and equipment leases. At December 31, 1998, the principal source of liquidity for the Company was \$72.2 million of cash, cash equivalents and short-term investments.



The primary objective of eBay's investment activities is to preserve the principal while at the same time maximizing yields without significantly increasing risk. To achieve this objective, the Company maintains its portfolio of cash equivalents and short-term investments in a variety of securities, including both government and corporate obligations and money market funds. As of December 31, 1998, approximately 55% of the Company's total portfolio will mature in one year or less, with the remainder maturing in less than two years. See Note 1 of Notes to Consolidated Financial Statements.

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The following table presents the amounts of the Company's cash equivalents and short-term investments that are subject to interest rate risk by year of expected maturity and average interest rates as of December 31, 1998:

|                        |          |             |                        |   |
|------------------------|----------|-------------|------------------------|---|
| Fair 1999              | 2000     | Total Value | (Dollars in thousands) | Cash equivalents and short-term investments |
| \$34,852               | \$28,114 | \$62,966    |                        |   |
| Average interest rates |          |             |                        | 3.8% 3.5%                                   |

eBay did not hold derivative financial instruments as of December 31, 1998, and has never held such instruments in the past. In addition, eBay had no outstanding debt as of December 31, 1998.

Currently the majority of eBay's sales and expenses are denominated in U.S. dollars and as a result the Company has experienced no significant foreign exchange gains and losses to date. While the Company does expect to effect some transactions in foreign currencies during 1999, it does not expect that foreign exchange gains or losses will be significant. The Company has not engaged in foreign currency hedging to date.

eBay had no material commitments for capital expenditures at December 31, 1998 but expects such expenditures to be at least \$14.0 million in 1999. Such expenditures will primarily be for computer equipment, furniture and fixtures and leasehold improvements. eBay also has total minimum lease obligations of \$25.1 million through November 2004 under certain noncancellable operating leases. As a result of eBay's August 1998 marketing agreement with AOL, the Company is obligated to make aggregate payments to AOL of \$12.0 million over the three-year term of the agreement. Of this amount, \$4.0 million was paid in 1998, and \$1.7 million was expensed, resulting in a prepaid balance of \$2.3 million and remaining obligation of \$8.0 million at December 31, 1998. In March 1999, eBay and AOL expanded the scope of their strategic relationship. Under this new agreement eBay will pay AOL \$75 million over the four year term of the contract. Under this agreement, the Company's remaining payment obligations to AOL were cancelled. See Notes 6 and 11 of Notes to Consolidated Financial Statements.

The Company believes that its existing cash, cash equivalents and short-term investments and any cash generated from operations together with the proceeds from this offering will be sufficient to fund its operating activities, capital expenditures and other obligations for the foreseeable future. However, if during that period or thereafter the Company is not successful in generating sufficient cash flow from operations or in raising additional capital when required in sufficient amounts and on terms acceptable to the Company, the Company's business could suffer. If additional funds are raised through the issuance of equity securities, the percentage ownership of the Company's then-current stockholders would be reduced.

#### Year 2000 Issues

Many currently installed computer systems and software products are coded to accept only two-digit entries in the date code field and cannot reliably distinguish dates beginning on January 1, 2000 from dates prior to the year 2000. Many companies' software and computer systems may need to be upgraded or replaced in order to correctly process dates beginning in 2000 and to comply with the "Year 2000" requirements. The Company has reviewed its internal programs and has determined that there are no significant Year 2000 issues within the Company's systems or services. The Company has completed modifications to its internal systems to attempt to ensure Year 2000 compliance. The costs of these modifications have not been material and have involved a reallocation of internal resources rather than incremental expenditures. Although the Company

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believes that its software is Year 2000 compliant, the Company may be wrong. If the Company is wrong, it could face unexpected expenses to fix the problem or unanticipated website outages, either of which would harm its business. The Company uses third-party equipment and software that may not be Year 2000 compliant. For example, the Company relies on credit card companies to collect the majority of its revenues from users. Due to the nature of the credit card system, some industry analysts have questioned the effect of the year 2000 on credit card processing and billing. Failure of the Company's credit card vendors or other third-party equipment or software vendors to properly process dates for the year 2000 and thereafter could require the Company to incur unanticipated expenses in seeking alternative means of payment or hardware or software replacements. It also could result in loss of revenues or unanticipated eBay website outages. The Company's marketing efforts are also dependent on the continued operation of Internet portals and other Internet sites on which it advertises.

Although the Company has developed contingency plans with respect to collecting payment under these circumstances, the Company is unable to make contingency plans if any significant number of the computers constituting the Internet fail to process dates properly for the year 2000 and there is a systemwide slowdown or breakdown. The Company's business is dependent on the continued successful operation of the Internet. Any interruption or significant degradation of Internet operations due to Year 2000 problems could harm the Company's business.

#### Recent Accounting Pronouncements

The American Institute of Certified Public Accountants issued Statement of Position ("SOP") No. 98-1, "Software for Internal Use," which provides guidance on accounting for the cost of computer software developed or obtained for internal use. SOP No. 98-1 is effective for financial statements for fiscal years beginning after December 15, 1998. The Company does not expect that the adoption of SOP No. 98-1 will have a material impact on its financial statements.

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#### BUSINESS

This prospectus contains forward-looking statements that involve risks and uncertainties. The Company's actual results may differ significantly from the results discussed in these forward-looking statements. Factors that may cause such a difference include, but are not limited to, those discussed in "Risk Factors."

## The Company

eBay is the world's largest and most popular person-to-person trading community on the Internet, based on the number of items listed, number of users and minutes of usage per month. eBay pioneered online person-to-person trading. The Company has developed a Web-based community in which buyers and sellers are brought together in an efficient and entertaining auction format to buy and sell items such as antiques, coins, collectibles, computers, memorabilia, stamps and toys. The eBay service permits sellers to list items for sale, buyers to bid on items of interest and all eBay users to browse through listed items. The Company's 24-hour-a-day, seven-day-a-week service is fully automated, topically arranged, intuitive and easy to use. From December 31, 1997 to December 31 1998, the number of registered eBay users grew from approximately 340,000 to over 2.1 million. eBay hosted over 13.6 million auctions during the fourth quarter of 1998, up from 2.0 million auctions in the fourth quarter of 1997. As of December 31, 1998, the Company had over 1.0 million auctions listed in over 1,000 categories. The Company believes that this critical mass of buyers, sellers and items listed for sale creates a cycle that helps eBay to continue to grow its user base. Sellers are attracted to eBay as a result of the large number of potential buyers, and buyers in turn are attracted to eBay by the broad selection of goods listed on eBay. Browsers and buyers can search auction listings for specific items or search by category, key word, seller name, recently commenced auctions or auctions about to end. eBay's auction format creates a sense of urgency among buyers to bid for goods and creates an entertaining and compelling trading environment. eBay also provides buyers and sellers a place to socialize and to discuss topics of common interest. This compelling trading environment fosters a large and growing commerce-oriented online community.

## Industry Background

### Growth of the Internet and Online Commerce

The Internet has emerged as a global medium enabling millions of people worldwide to share information, communicate and conduct business electronically. International Data Corporation ("IDC") estimates that the number of Web users will grow from approximately 150 million worldwide in 1998 to approximately 500 million worldwide by the end of 2003.

The growing adoption of the Web represents an enormous opportunity for businesses to conduct commerce over the Internet. IDC estimates that commerce over the Internet will increase from approximately \$40 billion worldwide in 1998 to approximately \$900 billion worldwide in 2003. While companies initially focused on facilitating and conducting transactions between businesses over the Internet, the business-to-consumer market has also become a significant market and is rapidly growing. These companies typically use the Internet to offer standard products and services that can be easily described with graphics and text and do not necessarily require physical presence for purchase, such as books, CDs, videocassettes, automobiles, home loans, airline tickets and online banking and stock trading. The Internet gives these companies the opportunity to develop one-to-one relationships with customers worldwide from a central location without having to make the significant investments required to build a number of local retail presences or develop the printing and mailing infrastructure associated with traditional direct marketing activities. While companies have generally focused on applying these benefits in business-to-business and business-to-consumer transactions, a significant market opportunity exists to apply these same advantages to facilitate person-to-person trading over the Internet.

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### The Person-to-Person Trading Market Opportunity

The exchange of goods among individuals and small dealers—person-to-person trading—traditionally has been conducted through trading forums such as classified advertisements, collectible shows, garage sales and flea markets or through intermediaries, such as auction houses. These markets are highly inefficient for the following reasons:

- their fragmented, regional nature makes it difficult and expensive for buyers and sellers to meet, exchange information and complete transactions;
- they offer a limited variety and breadth of goods;
- they often have high transaction costs from intermediaries; and
- they are information inefficient, as buyers and sellers lack a reliable and convenient means of setting prices for sales or purchases.

Despite these inefficiencies, the Company believes that the market for traditional person-to-person trading in the U.S., based upon estimates of the amounts spent through auctions, classified ads and on collectibles, exceeded \$100 billion in goods sold in 1998.

The Internet offers for the first time the opportunity to create a compelling global marketplace that overcomes the inefficiencies associated with traditional person-to-person trading while offering the benefits of Internet-based commerce to the person-to-person trading market. An Internet-based centralized trading place offers the following benefits:

- facilitates buyers and sellers meeting, listing items for sale, exchanging information, interacting with each other and, ultimately, consummating transactions;
- allows buyers and sellers to trade directly, bypassing traditional intermediaries and lowering costs for both parties;
- is global in reach, offering buyers a significantly broader selection of goods to purchase and providing sellers the opportunity to sell their goods efficiently to a broader base of buyers;
- offers significant convenience, allowing trading at all hours and providing continually updated information; and
- fosters a sense of community through direct buyer and seller communication, thereby enabling interaction between individuals with

mutual interests.

In addition, this community orientation, facilitation of direct buyer and seller communication and efficient access to information on a particular buyer or seller's trading history can help alleviate the risks of anonymous trading. As a result, there exists a significant market opportunity for an Internet-based centralized trading place that applies the unique attributes of the Internet to facilitate person-to-person trading.

#### The eBay Solution

eBay pioneered person-to-person trading of a wide range of goods over the Internet using an efficient and entertaining auction format and has grown into the largest and most popular person-to-person trading community on the Internet. The core eBay service permits sellers to list items for sale, buyers to bid for and purchase items of interest and all eBay users to browse through listed items from any place in the world at any time. eBay offers buyers a large selection of new and used items that can be difficult and costly to find through traditional means. eBay also enables sellers to reach a larger number of buyers more cost-effectively than traditional person-to-person trading forums.

The eBay service originally was introduced in September 1995 to create an efficient marketplace for individuals to trade with one another. Begun as a grassroots online trading community, eBay

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primarily attracted buyers and sellers through word of mouth and by providing buyers and sellers with a place to socialize, to discuss topics of common interest and ultimately to trade goods with one another. The number of categories under which eBay users list goods for auction has grown from 10, when eBay was first introduced, to more than 1,000 as of December 31, 1998. Categories on eBay currently include antiques, coins, collectibles, computers, memorabilia, stamps and toys.

The principal reasons for eBay's success are the following:

**Largest Online Trading Market.** Unlike traditional person-to-person trading forums, eBay has aggregated a critical mass of buyers, sellers and items listed for sale. As a result, eBay has become the largest online person-to-person trading market. As of December 31, 1998, eBay had over 2.1 million registered users and offered more than 1,000 product categories with over 1.0 million items for auction, many of which were unique or otherwise hard to find. The Company believes that this critical mass of buyers, sellers and items listed for sale creates a cycle that helps eBay continue to grow its user base. Sellers are attracted to eBay as a result of the large number of potential buyers and buyers in turn are attracted to eBay by the broad selection of goods listed on eBay.

**Compelling Trading Environment.** eBay has created a distinctive trading environment by utilizing an entertaining auction format, establishing procedural rules and promoting community values that are designed to facilitate trade and communications between buyers and sellers, without the need for eBay to intervene and play a significant role in the trading process. The auction format creates a sense of urgency among buyers to bid for goods because of the uncertain future availability of a unique item on the website. Similarly, by accepting multiple bids at increasing prices, its auction format provides sellers a more efficient means of obtaining a maximum price for their products. To date, well over 50% of auctions listed on eBay have been successfully completed.

**Trust and Safety Programs.** The Company has developed a number of programs designed to make users more comfortable with dealing with an unknown trading partner over the Web. The Company's Feedback Forum encourages every eBay user to provide comments and feedback on other eBay users with whom they interact and offers user profiles that provide feedback ratings and incorporate these comments. In addition, eBay's recently expanded SafeHarbor program provides guidelines for trading, helps provide information to resolve user disputes, responds to reports of misuse of the eBay service and, if necessary, warns or suspends users who violate the terms of the Company's user agreement. The Company's recent trust and safety initiatives, including user verifications, insurance, integrated escrow and authentications and appraisals, are intended to bolster eBay's reputation as a safe place to trade.

**Cost-Effective, Convenient Trading.** eBay allows its buyers and sellers to bypass traditionally expensive, regionally fragmented intermediaries and transact business on a 24-hour-a-day, seven-day-a-week basis. Because eBay carries no inventory, sellers bypass costly traditional intermediaries, thus allowing for lower selling costs and increasing the sellers' likelihood of finding buyers willing to pay his or her target price. To list an item on eBay, sellers pay only a nominal placement fee ranging from \$0.25 to \$2.00 and then pay an additional success fee that steps down from 5% to 1.25% of the transaction value only if an auction is concluded with a successful bid. As a result, sellers for the first time can sell relatively inexpensive items which had previously been prohibitively expensive to list through most traditional trading forums. By allowing sellers to conveniently reach a broad range of buyers, eBay also addresses the time-consuming, logistical inconvenience of individual selling. Buyers have access to a broad selection of items and avoid the need to pay expensive markups or commissions to intermediaries. Buyers are not charged for trading through eBay. The critical mass of items listed on eBay provides a mutual benefit for buyers and sellers to more effectively determine an appropriate price for an item.

**Strong Community Affinity.** The Company believes that fostering direct interaction between buyers and sellers with similar interests has enabled it to create a loyal, active community of users.

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eBay has introduced a variety of features and services designed to strengthen this sense of community among eBay users. The Company facilitates communications between buyers and sellers by offering chat rooms, bulletin boards and customer support assistance from eBay personnel and other eBay users and by providing "About Me" user pages and community features that are designed to encourage consumer loyalty and repeat usage.

**Intuitive User Experience.** The eBay service is a fully automated, topically arranged, intuitive and easy-to-use online service that is available on a 24-hour-a-day, seven-day-a-week basis. Within minutes of completing a simple online form, a seller can list items for sale on the service, and buyers can submit bids for items quickly and easily. Buyers can easily search the hundreds of thousands of items listed by category or specific item. During the course of the auction, bidders are notified by email of the status of their bids on a daily basis and are notified immediately if they are outbid. Sellers and successful bidders are automatically notified when an auction is completed. To assist users further, the Company offers customer support via email, staffed on a 24-hour-a-day, seven-day-a-week basis.

## eBay Strategy

The Company's objective is to build upon its position as the world's leading online person-to-person trading community. The key elements of eBay's strategy are:

**Expand the eBay Community and Strengthen the eBay Brand.** The Company believes that building greater awareness of the eBay brand within and beyond the eBay community is critical to expanding its user base and to maintaining the vitality of the eBay community. Although the Company's historical growth has been largely attributable to word of mouth, the Company has introduced aggressive marketing efforts to build its user base and its brand name. In October 1998, the Company launched a substantial ongoing national advertising campaign, both in traditional media and online, that is designed to attract new eBay users. The campaign has included advertising in targeted publications, strategic advertising and sponsorship placements on high traffic websites, a major radio advertising campaign and active participation in other forums such as selected trade shows. The Company has benefited from frequent and high visibility media exposure both nationally and locally. In August 1998, the Company entered into a three-year marketing relationship with AOL whereby eBay will be prominently featured in areas of AOL's proprietary service and on AOL.com. In March 1999, the Company expanded the scope of its strategic relationship with AOL. Under this new four year agreement, eBay will be given a prominent presence featuring it as the preferred provider of person-to-person trading services on AOL's proprietary services, AOL.com, Digital Cities, ICQ, CompuServe and Netscape. The Company is focusing on reinforcing its brand within the existing eBay community through marketing programs on the eBay website and sales of eBay-branded merchandise. See "—Marketing."

**Broaden the eBay Trading Platform.** The Company intends to pursue a multi-pronged strategy for growing the eBay platform within existing product categories, across new product categories and regionally. The Company will target key product categories in its user programs and marketing activities. The Company has expanded and developed existing product categories by introducing category-specific bulletin boards and chat rooms, integrating category-specific content, advertising its service in targeted publications and participating in targeted trade shows. In addition, the Company intends to broaden the range of products offered on its trading platform by seeking to attract new users from the general audience of Internet users and adding product categories, content and other services or features to meet this new user demand. In March 1999, eBay and Butterfield & Butterfield, an auction house located in San Francisco, California, signed a nonbinding Letter of Understanding to create a separate category of premium items on the eBay website, whereby those items would be sourced from Butterfield & Butterfield and other auction companies. Completion of this arrangement is subject to a number of conditions, including the execution of a definitive agreement.

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**Foster eBay Community Affinity.** The Company believes that it has developed the largest and one of the most loyal person-to-person trading communities on the Web and that enhancing the eBay community experience will help the Company foster further growth and a greater sense of loyalty among eBay users. The Company seeks to maintain a critical mass of frequent buyers and sellers with a vested interest in the eBay community so that sellers will continue to be attracted to the service by the large number of potential buyers and buyers will be attracted to eBay by the large number of items listed by these sellers. The Company's recent trust and safety initiatives, including user verifications, insurance, integrated escrow and authentications and appraisal, are intended to bolster eBay's reputation as a safe place to trade. Consistent with its desire to foster community, the Company has organized a charitable fund, known as the eBay Foundation, and intends to involve the members of the eBay community in determining to which charitable purposes the eBay Foundation's funds will be applied. See "—The eBay Service—Community Services."

**Enhance Features and Functionality.** The Company intends to update and enhance the features and functionality of eBay frequently in order to continue to improve the user trading experience through eBay. The Company recently introduced personalization features such as About Me, which offers users the opportunity to create their own personal home page free of charge on eBay. In January 1999, the Company initiated a proprietary presentation format in the "Antiques" category, the Gallery, which showcases auction items in a catalog of pictures rather than text. The Company plans to introduce the Gallery to other eBay categories in 1999. The Company intends to introduce other features, such as new auction formats, category-specific content, the ability to search for auction items being sold within driving distance of an identified region and other features designed to enhance the eBay experience. The Company will continue to provide rapid system response and transaction processing time by investing in its infrastructure in order to accommodate additional users, content and auctions.

**Expand Value-Added Services.** In order to offer an "end-to-end" person-to-person trading service, the Company intends to provide a variety of pre- and post-trade services to enhance the user experience. The Company intends to introduce new services and expand current ones, such as its SafeHarbor program, to facilitate the exchange of goods so that buyers and sellers will feel more comfortable sending money or goods to an unknown trading partner. The Company recently improved its Feedback Forum to distinguish between transaction-specific feedback and general feedback, provided integrated third-party escrow services and has announced that it intends to establish a Verified eBay User program to encourage users to provide eBay with additional identity verification. eBay recently implemented a free insurance program that generally insures items up to a value of \$200, with a \$25 deductible, for users with a non-negative feedback rating. The Company anticipates that future services may include pre-trade services, such as services to facilitate scanning and uploading of photographs of listed items and authentication and appraisal services, and post-trade services, such as third-party escrow services, arrangements to facilitate shipment of products and methods to facilitate buyers' payments to sellers, such as credit card services. The Company may pursue strategic relationships with third parties to provide many of these value-added services.

**Develop International Markets.** The Company believes that the Internet provides a significant opportunity for the creation of a global person-to-person trading market. The Company intends to take advantage of this opportunity by leveraging the eBay service and brand name internationally by developing eBay for selected international markets and marketing and promoting these services actively. The Company has introduced country-specific home pages for Canada and the United Kingdom and has entered into a joint venture with a subsidiary of one of the largest media companies in Australia and New Zealand. The Company believes that its user base already includes users located in over 50 countries.

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## The eBay Service

The eBay trading platform is a robust, Internet-based, person-to-person centralized trading place that facilitates buying and selling of a wide variety of items.

### [DIAGRAM OF BUYING-SELLING PROCESS]

**Registration.** While any visitor to eBay can browse through the eBay service and view the items listed for auction, in order to bid for an item or to list an item for sale, buyers and sellers must first register with eBay. Users register by completing a short online form and thereafter can immediately bid for an item or list an item for sale. Users in Canada and the United Kingdom may instead register through a country-specific home page.

Buying on eBay. Buyers typically enter eBay through its home page, which contains a listing of product categories that allows for easy exploration of current auctions. Bidders can search for specific items by browsing through a list of auctions within a category or subcategory and then "click through" to a detailed description for a particular item. Bidders also can search specific categories or the entire database of auction listings using keywords to describe the types of products in which they are interested, and eBay's search engine will generate a list of relevant auctions with links to the detailed descriptions. Each auction is assigned a unique identifier so that users can easily search for and track specific auctions. Users also can search for a particular bidder or seller by name in order to review his or her auction and feedback history. Within each category section, eBay highlights auctions commenced within the past 24 hours in a "New Today" section; auctions ending on that day in an "Ending Today" section; and auctions ending within three hours under a "Going, Going, Gone" section. Once a bidder has found an item of interest and registered with eBay, the bidder enters the maximum amount he or she is willing to pay at that time. In the event of competitive bids, the eBay service automatically increases bidding in increments based upon the then current highest bid for the item, up to the bidder's maximum price. As eBay encourages direct interaction between buyers and sellers, bidders wishing additional information about a listed item can access the seller's email address and contact the seller for additional information. The Company believes that this interaction between bidders and sellers leverages the personal, one-on-one nature of person-to-person trading on the Web and is an important element of the eBay experience. Once each bid is made, eBay sends a confirmation to the bidder via email, an outbid notice to the next highest bidders and automatically updates the item's auction status. During the course of the auction, eBay notifies bidders of the status of their bids via email on a daily basis and notifies them immediately after they are outbid. Bidders are not charged for making bids or purchases through eBay.

Selling on eBay. A seller registered with eBay can list a product for auction by completing a short online form. The seller selects a minimum price for opening bids for the item and chooses

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whether the auction will last three, five or seven days. Additionally, a seller may select a reserve price for an item, which is the minimum price at which the seller is willing to sell the item and is typically higher than the minimum price set for opening bids. The reserve price is not disclosed to bidders. A seller can elect to sell items in individual auctions or, if he or she has multiple identical items, can elect to hold a "Dutch Auction." For example, an individual wishing to sell 10 identical watches could hold 10 individual auctions or hold a Dutch Auction in which the 10 highest bidders would each receive a watch at the same price and all lower bids would be rejected. To be eligible to hold a Dutch auction, a seller must have a sufficiently high feedback rating and must have been a registered seller for at least 60 days. A seller may also specify that an auction will be a private auction. With this format, bidders' e-mail addresses are not disclosed on the item screen or bidding history screen.

Sellers pay a nominal placement fee to list items for sale—\$0.25 for an auction with a minimum starting price of less than \$10.00, \$0.50 for a minimum starting price of \$10.00 to \$24.99, \$1.00 for a minimum starting price of \$25.00 to \$49.99 and \$2.00 for a minimum starting price of \$50.00 or more. By paying incremental placement fees, sellers can have items featured in various ways. The seller can highlight his or her auctions by utilizing a bold font for the auction heading for an additional fee of \$2.00. A seller with a favorable feedback rating can have his or her auction featured as a "Featured Auction" for \$99.95, which allows the seller's item to be rotated on the eBay home page, or as a "Category Featured Auction" for \$14.95, which allows his or her item to be featured within a particular eBay category. The seller can choose to place a seasonal icon (such as a shamrock in connection with St. Patrick's Day) next to his or her listing for \$1.00. A seller can also include a description of the product with links to the seller's website. In addition, the seller can include a photograph in the description if the seller posts the photograph on a website and provides eBay with the appropriate Web address. Items auctioned in the Gallery section of the "Antiques" category are all showcased in a catalog of pictures rather than text. A seller who uses a photograph in his or her listing can have this photograph included in the Gallery section for \$0.25 or featured in the Gallery section for \$19.95. The Company plans to introduce this proprietary presentation format to other eBay categories in 1999. During the course of an auction, sellers are notified of the status of their auctions on a daily basis via email.

How Transactions are Completed. At the end of an auction period, if a bid exceeds the minimum price and, if one is set, the reserve price, eBay automatically notifies the buyer and seller via email and the buyer and seller can then consummate the transaction independently of eBay. At the time of the email notification, eBay charges the seller a success fee equal to 5% of the first \$25 of the purchase price, 2.5% of that portion of the purchase price from \$25.01 to \$1,000, and 1.25% of that portion of the purchase price over \$1,000. At no point during the process does the Company take possession of either the item being sold or the buyer's payment for the item. Rather, the buyer and seller must independently arrange for the shipment of and payment for the item, with the buyer typically paying for shipping. A seller can view the buyer's feedback rating and then determine the manner of payment, such as personal check, cashier's check or credit card, and also whether to ship the item before or after the payment is received. Under the terms of the Company's user agreement, if a seller receives one or more bids above the stated minimum or reserve price, whichever is higher, the seller is obligated to complete a transaction, although the Company has no power to force the seller or bidder to complete the transaction other than to suspend them from using the eBay service. In the event the buyer and seller are unable to complete the transaction and the seller notifies eBay, eBay credits the seller the amount of the success fee. Invoices for placement fees, additional listing fees and success fees are sent via email to sellers on a monthly basis. Typically, sellers have a credit card account on file with eBay and that account is charged shortly after the invoice is sent.

Feedback Forum. eBay pioneered this feature to facilitate the establishment of reputations within its community by encouraging individuals to record comments about their trading partners on

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each transaction or other eBay users with whom they have interacted. Every registered eBay user has a feedback profile containing compliments, criticisms and other comments by users who have conducted business or interacted with the person. A recent enhancement to the Feedback Forum permits users to differentiate between transaction-specific feedback and general feedback. This information is recorded in a feedback profile that includes a feedback rating for the person and indicates comments from other eBay users who have interacted with that person over the past seven days, the past month, the past six months and beyond. Users who have developed positive reputations over time will have a star symbol displayed next to their user name, which is color coded to indicate the amount of positive feedback as compared to negative feedback received by the user. eBay users may review a person's feedback profile to check on the person's reputation within the eBay community before deciding to bid on an item listed by that person or in determining how to complete the payment for and delivery of the item.

The terms of the Company's user agreement prohibit actions that would undermine the integrity of the Feedback Forum, such as a person's leaving positive feedback about himself or herself through other accounts or leaving multiple negative feedback for others through other accounts. The Feedback Forum system has several automated features designed to detect and prevent some forms of abuse. For example, feedback posting from the same account, positive or negative, cannot affect a user's net feedback rating (i.e., the number of positive postings, less the number of negative postings) by more than one point, no matter how many comments an individual makes. Furthermore, in order to discourage users from registering for the purpose of leaving excessive positive or negative feedback, a user must be registered with eBay for at least five days in order to leave feedback. Users who receive a sufficiently negative net feedback rating have their registrations suspended and are unable to bid on or list items for sale. The Company believes its

Feedback Forum is extremely useful in overcoming initial user hesitancy when trading over the Web as it reduces the anonymity and uncertainty of dealing with an unknown trading partner. See "Risk Factors--We are subject to risks associated with information disseminated through our service."

**Trust and Safety Initiatives.** The Company has developed a number of programs designed to make users more comfortable with dealing with an unknown trading partner over the Web. In addition to the Feedback Forum, the Company offers the SafeHarbor program, which provides guidelines for trading, helps provide information to resolve user disputes and responds to reports of misuses of the eBay service. The Company's SafeHarbor staff of 28 persons, including regular employees and contractors, investigates users' complaints of possible misuse of eBay and takes appropriate action, including issuing warnings to users or suspending users from bidding on or listing items for sale. Some of the complaints the SafeHarbor staff investigates include various forms of bid manipulation, malicious posting of negative feedback and posting illegal items for sale. The SafeHarbor staff also provides information to assist users with disputes over the quality of the goods sold or other fraudulent activity and, upon receipt of an officially filed, written claim of fraud from a user, will generally suspend the offending user from eBay. Also, upon receipt of a written claim of intellectual property infringement by the owner of the intellectual property, the Company will remove the offending item from eBay. Users who infringe intellectual property rights more than once are suspended. To assist intellectual property owners, the Company is developing numerous tools, including an automated daily key word search that will enable owners to locate quickly potentially infringing auction items and dedicated email accounts established solely for owners to more easily contact eBay with regard to questionable items. In addition, the Company has increased the number of personnel reviewing potentially illegal items. The Company's trust and safety initiatives, including user verifications, insurance, integrated escrow and authentications and appraisals, are intended to bolster eBay's reputation as a safe place to trade. See "Risk Factors--Our business may be harmed by fraudulent activities on our website."

**What Can Be Purchased or Sold on eBay.** The eBay service has grown from offering 10 product categories when it was first introduced in September 1995 to offering more than 1,000

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categories as of December 31, 1998. As the number of product categories has grown, the Company periodically organizes the categories under different headings to reflect the major types of items currently listed. As of December 31, 1998, these product categories were organized under the following headings:

Antiques  
Jewelry,  
Gemstones Books,  
Movies,  
Music Photo & Electronics  
Coins & Stamps  
Pottery & Glass  
Collectibles  
Sports Memorabilia  
Computers  
Toys & Beanie Babies Dolls,  
Figures  
Miscellaneous

Each category has numerous subcategories. As of December 31, 1998, eBay offered a selection of over 1.0 million items, with the most popular items sold on eBay being those that are relatively standardized or are well-represented with a photo (and therefore can be evaluated to some degree without a physical inspection), are small and easily shippable, and are relatively inexpensive. As the eBay community grows and additional items are listed, the Company will continue to organize auctions under additional categories to respond to the needs of the eBay community.

**Community Services.** Beyond providing a convenient means of trading, eBay has devoted substantial resources to building an online person-to-person trading community, which the Company believes is one of the strongest on the Web. Key components of the Company's community philosophy are maintaining an honest and open marketplace and treating individual users with respect. The Company offers a variety of community and support features that are designed to solidify the growth of the eBay community and to build eBay user affinity and loyalty. eBay facilitates email communications between buyers and sellers by offering:

category-specific chat rooms;

the eBay Cafe (a chat room for the entire eBay community);

a bulletin board devoted to user feedback on new features;

an announcements section that covers new features on eBay or other eBay news;

customer support boards; and

""items wanted"" listings where users can post notices seeking specific items.

eBay also offers My eBay, which permits users to receive a report of their recent activity on eBay, including bidding activity, selling activity, account balances, favorite categories and recent feedback. Users with their own Web pages also can post link buttons from the user's page to eBay and to a list of items the user is selling on eBay. The Company recently introduced About Me, which offers users the opportunity to create their own personal home page free of charge on eBay using step-by-step instructions provided by the Company. The About Me home page can include personal information, items listed for auction, eBay feedback ratings, images and links to other favorite sites.

In addition, in June 1998, the Company donated 321,750 shares of Common Stock to the Community Foundation Silicon Valley, a tax-exempt donor-advised public charity and established a fund, known as the "eBay Foundation." Through the Community Foundation Silicon Valley, the eBay programs abroad and share their experiences with their students. The Company solicits user suggestions for worthwhile charities through the website.

**Customer Support.** The Company devotes significant resources to providing personalized, timely customer service and support. eBay offers customer support on a 24-hour-a-day, seven-day-a-week basis. Most customer support inquiries are handled via email, with customer email inquiries

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typically being answered within 24 hours after submission. The Company offers an online tutorial for new eBay users. In addition, the Company offers the SafeHarbor program and has recently introduced or is developing a number of trust and safety initiatives. See "—Trust and Safety Initiatives."

#### Marketing

eBay's marketing strategy is to promote its brand and attract buyers and sellers to the eBay service. To attract users to its website, eBay historically has relied primarily on word of mouth and, to a lesser extent, on distribution or sponsorship relationships with high traffic websites. Today, the Company employs a variety of methods to promote its brand and attract potential buyers and sellers. Currently, eBay uses strategic purchases of online advertising to place advertisements in areas in which it believes it can reach its target audience. The Company also engages in a number of marketing activities in traditional media such as advertising in print media and at trade shows and other events. eBay also advertises in a number of targeted publications. In October 1998, the Company launched a substantial national advertising campaign, both in traditional media and online, that is designed to attract new eBay users. This campaign has included print, a major radio advertising campaign, strategic advertising and sponsorship placements on high traffic websites and advertising in other media. The Company has benefited from frequent and high visibility media exposure both nationally and locally. While the Company does not expect the frequency or quality of this type of publicity to continue, the Company does promote public relations through initiatives such as online eBay/special event tie-ins and executive speaking engagements. In August 1998, eBay and AOL entered into a three-year marketing agreement whereby eBay is featured as the preferred provider of person-to-person auction services in the "Classifieds" and "Interest" areas of AOL's proprietary service. In addition, eBay receives placement and promotions on AOL.com, AOL's website. Over the term of this agreement, the Company will pay AOL \$12.0 million. In March 1999, the Company expanded the scope of its strategic relationship with AOL. Under the amended agreement, eBay will be given a prominent presence featuring it as the preferred provider of person-to-person trading services on AOL's proprietary services (both domestic and international), AOL.com, Digital Cities, ICQ, CompuServe (both domestic and international) and Netscape. eBay will pay \$75 million over the four year term of the contract. eBay will develop a co-branded version of its service for each AOL property which will prominently feature each party's brand. AOL will be entitled to all advertising revenue from the co-branded site. eBay also engages in a number of on-site marketing programs, including offering a variety of eBay-branded merchandise through the online "eBay Store."

#### Operations and Technology

eBay has built a robust, scalable user interface and transaction processing system that is based on internally-developed proprietary software. The eBay system handles all aspects of the auction process, including notifying users via email when they initially register for the service, they place a successful bid, they are outbid, they place an item for sale and an auction ends. Furthermore, the system sends daily status updates to any active sellers and bidders regarding the state of their current auctions. The system maintains user registration information, billing accounts, current auctions and historical listings. All information is regularly archived to a data warehouse. Complete listings of all items for sale are generated every hour. The system updates a text-based search engine hourly with the titles and descriptions of new items, as well as pricing and bidding updates for active items. Every time an item is listed on the service, a listing enhancement option is selected by a seller, or an auction closes with a bid in excess of the seller-specified minimum bid, the system makes an entry into the seller's billing account. The system sends electronic invoices to all sellers via email on a monthly basis. For convenience, sellers may place a credit card account number on file

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with eBay and their account balance is billed directly. In addition to these features, the eBay service also supports a number of community bulletin board and chat areas where users and eBay support personnel can interact.

The Company's system has been designed around industry standard architectures and has been designed to reduce downtime in the event of outages or catastrophic occurrences. The eBay service provides 24-hour-a-day, seven-day-a-week availability, subject to a short maintenance period for a few hours during one night per week. eBay's system hardware is hosted at the Exodus facility in Santa Clara, California, which provides redundant communications lines and emergency power backup. The Company's system consists of Sun database servers running Oracle relational database management systems and a suite of Pentium-based Internet servers running on the Windows NT operating system. The Company uses Resonate Inc.'s load balancing systems and its own redundant servers to provide for fault tolerance. The Company has experienced periodic system interruptions, which it believes will continue to occur from time to time. These outages have stemmed from a variety of causes, including third-party hardware and software problems and human error. The volume of traffic on the Company's website and in the number of auctions being conducted by users has been increasing continually and exponentially, requiring the Company to expand and upgrade its technology, transaction processing systems and network infrastructure and add new engineering personnel. The Company may be unable to accurately project the rate or timing of increases, if any, in the use of the eBay service or timely expand and upgrade its systems and infrastructure to accommodate such increases in a timely manner. Any failure to expand or upgrade its systems at least as fast as the growth in demand for capacity could cause the website to become unstable and possibly cease to operate for periods of time. Unscheduled downtime could harm the Company's business.

The Company uses internally developed systems to operate its service and for transaction processing, including billing and collections processing. The Company must continually improve these systems to accommodate the level of use of its website. In addition, the Company may add new features and functionality to its services that would result in the need to develop or license additional technologies. The Company's inability to add additional software and hardware or to upgrade its technology, transaction processing systems or network infrastructure to accommodate increased traffic or transaction volume could have adverse consequences. These consequences include unanticipated system disruptions, slower response times, degradation in levels of customer support, impaired quality of the users' experience on its service and delays in reporting accurate financial information. The Company's failure to provide new features or functionality also could result in these consequences. The Company may not be able to effectively upgrade and expand its systems in a timely manner or to integrate smoothly any newly developed or purchased technologies with its existing systems. These difficulties could harm or limit its ability to expand its business. See "Risk Factors—The inability to expand our systems may limit our growth" and "—System failures could harm our business."

The Company incurred \$28,000, \$831,000 and \$4.6 million in product development expenses in 1996, 1997 and 1998, respectively. The Company anticipates that it will continue to devote significant resources to product development in the future as it adds new features and functionality to the eBay service. The market in which the Company competes is characterized by rapidly changing technology, evolving industry standards, frequent new service and product announcements, introductions and enhancements and changing customer demands. Accordingly, the Company's future success will depend on its ability to adapt to rapidly changing technologies, to adapt its services to evolving industry standards and to continually improve the performance, features and reliability of its service in response to competitive service and product offerings and evolving demands of the marketplace. The failure of the

Company to adapt to such changes would harm the Company's business. In addition, the widespread adoption of new Internet, networking or telecommunications technologies or other technological changes could require substantial

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expenditures by the Company to modify or adapt its services or infrastructure. See "Risk Factors—Our failure to manage growth could harm us;" "—We must keep pace with rapid technological change to remain competitive" and "—We need to develop new services, features and functions in order to expand."

#### Competition

The market for person-to-person trading over the Internet is new, rapidly evolving and intensely competitive, and the Company expects competition to intensify in the future. Barriers to entry are relatively low, and current and new competitors can launch new sites at a relatively low cost using commercially available software. The Company currently or potentially competes with a number of other companies. Its direct competitors include various online person-to-person auction services, including Yahoo! Auctions Powered by Onsale and Excite, Inc., both of which are free to sellers and buyers, Auction Universe and a number of other small services, including those that serve specialty or regional markets such as CityAuction. The Company also competes indirectly with business-to-consumer online auction services such as Onsale, First Auction, Surplus Auction and uBid. A number of traditional auction companies, including Butterfield & Butterfield and Sotheby's, are offering or have announced plans to create Internet auction sites. The Company potentially faces competition from a number of large online communities and services that have expertise in developing online commerce and in facilitating online person-to-person interaction. Amazon.com recently announced the opening of Amazon.com Auctions, a service on its website where users can buy and sell goods similar to those available on eBay's website. Some of these potential competitors, including AOL, Lycos, Inc. and Microsoft Corporation, currently offer business-to-consumer trading services and classified ad services. Some of these companies also may introduce person-to-person trading to their large user populations. Other large companies with strong brand recognition and experience in online commerce, such as Cendant Corporation, QVC, USA Network and large newspaper or media companies, also may seek to compete in the online auction market.

In order to respond to changes in the competitive environment, the Company may, from time to time, make pricing, service or marketing decisions or acquisitions that could harm its business. For example, the Company recently implemented a free insurance program that generally insures items up to a value of \$200, with a \$25 deductible, for users with a non-negative feedback rating. The financial impact of this insurance program is not yet known. New technologies may increase competitive pressures on the Company by enabling its competitors to offer a lower cost service. Some Web-based applications that direct Internet traffic to certain websites may channel users to trading services that compete with the Company.

Although the Company has established Internet traffic arrangements with several large online services and search engine companies, these arrangements may not be renewed on commercially reasonable terms. Even if these arrangements are renewed, they may not result in increased usage of the Company's service. In addition, companies that control access to transactions through network access or Web browsers could promote competitors of the Company or charge it substantial fees for inclusion. See "Risk Factors—Our market is intensely competitive."

#### Intellectual Property

The Company regards the protection of its copyrights, service marks, trademarks, trade dress and trade secrets as critical to its success. The Company relies on a combination of patent, copyright, trademark, service mark and trade secret laws and contractual restrictions to protect its proprietary rights in products and services. The Company has entered into confidentiality and invention assignment agreements with its employees and contractors, and nondisclosure agreements with parties with which it conducts business to limit access to and disclosure of its proprietary information. These contractual arrangements and the other steps taken by the Company to protect its intellectual property may not prevent misappropriation of its technology or deter independent third-party development of similar technologies.

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The Company has received in the past, and anticipates that it will receive in the future, communications alleging that certain items listed or sold on eBay by its users infringe third-party copyrights, trademarks and tradenames or other intellectual property rights. To assist the owners of such intellectual property rights in policing and protecting their intellectual property, the Company developed the Legal Buddy Program. The Legal Buddy Program provides tools to content owners to detect and respond to infringement. These tools include a soon to be introduced automated daily key word search that will enable content owners to quickly locate potentially infringing auction items and dedicated email accounts established solely for owners to more easily contact eBay with regard to questionable items. Upon receipt of a written claim of intellectual property infringement by a user, the Company removes the offending item from the eBay website, credits the user with the listing fee and, if not the first offense, suspends the user. Although the Company has actively sought to work with the content community to eliminate infringing listings on eBay, some content owners have expressed the view that the Company's efforts are insufficient. An allegation of infringement of third-party intellectual property rights may result in litigation against the Company. Any such litigation could be costly for the Company, could result in increased costs of doing business through adverse judgment or settlement, could require the Company to change its business practices in expensive ways, or could otherwise harm the Company's business. See "—Legal Proceedings" and "Risk Factors—We may not be able to adequately protect or enforce our intellectual property rights."

#### Issues Related to the Listing or Sale by Users of Unlawful Items

The law relating to the liability of providers of online services for the activities of their users on their service is currently unsettled. The Company is aware that certain goods, such as firearms, other weapons, adult material, tobacco products, alcohol and other goods that may be subject to regulation by local, state or federal authorities, have been listed and traded on its service. The Company may be unable to prevent the sale of unlawful goods, or the sale of goods in an unlawful manner, by users of its service, and the Company may be subject to civil or criminal liability for unlawful activities carried out by users through its service. In order to reduce its exposure to this liability, the Company has increased the number of personnel reviewing potentially illegal items and may in the future implement other protective measures that could require it to spend substantial resources and/or to reduce revenues by discontinuing certain service offerings. Any costs incurred as a result of liability or asserted liability relating to the sale of unlawful goods or the unlawful sale of goods could harm the Company's business. In addition, the Company has received significant media attention relating to the listing or sale of unlawful goods on its website. A continuation of this negative publicity could damage the Company's reputation and diminish the value of the eBay brand name. It could also make users reluctant to continue to use its services. See "Risk Factors—Our business may be harmed by the listing or sale by our users of illegal items."

#### Fraudulent Activities on the eBay Website



The Company's future success will depend largely upon sellers reliably delivering and accurately representing their listed goods and buyers paying the agreed purchase price. The Company does not take responsibility for delivery of payment or goods to any user of the eBay service. The Company has received in the past, and anticipates that it will receive in the future, communications from users who did not receive the purchase price or the goods that were to have been exchanged. While the Company can suspend the accounts of users who fail to fulfill their delivery obligations to other users, the Company does not have the ability to otherwise require users to make payments or deliver goods or otherwise make users whole other than through the Company's limited insurance program. Other than through this program, the Company does not compensate users who believe they have been defrauded by other users. The Company also periodically receives complaints from buyers as to the quality of the goods purchased. Any negative publicity generated as a result of fraudulent or deceptive conduct by users of the Company's service could damage its reputation and diminish the

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value of its brand name. The Company may in the future receive additional requests from users requesting reimbursement or threatening legal action against the Company if no reimbursement is made. Any resulting litigation could be costly for the Company, divert management attention, result in increased costs of doing business, lead to adverse judgments or could otherwise harm its business. See "Risk Factors—Our business may be harmed by fraudulent activities on our website."

#### Government Inquiries

On January 29, 1999, the Company received requests to produce certain records and information to the federal government relating to an investigation of possible illegal transactions in connection with the Company's website. The Company has been informed that the inquiry includes an examination of the Company's practices with respect to these transactions. The Company is fully cooperating with the inquiry. In order to protect the investigation, the court has ordered that no further public disclosures be made with respect to the matter at this time. Should this or any other investigation lead to civil or criminal charges against the Company, the Company would likely be harmed by negative publicity, the costs of litigation, the diversion of management time and other negative effects, even if it ultimately prevails. The Company's business would certainly suffer if it were not to prevail in any action like this.

A large number of transactions occur on the eBay website. As a result, the Company believes that government regulators have received a substantial number of consumer complaints about the eBay website which, while small as a percentage of the Company's total transactions, are large in aggregate numbers. As a result, the Company has from time to time been contacted by various federal, state and local regulatory agencies and been told that they have questions with respect to the adequacy of the steps the Company takes to protect its users from fraud. For example, the City of New York-Department of Consumer Affairs received complaints from users about transactions on the Company's website. In investigating these complaints, the Department of Consumer Affairs requested information about the Company and these transactions. The Company has provided the requested information. The Company is likely to receive additional inquiries from regulatory agencies in the future, which may lead to action against it. The Company has responded to all inquiries from regulatory agencies by describing its current and planned antifraud efforts. If one or more of these agencies is not satisfied with its response to current or future inquiries, the resultant investigations and potential fines or other penalties could harm its business. See "Risk Factors—Government inquiries may lead to charges or penalties."

#### Privacy Policy

The Company believes that issues relating to privacy and use of personal information relating to Internet users are becoming increasingly important as the Internet and its commercial use grow. The Company has adopted a detailed privacy policy that outlines how eBay uses information concerning its users and the extent to which other registered eBay users may have access to this information. Users must acknowledge and agree to this policy when registering for the eBay service. The Company does not sell or rent any personally identifiable information about its users to any third party; however, the Company does disclose information to sellers and winning bidders that contains the seller's and winning bidder's name, email address and telephone number. The Company also will disclose all customer information in its possession (other than credit card information) to a law enforcement agency or member of the Legal Buddy Program which requests this information in connection with a civil, criminal or regulatory investigation. The Company also uses information about its users for internal purposes only in order to improve marketing and promotional efforts, to analyze website usage statistically, and to improve content, product offerings and website layout. eBay is a member of the TRUSTe program, a non-profit independent organization that audits websites' privacy statements and audits their adherence thereto.

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#### New and Existing Regulation of the Internet

The Company is subject to the same federal, state and local laws as other companies conducting business on the Internet. Today there are relatively few laws specifically directed towards online services. However, due to the increasing popularity and use of the Internet and online services, it is possible that laws and regulations will be adopted with respect to the Internet or online services. These laws and regulations could cover issues such as online contracts, user privacy, freedom of expression, pricing, fraud, content and quality of products and services, taxation, advertising, intellectual property rights and information security. Applicability to the Internet of existing laws governing issues such as property ownership, copyrights and other intellectual property issues, taxation, libel, obscenity and personal privacy is uncertain. In addition, numerous states, including the State of California, in which the Company's headquarters are located, have regulations regarding the manner in which "auctions" may be conducted and the liability of "auctioneers" in conducting such auctions. No legal determination has been made with respect to the applicability of the California regulations to the Company's business to date and little precedent exists in this area. One or more states may attempt to impose these regulations upon the Company in the future, which could harm the Company's business.

Several states have proposed legislation that would limit the uses of personal user information gathered online or require online services to establish privacy policies. The Federal Trade Commission also has recently started a proceeding with one online service regarding the manner in which personal information is collected from users and provided to third parties. Changes to existing laws or the passage of new laws intended to address these issues could directly affect the way the Company does business or could create uncertainty in the marketplace. This could reduce demand for the services of the Company or increase the cost of doing business as a result of litigation costs or increased service delivery costs, or could otherwise harm the Company's business. In addition, because the Company's services are accessible worldwide, and the Company facilitates sales of goods to users worldwide, foreign jurisdictions may claim that the Company is required to comply with their laws. In some jurisdictions, the Company will be required to collect value-added taxes on its fees. The Company's failure to comply with foreign laws could subject it to penalties ranging from fines to bans on the Company's ability to offer its services.

#### Employees

As of March 1, 1999, the Company had 179 employees. The Company has never had a work stoppage, and no employees are represented under collective bargaining agreements. The Company considers its relations with its employees to be good.

#### Facilities

As of March 24, 1999, the Company's principal administrative, marketing and product development facilities are located in approximately 53,000 square feet of office space in San Jose, California under leases and subleases that expire between December 1999 and November 30, 2004. In addition, the Company recently entered into a lease covering approximately 103,000 square feet in two buildings in the same office complex as its existing space. This lease expires on November 30, 2004, with a five-year renewal option. As a result of the Company's acquisition of Jump, the Company also has facilities in Cincinnati, Ohio. The Company believes that its existing facilities are adequate to meet its needs for the immediate future and that future growth can be accommodated by leasing additional or alternative space near its current facilities.

#### Legal Proceedings

On March 24, 1999 the Company was sued by Network Engineering Software, Inc. in the U.S. District Court for the Northern District of California for the Company's alleged willful and deliberate

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violation of a patent. The suit seeks unspecified monetary damages as well as an injunction against the Company operations. It also seeks treble damages and attorneys' fees and costs. The Company believes that it has meritorious defenses against this suit and intends to vigorously defend itself. The Company could be forced to incur material expenses during this defense and in the event it were to lose this suit, its business would be harmed. eBay is also subject to certain investigations. See "Risk Factors—Government inquiries may lead to charges or penalties."

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#### MANAGEMENT

##### Executive Officers and Directors

The following table sets forth certain information regarding the executive officers and directors of the Company as of March 1, 1999:

| Name                      | Age | Position  |
|---------------------------|-----|---|
| Pierre M. Omidyar.....    | 31  | Founder, Chairman of the Board and a director                 |
| Margaret C. Whitman.....  | 42  | President, Chief Executive Officer and a director             |
| Gary F. Bengier.....      | 44  | Chief Financial Officer and Vice President Operations         |
| Michael R. Jacobson.....  | 44  | Vice President, Legal Affairs, General Counsel and Secretary  |
| Jeffrey S. Skoll.....     | 34  | Vice President Strategic Planning and Analysis                |
| Brian T. Swette.....      | 45  | Senior Vice President of Marketing and International          |
| Steven P. Westly.....     | 42  | Vice President Marketing and Business Development             |
| Michael K. Wilson.....    | 41  | Senior Vice President Product Development and Site Operations |
| Scott D. Cook (1).....    | 46  | Director  |
| Robert C. Kagle (1)(2)... | 43  | Director  |
| Howard D. Schultz (2)...  | 45  | Director  |

(1) Member of the Audit Committee.

(2) Member of the Compensation Committee.

Pierre M. Omidyar founded eBay as a sole proprietorship in September 1995. He has been a director and Chairman of the Board since eBay's incorporation in May 1996 and also served as its Chief Executive Officer, Chief Financial Officer and President from inception to February 1998, November 1997 and August 1996, respectively. Prior to founding eBay, Mr. Omidyar was a developer services engineer at General Magic, a mobile communication platform company from December 1994 to July 1996. Mr. Omidyar co-founded Ink Development Corp. ("Ink") (later renamed eShop) in May 1991 and served as a software engineer there from May 1991 to September 1994. Prior to co-founding Ink, Mr. Omidyar was a developer for Claris, a subsidiary of Apple Computer, and for other Macintosh-oriented software development companies. Mr. Omidyar holds a B.S. degree in Computer Science from Tufts University.

Margaret C. Whitman has served as President and Chief Executive Officer of eBay since February 1998 and a director since March 1998. From January 1997 to February 1998, she was General Manager of the Preschool Division of Hasbro Inc., a toy company. From February 1995 to December 1996, Ms. Whitman was employed by FTD, Inc., a floral products company, most recently as President, Chief Executive Officer and a director. From October 1992 to February 1995, Ms. Whitman was employed by The Stride Rite Corporation, in various capacities, including President, Stride Rite Children's Group and Executive Vice President, Product Development, Marketing & Merchandising, Keds Division. From May 1989 to October 1992, Ms. Whitman was employed by The Walt Disney Company ("Disney"), an entertainment company, most recently as Senior Vice President, Marketing, Disney Consumer Products. Before joining Disney, Ms. Whitman was at Bain & Co., a consulting firm, most recently as a Vice President. Ms. Whitman currently serves on the board of directors of Staples, Inc. Ms. Whitman holds an A.B. degree in Economics from Princeton University and an M.B.A. degree from the Harvard Business School.

Gary F. Bengier has served as Chief Financial Officer and Vice President Operations of eBay since November 1997. From February 1997 to October 1997, Mr. Bengier was Vice President and Chief Financial Officer of VxTreme, Inc., a developer of Internet video streaming products. Prior to that time, Mr. Bengier was Corporate Controller at Compass Design Automation, a publisher of electronic circuit design software, from February 1993 to February 1997. Mr. Bengier has also held senior

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financial positions at Kenetech Corp., an energy services company, and Qume Corp., a computer peripherals company, where he participated in numerous debt and equity financing transactions. Prior to joining Qume in 1989, Mr. Bengier spent six years at Bio-Rad Laboratories and held varied financial management roles. Mr. Bengier also spent several years as a management consultant for Touche Ross & Co. Mr. Bengier holds a B.B.A. degree in Computer Science and Operations Research from Kent State University and an M.B.A. degree from the Harvard Business School.

Michael R. Jacobson has served as eBay's Vice President, General Counsel and Secretary since August 1998. From 1986 to August 1998, Mr. Jacobson was a partner with the law firm of Cooley Godward LLP, specializing in securities law, mergers and acquisitions and other transactions. Mr. Jacobson holds an A.B. degree in Economics from Harvard College and a J.D. degree from Stanford Law School.

Jeffrey S. Skoll has served as eBay's Vice President Strategic Planning and Analysis since February 1998, its President from August 1996 to February 1998 and as a director from December 1996 to March 1998. From July 1995 to July 1996, Mr. Skoll served as Channel Marketing Manager for Knight-Ridder Information Inc., an online information services company and from September 1993 to July 1995 was a student at the Stanford Graduate School of Business. Prior to that time, Mr. Skoll was President of Skoll Engineering, a systems consulting firm that he founded, from September 1987 to August 1993. Mr. Skoll also co-founded Micros on the Move Ltd., a computer rentals company, as an adjunct to Skoll Engineering in 1990. Mr. Skoll holds a B.A.S.C. degree in Electrical Engineering from the University of Toronto and an M.B.A. degree from the Stanford Graduate School of Business.

Brian T. Swette has served as eBay's Senior Vice President of Marketing and International since August 1998. From 1981 to June 1998, Mr. Swette was employed by Pepsi-Cola Beverages, a global beverage company, in various capacities including Executive Vice President and Chief Marketing Officer—Global Beverages from March 1996 to June 1998, Executive Vice President Marketing—North America from September 1994 to March 1996, Senior Vice President and General Manager of New Business from February 1992 to September 1994, Senior Vice President Marketing and Strategy—North America from 1990 to 1991, Vice President North Latin America—General Manager from 1986 to 1989, Director of Marketing Planning and Development—Pepsi International from 1984 to 1986 and Country Manager—Brazil from 1981 to 1984. Before joining Pepsi-Cola Beverages, Mr. Swette worked in various capacities for Procter & Gamble from 1977 to 1981. Mr. Swette currently serves on the board of directors of J. Crew Apparel. Mr. Swette holds a B.S. degree in Economics from Arizona State University.

Steven P. Westly has served as eBay's Vice President Marketing and Business Development since August 1997. From July 1996 to August 1997, Mr. Westly was Vice President, Business Development of WhoWhere?, an Internet directory and Web-based email company. Prior to that time, Mr. Westly was Director of Sales for Netcom, an Internet service provider, from August 1995 to July 1996 and was Deputy Director of Office of Economic Development, City of San Jose, California, from April 1991 to August 1995. Before joining the Office of Economic Development, Mr. Westly served as President of Codd and Date International, a relational database consulting firm, from January 1990 to March 1992 and was the Managing Director of Bridgemere Capital, an investment banking firm, from 1987 to 1990. Mr. Westly holds a B.A. degree in History from Stanford University and an M.B.A. degree from the Stanford Graduate School of Business.

Michael K. Wilson has served as eBay's Senior Vice President Product Development and Site Operations since February 1999, and Vice President Product Development and Site Operations from January 1997 through January 1999. From October 1995 to January 1997, Mr. Wilson was Vice President of WELL Engaged, L.L.C., a wholly-owned subsidiary of The Well, a software company. Prior to that time, Mr. Wilson was an engineer for daVinci Time and Space, a television company, from February 1995 to October 1995, an engineer for eShop, a software company, from February 1992 to August 1994 and a Director of Mainframe Engineering for Neuron Data, an

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engineering company, from 1987 to 1991. Before joining Neuron Data, Mr. Wilson worked in several capacities at Oracle Corporation from 1983 to 1987, Chevron from 1979 to 1983, and Macy's from 1975 to 1979.

Scott D. Cook has served as a director of eBay since June 1998. Mr. Cook is the founder of Intuit Inc. ("Intuit") and has been a director of Intuit, a financial software developer, since March 1984 and its Chairman of the Board since March 1993. From March 1984 to April 1994, Mr. Cook served as President and Chief Executive Officer of Intuit. Mr. Cook also serves on the board of directors of Amazon.com. Mr. Cook holds a B.A. degree in Economics and Mathematics from the University of Southern California and an M.B.A. degree from the Harvard Business School.

Robert C. Kagle has served as a director of eBay since June 1997. Mr. Kagle has been a Member of Benchmark Capital Management Co., L.L.C. ("Benchmark"), the General Partner of Benchmark Capital Partners, L.P. and Benchmark Founders' Fund, L.P., since its founding in May 1995. Mr. Kagle also has been a General Partner of Technology Venture Investors since January 1984. Mr. Kagle holds a B.S. degree in Electrical and Mechanical Engineering from the General Motors Institute (renamed Kettering University in January 1998) and an M.B.A. degree from the Stanford Graduate School of Business.

Howard D. Schultz has served as a director of eBay since June 1998. Mr. Schultz is the founder of Starbucks Corporation ("Starbucks"), a provider of gourmet coffee, and has been its Chairman of the Board and Chief Executive Officer since its inception in 1985. From 1985 to June 1994, Mr. Schultz was also President of Starbucks. Mr. Schultz was the director of Retail Operations and Marketing for Starbucks Coffee Company, a predecessor to Starbucks from September 1982 to December 1985 and was the Chairman of the Board, Chief Executive Officer and President of Il Giornale Coffee Company, a predecessor to Starbucks, from January 1986 to July 1987. Mr. Schultz is also one of two founding members of Maveron LLC, a company providing advisory services to consumer-based businesses, and is one of two members of a limited liability company that serves as a general partner of its affiliated venture capital fund, Maveron Equity Partners, L.P. (together, "Maveron").

#### Board Composition

eBay's Board of Directors (the "Board") is divided into three classes, Class I, Class II and Class III, with each class serving staggered three-year terms. The Class I directors, currently Messrs. Cook and Kagle, will stand for re-election or election at the 1999 annual meeting of stockholders. The Class II directors, currently Messrs. Omidyar and Schultz, will stand for re-election or election at the 2000 annual meeting of stockholders and the Class III director, currently Ms. Whitman, will stand for re-election or election at the 2001 annual meeting of stockholders.

## Board Committees

The Audit Committee of the Board consists of Robert C. Kagle and Scott D. Cook. The Audit Committee reviews eBay's financial statements and accounting practices, makes recommendations to the Board regarding the selection of independent auditors and reviews the results and scope of the audit and other services provided by eBay's independent auditors. The Compensation Committee of the Board consists of Robert C. Kagle and Howard D. Schultz. The Compensation Committee makes recommendations to the Board concerning salaries and incentive compensation for eBay's officers and employees and administers eBay's employee benefit plans.

## Compensation Committee Interlocks and Insider Participation

None of the members of the Compensation Committee of the Board was at any time since the formation of the Company an officer or employee of the Company. No executive officer of the

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Company serves as a member of the board of directors or compensation committee of any entity that has one or more executive officers serving on the Company's Board or Compensation Committee.

## Director Compensation

Directors of the Company do not receive cash compensation for their services as directors but are reimbursed for their reasonable expenses for attending Board and Board committee meetings. In June 1998, Mr. Cook and Mr. Schultz were each granted an option to purchase 450,000 shares of Common Stock of the Company at an exercise price of \$3.11 per share in connection with their service on the Board. Such options were immediately exercisable. Prior to exercise, Mr. Schultz assigned the beneficial interest in his option to acquire 337,500 of these shares to his affiliate, Maveron (see Mr. Schultz's biography above). Mr. Schultz thereafter exercised his option to acquire 112,500 shares in exchange for a full recourse fifty-five month promissory note for \$350,000 at an interest rate of 8% per year. Interest on the note is payable annually and the principal is due on December 1, 2002. In addition, in June 1998, Mr. Schultz exercised, on behalf of Maveron, the assigned portion of the option to acquire the remaining 337,500 shares in exchange for \$1.05 million in cash. The shares of Common Stock received are subject to the Company's right of repurchase at termination of service at a repurchase price equal to the exercise price of the option that lapses as to 25% of the shares on the first anniversary of the date of grant and 2.08% each full succeeding month thereafter. Also in June 1998, Mr. Cook and Maveron each purchased an additional 321,750 shares of Common Stock at a price of \$3.11 per share for cash. The Company subsequently concluded that the fair market value of the Company's Common Stock on the date that the Company agreed to make the sale was \$3.78 and consequently recognized \$0.67 per share, or an aggregate \$429,000, as general and administrative expense in the year ended December 31, 1998.

In July 1998, the Board adopted, and in August 1998 the Company's stockholders approved, the Directors Plan and reserved a total of 600,000 shares of the Company's Common Stock for issuance thereunder. Members of the Board who are not employees of the Company, or any parent, subsidiary or affiliate of the Company, are eligible to participate in the Directors Plan. The option grants under the Directors Plan are automatic and nondiscretionary, and the exercise price of the options must be 100% of the fair market value of the Common Stock on the date of grant. Each eligible director will initially be granted an option to purchase 90,000 shares (an "Initial Grant") on the date such director first becomes a director (the "Effective Date"). At each Annual Meeting of the Company, each eligible director will automatically be granted an additional option to purchase 15,000 shares if such director has served continuously as a member of the Board since the date of such director's Initial Grant or, if such director was ineligible to receive an Initial Grant, since the Effective Date. In March 1999, the Board amended the Directors Plan to provide that no such grants would be made to eligible directors at the 1999 Annual Meeting. The Board is considering other changes to the Directors Plan in light of the proposed changes in the accounting for this type of plan. The term of such options is ten years, provided that they will terminate seven months following the date on which the director ceases to be a director of or a consultant to the Company (12 months if the termination is due to death or disability). All options granted under the Directors Plan will vest as to 25% of the shares on the first anniversary of the date of grant and as to 2.08% of the shares each month thereafter, provided the optionee continues as a member of the Board or as a consultant to the Company.

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## Executive Compensation

The following table shows compensation earned during fiscal 1997 and 1998 by eBay's Chairman of the Board, Chief Executive Officer and eBay's four most highly-compensated executive officers for fiscal 1998. These people are referred to as the "Named Officers." Mr. Omidyar was the Chief Executive Officer of the Company at December 31, 1997. In February 1998, Margaret C. Whitman was hired as the Company's Chief Executive Officer. Titles shown in the table are titles held as of December 31, 1998. The information in the table includes salaries, bonuses, stock options granted and other miscellaneous compensation. eBay has not granted stock appreciation rights or restricted stock awards and has no long-term compensation benefits other than stock options. No executive officer who held office at December 31, 1997 received total annual compensation in excess of \$100,000 in 1997.

### Summary Compensation Table

| Long-Term and Other Annual Compensation Compensation  |                 |                      |   |
|---|-----------------|----------------------|---|
| Number of Securities Fiscal Other Annual Underlying All Other Name and 1998 Principal Positions |                 |                      |   |
| Year  | Salary Bonus(1) | Compensation(2)      | Options Compensation  |
| Margaret C. Whitman.....  | 1998 \$145,833  | \$100,000            | \$1,500 7,200,000 \$34,894(3) President and Chief 1997 ---- Executive Officer |
| Pierre Omidyar.....   | 1998 96,000     | 25,000 --            | Founder and Chairman of 1997 65,446 ---- the Board                            |
| Steven P. Westly.....   | 1998 120,000    | 51,000 1,500 108,000 | Vice President Marketing 1997 N/A --- 2,376,000 and Business Development      |
| Gary F. Bengier.....  | 1998 125,000    | 25,000 1,500 --      | Chief Financial Officer 1997 N/A --- 1,575,000 and Vice President Operations  |
| Michael K. Wilson.....  | 1998 120,000    | 30,000 --            | Vice President Product 1997 N/A --- 2,700,000 Development and Site Operations |
| Jeffrey S. Skoll.....   | 1998 96,000     | 25,000 1,500 --      | Vice President, 1997 N/A ---- Strategic Planning and Analysis                 |

(1) All bonuses represent amounts paid in 1999 for services rendered in 1998, except for \$26,000 of the \$51,000 paid to Steven P. Westly which was paid in 1998 for services rendered in 1998.

(2) Represents matching contributions by the Company under its 401(k) Plan.

(3) Represents a reimbursement for relocation expenses paid to Margaret C. Whitman in 1998.

The following executive officers received grants of options in 1998 pursuant to the 1997 Stock Option Plan (the "1997 Plan").

#### Option Grants During 1998

Percentage of Total Number of Options Potential Realizable Value at Securities Granted to Assumed Annual Rates of Stock Price Underlying Employees Exercise Appreciation for Option Term(4) Options during Price Per Expiration

| Name                | Granted(1) | 1998(2) | Share(3) | Date      | 0%           | 5%           | 10%           |
|---------------------|------------|---------|----------|-----------|--------------|--------------|---------------|
| Margaret C. Whitman | 7,200,000  | 41.7%   | \$0.07   | 1/20/2008 | \$42,720,000 | \$69,888,248 | \$111,569,674 |
| Steven P. Westly    | 27,000     | 0.2     | 0.07     | 1/20/2008 | 160,200      | 262,081      | 418,386       |
|                     | 144,000    | 245,881 | 402,186  | 18,000    | 0.1          | 3.11         | 6/8/2008      |
|                     |            |         |          |           | 52,000       | 119,921      | 224,124       |

(1) Options granted in 1998 were granted under the 1997 Plan. All options granted were immediately exercisable and were either incentive stock options or nonqualified stock options. These options were granted by the Board and generally vest over four years at the rate of 25% of the shares subject to the option on the first vesting date specified in the Stock Option Agreement and 2.08% per month thereafter. Upon certain changes in control of the Company, this vesting schedule will accelerate as to all shares that are then unvested. Unvested shares are subject to the Company's right of repurchase upon termination of employment. Options expire ten years from the date of grant. In determining the fair market value of the Company's Common Stock on each grant date, the Board considered, among other things, the price of arms'-length sales of the Company's Common Stock and Series B Preferred Stock, the Company's absolute and relative levels of revenues and other operating results, the state of the Company's website development, the entry into the Company's market of certain potentially significant competitors and the appreciation of stock values of a number of generally comparable Internet companies. See "Employee Benefit Plans" and "Compensation Arrangements" for a description of the material terms of these options.

(2) Based on options granted to purchase 17,286,756 shares of Common Stock of the Company during 1998.

(3) Options were granted at an exercise price equal to the fair market value of the Company's Common Stock, as determined by the Board of Directors on the date of grant.

(4) Potential realizable values are computed by multiplying the number of shares of Common Stock subject to a given option by the initial public offering price of \$6.00 per share, assuming that the aggregate stock value derived from that calculation compounds at the annual 0%, 5% or 10% rate shown in the table for the entire ten-year term of the option and subtracting from that result the aggregate option exercise price. The 5% and 10% assumed annual rates of stock price appreciation are mandated by the rules of the Securities and Exchange Commission and do not represent the Company's estimate or projection of future Common Stock prices.

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The following table sets forth the number of shares acquired and the value realized upon exercise of stock options during 1998 and the number of shares of Common Stock subject to exercisable and unexercisable stock options held as of December 31, 1998 by each of the Named Officers. Value at fiscal year end is measured as the difference between the exercise price and the fair market value at close of market on December 31, 1998, which was \$80.42.

#### Aggregate Option Exercises in 1998 and Values at December 31, 1998

Number of Securities Underlying Value of Unexercised Number of Unexercised Options at In-the-Money Options at Shares December 31, 1998 December 31, 1998 Acquired on Value

| Name                | Exercise(1) | Realized(2) | Exercisable(4) | Unexercisable(4) | Exercisable(\$) | Unexercisable(\$) |
|---------------------|-------------|-------------|----------------|------------------|-----------------|-------------------|
| Margaret C. Whitman | 7,200,000   | (3)         | \$42,720,000   | --               | \$ --           | \$ --             |
| Steven P. Westly    | 2,484,000   | (4)         | 14,741,000     | ----             |                 |                   |
| Gary F. Bengier     | 1,575,000   | (5)         | 9,397,500      | ----             |                 |                   |
| Michael K. Wilson   | 1,800,000   | (6)         | 10,788,000     | 262,500          | 637,500         | 21,107,625        |
| Jeffrey S. Skoll    | -----       |             |                |                  |                 | 51,261,375        |

(1) Except as otherwise noted, all of the shares acquired were unvested as of December 31, 1998 and subject to the Company's right of repurchase upon termination of employment at a price equal to the exercise price of the option pursuant to which the shares were acquired.

(2) Based on the initial public offering price per share of \$6.00, minus the per share exercise price, multiplied by the number of shares issued upon exercise of the option.

(3) As of December 31, 1998, 90,000 shares of the 7,200,000 shares acquired

- were vested and 7,110,000 shares were unvested and subject to the Company's right of repurchase upon termination of employment.
- (4) As of December 31, 1998, 792,000 shares of the 2,484,000 shares acquired were vested and 1,692,000 shares were unvested and subject to the Company's right of repurchase upon termination of employment.
- (5) As of December 31, 1998, 426,563 shares of the 1,575,000 shares acquired were vested and 1,148,437 shares were unvested and subject to the Company's right of repurchase upon termination of employment.
- (6) As of December 31, 1998, 862,500 shares of the 1,800,000 shares acquired were vested and 937,500 shares were unvested and subject to the Company's right of repurchase upon termination of employment.

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#### Compensation Arrangements

Ms. Whitman's employment offer letter of January 16, 1998 provides for an initial annual base salary of \$175,000 and an initial bonus of up to \$100,000. It also provides that, in the event Ms. Whitman's employment is terminated for any reason other than cause, she will continue to receive her salary compensation for six months and, if at the end of such period Ms. Whitman remains unemployed, she will be eligible to receive additional salary compensation for the lesser of six months or until she becomes employed. Ms. Whitman was also granted an immediately exercisable option to purchase 7,200,000 shares of Common Stock. As described under "Certain Transactions," in February 1998 Ms. Whitman exercised this option. The shares issued to her remain subject to the Company's right to repurchase "unvested" shares upon the termination of her employment. This right to repurchase lapsed with respect to 1,800,000 shares as of March 1, 1999 and will lapse with respect to 150,000 shares at the end of each month thereafter.

Mr. Bengier's employment offer letter of September 15, 1997 provides for an initial annual base salary of \$125,000. Mr. Bengier was also granted an immediately exercisable option to purchase 1,575,000 shares of Common Stock at an exercise price of \$0.03 per share, which he exercised in full in January 1998. The shares are subject to the Company's right to repurchase unvested shares upon termination of employment, which right lapsed as to 393,750 shares in September 1998 and will lapse with respect to 32,813 shares at the end of each month thereafter.

Mr. Westly's employment offer letter of August 8, 1997 provides for an initial annual base salary of \$120,000 and a \$25,000 signing bonus. Mr. Westly was also granted immediately exercisable options to purchase 2,484,000 shares (2,376,000 shares on employment and an additional 108,000 shares during his first year of employment) of Common Stock at a weighted average exercise price of \$0.07 per share, which he exercised in full in January, May and June 1998 subject to the Company's right to repurchase unvested shares upon termination of employment, which lapses at a rate of 25% of the shares originally subject to the option on the first anniversary of his employment or the date of grant, depending on the option, and one forty-eighth of the shares at the end of each month thereafter. During his first year of employment, Mr. Westly received an additional \$30,000 bonus.

Mr. Wilson's employment offer letter of December 9, 1996 provides for an initial annual base salary of \$78,000. Mr. Wilson was also granted an immediately exercisable option to purchase 1,800,000 shares of Common Stock at an exercise price of \$0.01 per share, which he exercised in full in January 1998 subject to the Company's right to repurchase unvested shares upon termination of employment, which lapsed as to 450,000 shares in December 1997 and will lapse with respect to 37,500 shares at the end of each month thereafter. During his first year of employment, Mr. Wilson received an additional option to purchase 900,000 shares of Common Stock at an exercise price of \$0.03 per share.

Mr. Skoll's employment offer letter of October 16, 1996 provides for an initial annual salary of \$30,000 and a 30-day right to purchase the 30,600,000 shares of Common Stock that he currently owns subject to the Company's right of repurchase through June 30, 2000. The right of repurchase lapsed with respect to seven forty-eighths of the total shares purchased on February 1, 1997 and will lapse with respect to an additional one forty-eighth of the shares on the first day of each month thereafter. In the event of an acquisition of the Company or other similar transaction, the right of repurchase will expire with respect to all of the shares subject to the Company's right of repurchase.

Mr. Swette's employment offer letter of August 14, 1998 provides for an initial annual base salary of \$150,000 and a \$25,000 signing bonus. Mr. Swette was also granted an option to purchase 1,800,000 shares of Common Stock outside of the 1997 Plan at an exercise price of \$5 per share. These options vest with respect to 450,000 shares in August 1999 and with respect to 37,500 shares

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at the end of each month thereafter. In the event Mr. Swette's employment is terminated without cause prior to August 14, 1999, such option will vest at a rate of 37,500 shares per month from August 14, 1998 through the termination date.

Mr. Jacobson's employment offer letter of August 20, 1998 provides for an initial annual base salary of \$150,000 and a \$50,000 signing bonus. Mr. Jacobson was also granted options to purchase an aggregate of 750,006 shares of Common Stock under the Company's 1997 Plan at an exercise price of \$5 per share. The first option for 45,000 shares vested in full on January 24, 1999. The second option for 705,006 shares vests with respect to 176,252 shares on August 24, 1999 and with respect to 14,687 shares at the end of each month thereafter (14,565 shares for September through December 1999), provided, however, that in the event Mr. Jacobson's employment is terminated without cause prior to August 24, 1999, such option will vest at a rate of 14,687 shares per month from August 24, 1998 through the termination date.

#### Indemnification of Directors and Executive Officers and Limitation of Liability

Section 145 of the Delaware General Corporation Law authorizes a court to award, or a corporation's board of directors to grant indemnity to directors and officers in terms sufficiently broad to permit such indemnification under certain circumstances for liabilities (including reimbursement for expenses incurred) arising under the Securities Act.

As permitted by the Delaware General Corporation Law, the Company's Amended and Restated Certificate of Incorporation includes a provision that eliminates the personal liability of its directors for monetary damages for breach of fiduciary duty as a director, except for liability (1) for any breach of the director's duty of loyalty to the Company or its stockholders, (2) for acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law, (3) under section 174 of the Delaware General Corporation Law (regarding unlawful dividends and stock purchases) or (4) for any transaction from which the director derived an improper personal benefit.

As permitted by the Delaware General Corporation Law, the Company's Amended and Restated Bylaws provide that (1) the Company is required to indemnify its directors and officers to the fullest extent permitted by the Delaware General Corporation Law, subject to certain very limited exceptions, (2) the Company is required to indemnify its other employees to the extent that it indemnifies its officers and directors, unless otherwise required by law, its Amended and Restated Certificate of Incorporation, its Amended and Restated Bylaws or agreements, (3) the Company is required to advance expenses, as incurred, to its directors and officers in connection with a legal proceeding to the fullest extent permitted by the Delaware General Corporation Law, subject to certain very limited exceptions, and (4) the rights conferred in the Amended and Restated Bylaws are not exclusive.

The Company has entered into Indemnity Agreements with each of its current directors and officers to give such directors and officers additional contractual assurances regarding the scope of the indemnification set forth in the Company's Amended and Restated Certificate of Incorporation and Amended and Restated Bylaws and to provide additional procedural protections. At present, there is no pending litigation or proceeding involving a director, officer or employee of the Company regarding which indemnification is sought, nor is the Company aware of any threatened litigation that may result in claims for indemnification.

The Company has obtained directors' and officers' liability insurance.

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#### CERTAIN RELATED PARTY TRANSACTIONS

Since inception (May 13, 1996), there has not been, nor is there currently proposed, any transaction or series of similar transactions to which the Company was or is to be a party in which the amount involved exceeds \$60,000 and in which any director, executive officer or holder of more than 5% of the Common Stock of the Company had or will have a direct or indirect interest other than (1) compensation arrangements, which are described where required under "Management," and (2) the transactions described below.

**Common Stock at Formation.** Pursuant to a Stock Purchase and Restriction Agreement dated May 20, 1996, the Company sold an aggregate of 44,100,000 shares of Common Stock to Pierre M. Omidyar, the Company's founder. Mr. Omidyar has served as a director of the Company since its inception and was the Company's Chief Executive Officer from its inception until February 1998. In consideration for the shares issued, Mr. Omidyar transferred to the Company cash of \$10,167 and accounts receivable valued at \$4,095. Of the 44,100,000 shares, 13,500,000 were subsequently exchanged for shares of the Company's Series A Preferred Stock as discussed below.

All of Mr. Omidyar's remaining 30,600,000 shares of Common Stock are subject to a Stock Restriction Agreement dated December 12, 1996 between Mr. Omidyar and the Company (the "Stock Restriction Agreement") and a Stock Restriction and Co-Sale Agreement dated as of June 20, 1997 among Benchmark Capital Partners, L.P. and Benchmark Founders' Fund, L.P. (collectively, the "Investors"), Pierre Omidyar and Jeffrey Skoll (collectively, the "Founders") and the Company (the "Co-Sale Agreement"). Under the Stock Restriction Agreement, all of the 30,600,000 shares of Common Stock are subject to the Company's right to repurchase unvested shares if Mr. Omidyar's employment terminates. The 30,600,000 shares vested as to 10,837,503 shares on February 1, 1997 and vest as to 637,500 shares on the first day of each month thereafter through the close of business on September 1, 1999, at which time all of the shares will be vested. The vesting of shares accelerates such that any unvested shares become fully vested in the event of a sale of the Company, which includes a sale, lease or disposition of substantially all of the Company's assets, any merger or consolidation of the Company into another entity, or any other corporate reorganization where the stockholders immediately prior to such event do not retain at least 50% of the voting power of and interest in the successor entity or any transaction or series of related transactions in which more than 50% of the Company's voting power is transferred ("Sale of the Company"). In addition to the foregoing, under the Co-Sale Agreement, the vesting of shares will accelerate upon termination of employment, such that immediately prior to such termination an additional 3,825,000 shares will become vested and not subject to repurchase by the Company. See "Principal and Selling Stockholders."

**Series A Preferred Stock and Recapitalization.** In December 1996, the Company created a class of Preferred Stock and designated 1,500,000 shares of such Preferred Stock as Series A Preferred Stock, all of which stock the Company issued to Mr. Omidyar in exchange for 13,500,000 shares of his Common Stock. In June 1997, pursuant to an Anti-Dilution Agreement dated December 30, 1996 between the Company, Pierre Omidyar and Jeffrey Skoll, Mr. Omidyar's Series A Preferred Stock holdings were increased to 1,676,475 shares. Upon completion of the Company's initial public offering in September 1998, all of the Series A Preferred Stock was automatically converted to 15,088,275 shares of Common Stock.

In December 1996, pursuant to a Restricted Stock Purchase Agreement dated December 12, 1996 between the Company and Mr. Skoll ("Restricted Stock Agreement"), the Company sold 30,600,000 shares of its Common Stock to Mr. Skoll at a purchase price of \$0.0022 per share or an aggregate of \$68,000, which price was determined by the Board to be the fair market value of the Common Stock. Mr. Skoll, the first full-time employee of the Company and its President from August 1996 to February 1998, has served as the Company's Vice President Strategic Planning and

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Analysis since February 1998. Mr. Skoll acquired the shares of Common Stock with the proceeds from a full recourse loan governed by a Loan and Pledge Agreement between Mr. Skoll and the Company. Under such agreement, Mr. Skoll must repay the entire principal of the loan by December 31, 2002 and pay interest, which accrues at the rate of 6% per year, simple interest, on the first anniversary of the exercise date and on each subsequent anniversary until all principal and accrued interest are paid in full. Mr. Skoll paid off the full principal and accrued interest on the loan, \$75,411, on November 2, 1998.

All of Mr. Skoll's shares of Common Stock are subject to the Restricted Stock Agreement. Under the Restricted Stock Agreement, Mr. Skoll's shares of Common Stock are subject to the Company's right to repurchase unvested shares if his employment terminates. His shares vested as to 4,462,497 shares on February 1, 1997 and vest as to 637,500 shares on the first day of each month thereafter through the close of business on June 30, 2000, at which time all of the shares will be vested. The vesting of shares accelerates such that any unvested shares become fully vested in the event of a Sale of the Company. In addition to the foregoing, under the Co-Sale Agreement, the vesting of shares will accelerate upon termination of employment, such that immediately prior to such termination an additional 3,825,000 shares will become vested and not subject to repurchase by the Company. See "Principal and Selling Stockholders."

**Series B Preferred Stock.** In June 1997, the Company sold an aggregate of 877,374 and 122,626 shares of Series B Preferred Stock at a purchase price of \$3.00 per share and issued warrants to purchase 350,950 and 49,050 shares of Series B Preferred Stock at an exercise price of \$5.00 per share to Benchmark Capital Partners, L.P. and Benchmark Founders' Fund, L.P., respectively, for an aggregate purchase price of \$3,000,000, which amount was paid in cash. Benchmark Capital Partners, L.P. and Benchmark Founders' Fund, L.P. each exercised all of their warrants in May 1998 for an aggregate purchase price of \$2,000,000, which amount was paid in cash. Upon completion of the Company's initial public offering in September 1998, all of the Series B Preferred Stock was automatically converted to an aggregate of 12,600,000 shares of Common Stock. See "Principal and Selling Stockholders."

**Investor Rights Agreement.** In June 1997, the Company, the Investors and the Founders entered into an Investor Rights Agreement under which the Investors and Founders have certain registration rights with respect to their shares of Common Stock. See "Description of Capital Stock—Registration Rights."

**Officer Loans.** In December 1996, as discussed above, Mr. Skoll purchased 30,600,000 shares of the Company's Common Stock for \$68,000 under the terms of a Loan and Pledge Agreement effective as of December 1996 between Mr. Skoll and the Company. From January 1998 through June 1998, in connection with the exercise of stock options granted under the 1996 Plan and the 1997 Plan, the Company permitted Margaret C. Whitman, the Company's President and Chief Executive Officer since February 1998, to purchase 7,200,000 shares of Common Stock in exchange for a \$60,000 cash payment, a \$180,000 Secured Full Recourse Promissory Note dated February 3, 1998 and a \$240,000 Secured Non-Recourse Promissory Note dated February 3, 1998; Steven P. Westly, the Company's Vice President Marketing and Business Development since August 1997, to purchase 2,484,000 shares of Common Stock in exchange for cash payments totaling \$17,920 and Secured Full Recourse Promissory Notes dated January 27, 1998, May 21, 1998, May 26, 1998 and June 26, 1998 in the amounts of \$71,280, \$16,200, \$7,200 and \$50,400, respectively; Michael K. Wilson, the Company's Vice President Product Development and Site Operations since January 1997, to purchase 1,800,000 shares of Common Stock in exchange for a \$1,000 cash payment and a Secured Full Recourse Promissory Note dated January 28, 1998 in the amount of \$9,000 and Gary F. Bengier, the Company's Chief Financial Officer and Vice President Operations since November 1997, to purchase 1,575,000 shares of Common Stock in exchange for a \$5,250 cash

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payment and a Secured Full Recourse Promissory Note dated January 26, 1998 in the amount of \$47,250. Each note is secured by the Common Stock purchased with the note except for Ms. Whitman's notes which are each secured by all the shares purchased with both the full recourse and the non-recourse notes. Each note bears interest at the rate of 8%, compounded semi-annually. Interest on the unpaid principal is due on December 1 of each year and the principal balance is due in full on December 1, 2002. The maximum amount of indebtedness during 1998 for Ms. Whitman, Mr. Westly and Mr. Wilson was \$447,501, \$152,629 and \$9,488 respectively. Ms. Whitman, Mr. Westly, Mr. Bengier and Mr. Wilson have paid off the full principal and accrued interest on his or her respective notes on, respectively, January 27, 1999, December 1, 1998, December 23, 1998 and March 15, 1999. See "Principal and Selling Stockholders."

**Stock to Service Provider.** In connection with the recruiting of its Chief Executive Officer, the Company engaged the services of Ramsey Beirne Associates, Inc., an executive search firm affiliated with Benchmark Capital Partners, L.P. and Benchmark Founders' Fund, L.P. As partial payment for its services, on March 13, 1998 the Company issued to this firm 15,416 shares of Series B Preferred Stock, which was valued at \$6.00 per share. This stock converted at the Company's initial public offering into 138,744 shares of Common Stock.

**eBay Foundation.** In June 1998, the Company established a fund known as the eBay Foundation, which is administered by the Community Foundation Silicon Valley, and donated 321,750 shares of Common Stock to the Community Foundation Silicon Valley on behalf of the eBay Foundation. The Community Foundation Silicon Valley sold 32,175 shares of eBay Common Stock in conjunction with eBay's initial public offering.

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#### PRINCIPAL AND SELLING STOCKHOLDERS

The following table sets forth certain information known to the Company with respect to beneficial ownership of the Company's Common Stock as of March 1, 1999 by (1) each stockholder known by the Company to be the beneficial owner of more than 5% of the Company's Common Stock, (2) each director of the Company, (3) the Named Executive Officers, (4) all executive officers and directors as a group and (5) the selling stockholders.

| Shares Beneficially Owned Shares Prior to Beneficially Owned Offering(1) Shares After Offering(1) |            |                 |         | Being                                     |
|---|------------|-----------------|---------|---|
| Name  | Number     | Percent Offered | Number  | Percent                                   |
| Pierre M. Omidyar(2)  | 37,600,521 | 31.2%           | 790,000 | 36,810,521 29.4%                          |
| Jeffrey S. Skoll(3)   | 22,782,246 | 18.9            | 421,000 | 22,361,246 17.9                           |
| Robert C. Kagle   | 17,862,447 | 14.8            | 88,000  | 17,774,447 14.2 Benchmark Funds(4)        |
| Margaret C. Whitman(5)  | 7,137,000  | 5.9             | 211,000 | 6,926,000 5.5                             |
| Steven P. Westly(6)   | 2,484,000  | 2.1             | 85,000  | 2,399,000 1.9                             |
| Gary F. Bengier(7)  | 1,575,000  | 1.3             | 70,000  | 1,505,000 1.2                             |
| Michael K. Wilson(8)  | 2,137,500  | 1.8             | 85,000  | 2,052,500 1.6                             |
| Scott D. Cook(9)  | 771,750    | *               | 29,292  | 742,458 *                                 |
| Howard D. Schultz(10)   | 816,750    | *               | —       | 572,985 *                                 |
| Michael R. Jacobson(11)   | 45,000     | *               | 25,000  | 20,000 *                                  |
| All directors and executive officers as a group (11 persons)(12)                                  |            |                 |         | 93,212,214 77.2 1,804,292 91,407,922 72.9 |
| David M. Beirne(13)   | 17,620,548 | 14.6            | 88,000  | 17,532,548 14.0                           |
| Bruce W. Dunlevie(13)   | 17,837,154 | 14.8            | 88,000  | 17,749,154 14.2                           |
| Kevin R. Harvey(13)   | 17,862,447 | 14.8            | 88,000  | 17,774,447 14.2                           |
| Andrew S. Rachleff(13)  | 17,837,154 | 14.8            | 88,000  | 17,749,154 14.2                           |
| Maveron(10)   | 659,250    | *               | 45,000  | 337,500 *                                 |
| eBay Foundation(14)   | 289,575    | *               | 33,000  | 256,575 *                                 |
| David Ostby   | 6,426      | *               | 6,426   | — *                                       |
| Laure Kehler  | 4,426      | *               | 3,426   | 1,000 *                                   |
| Kehler Charitable Remainder Trust   |            |                 | 2,000   | 2,000 — *                                 |
| Sharon Fahrney  | 6,426      | *               | 3,856   | 2,570 *                                   |

(1) Beneficial ownership is determined in accordance with the rules of the Securities and Exchange Commission and generally includes voting or investment power with respect to securities. Unless otherwise indicated below, the persons and entities named in the table have sole voting and sole investment power with respect to all shares beneficially owned, subject to community property laws where applicable. Shares of Common Stock subject to options that are currently exercisable or exercisable within 60 days of March 1, 1999 are deemed to be outstanding and to be beneficially owned by the person holding such options for the purpose of computing the percentage ownership of such person but are not treated as



outstanding for the purpose of computing the percentage ownership of any other person. The percentage of beneficial ownership is based on 120,817,222 shares of Common Stock outstanding as of March 1, 1999 and an assumed 125,092,222 shares of Common Stock outstanding after the completion of this offering.

- (2) Mr. Omidyar is the Founder and Chairman of the Board of the Company. As of March 1, 1999, 33,775,521 shares of the 37,600,521 shares he beneficially owned were vested and 3,825,000 were unvested and subject to the Company's right of repurchase at their original purchase price of \$0.0022 per share. See "Certain Transactions" and "Description of Capital Stock." The address for Mr. Omidyar is 2005 Hamilton Avenue, Suite 350, San Jose, California 95125.

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- (3) Mr. Skoll is the Vice President Strategic Planning and Analysis of the Company. As of March 1, 1999, 12,582,246 shares of the 22,782,246 he beneficially owned were vested and 10,200,000 were unvested and subject to the Company's right of repurchase at their original purchase price of \$0.0022 per share. See "Certain Transactions" and "Description of Capital Stock." The address for Mr. Skoll is 2005 Hamilton Avenue, Suite 350, San Jose, California 95125.
- (4) Includes 15,244,821 shares held by Benchmark Capital Partners, L.P. and 2,130,687 shares held by Benchmark Founders' Fund, L.P. (collectively, the "Benchmark Funds"). Mr. Kagle, a director of the Company, is a Member of Benchmark Capital Management Co., L.L.C., which is the General Partner of Benchmark Capital Partners, L.P. and Benchmark Founders' Fund, L.P. Mr. Kagle disclaims beneficial ownership of shares held by such entities except for his proportional interest therein. The address for Mr. Kagle and these entities is c/o Benchmark Capital Management Co., L.L.C., 2480 Sand Hill Road, Suite 200, Menlo Park, California 94025.
- (5) Ms. Whitman is the President and Chief Executive Officer of the Company. As of March 1, 1999, 1,710,000 shares of the 7,110,000 shares she beneficially owned were vested and 5,400,000 shares were unvested and subject to the Company's right of repurchase at their original purchase price of \$0.067 per share. Includes 27,000 shares held by Ms. Whitman's husband as custodian for her two children. The address for Ms. Whitman is 2005 Hamilton Avenue, Suite 350, San Jose, California 95125.
- (6) Mr. Westly is the Vice President Marketing and Business Development of the Company. As of March 1, 1999, 898,312 shares of the 2,484,000 shares he beneficially owned were vested and 1,585,688 shares were unvested and subject to the Company's right of repurchase at their original purchase price. The original purchase prices of Mr. Westly's unvested shares are: \$0.033 (1,485,000 shares); \$0.067 (19,688 shares); \$0.22 (36,000 shares); \$0.67 (27,000 shares); and \$3.11 (18,000 shares). The address for Mr. Westly is 2005 Hamilton Avenue, Suite 350, San Jose, California 95125.
- (7) Mr. Bengier is the Chief Financial Officer and Vice President Operations of the Company. As of March 1, 1999, 492,187 shares of the 1,575,000 shares he beneficially owned were vested and 1,082,813 shares were unvested and subject to the Company's right of repurchase at their original purchase price of \$0.033 per share. The address for Mr. Bengier is 2005 Hamilton Avenue, Suite 350, San Jose, California 95125.
- (8) Mr. Wilson is the Senior Vice President Product Development and Site Operations of the Company. As of March 1, 1999, 937,500 shares of the 1,800,000 shares he beneficially owned were vested and 862,500 shares were unvested and subject to the Company's right of repurchase at their original purchase price of \$0.0057 per share. Also includes 337,500 shares subject to options vesting within 60 days of March 1, 1999. The address for Mr. Wilson is 2005 Hamilton Avenue, Suite 350, San Jose, California 95125.
- (9) Includes 450,000 shares subject to an immediately exercisable option outstanding at March 1, 1999. See "Management—Director Compensation." The address for Mr. Cook is 2550 Garcia Avenue, M.S. 2475, Mountain View, California 94043.
- (10) Mr. Schultz's shares prior to the offering include (a) 321,750 shares acquired by Maveron Equity Partners, L.P., a limited partnership in which Mr. Schultz is a member of the general partner and (b) 450,000 shares issued upon exercise of an option that are subject to the Company's right of repurchase at their original purchase price of \$3.11 per share. Of these latter 450,000 shares, 337,500 shares were transferred to Maveron related entities. Prior to the offering, the former 321,750 shares acquired by Maveron will be distributed pro rata among its limited partners, some of which will sell shares in this offering. The number of shares reflected as beneficially owned by Mr. Schultz and Maveron after the offering reflects this distribution of shares based on certain valuation assumptions for the shares at the time of the distribution. See "Management—Director Compensation." The address for Mr. Schultz is 2401

Utah Ave. South, Seattle, Washington, 98134. The address for Maveron is 800 Fifth Avenue, Suite 4100, Seattle, Washington 98104.

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- (11) Mr. Jacobson is the Vice President, Legal Affairs, General Counsel and Secretary of the Company. All of these shares represent a fully vested option for such shares as of March 1, 1999, of which a portion will be exercised and sold in connection with this offering. The address for Mr. Jacobson is 2005 Hamilton Avenue, Suite 350, San Jose, California 95125.
- (12) Includes the shares described in footnotes (2)-(11).
- (13) Includes 15,244,821 shares held by Benchmark Capital Partners, L.P. and 2,130,687 shares held by Benchmark Founders' Fund, L.P. (collectively, the "Benchmark Funds"). Messrs. Beirne, Dunlevie, Harvey and Rachleff are each members of Benchmark Capital Management Co., L.L.C., which is the General Partner of Benchmark Capital Partners, L.P. and Benchmark Founders' Fund, L.P. Each of Messrs. Beirne, Dunlevie, Harvey and Rachleff disclaims beneficial ownership of shares held by such entities except for his proportional interest therein. The address for these stockholders is c/o Benchmark Capital Management Co., L.L.C., 2480 Sand Hill Road, Suite 200, Menlo Park, California 94025.
- (14) In June 1998, the Company established a fund known as the eBay Foundation, which is administered by the Community Foundation Silicon Valley. To capitalize this foundation, the Company donated 321,750 shares to the Community Foundation Silicon Valley (the "Foundation"), of which 32,175 shares had been sold by the Foundation as of March 1, 1999.

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#### DESCRIPTION OF CAPITAL STOCK

The authorized capital stock of the Company consists of 195,000,000 shares of Common Stock, \$0.001 par value per share, and 5,000,000 shares of Preferred Stock, \$0.001 par value per share. The Board of Directors is contemplating recommending to its stockholders an increase in the number of authorized shares of its Common Stock to 900,000,000 and shares of its Preferred Stock to 10,000,000. As of March 1, 1999, there were outstanding 120,817,222 shares of Common Stock held by approximately 500 stockholders of record and options to purchase 9,888,294 shares of Common Stock.

##### Common Stock

Subject to preferences that may apply to shares of Preferred Stock outstanding at the time, the holders of outstanding shares of Common Stock are entitled to receive dividends out of assets legally available therefor at such times and in such amounts as the Board of Directors may from time to time determine. Each stockholder is entitled to one vote for each share of Common Stock held on all matters submitted to a vote of stockholders. Cumulative voting for the election of directors is not provided for in the Company's Amended and Restated Certificate of Incorporation, which means that the holders of a majority of the shares voted can elect all of the directors then standing for election. The Common Stock is not entitled to preemptive rights and is not subject to conversion or redemption. Upon a liquidation, dissolution or winding-up of the Company, the assets legally available for distribution to stockholders are distributable ratably among the holders of the Common Stock and any participating Preferred Stock outstanding at that time after payment of liquidation preferences, if any, on any outstanding Preferred Stock and payment of other claims of creditors. Each outstanding share of Common Stock is, and all shares of Common Stock to be outstanding upon completion of this offering will be, fully paid and nonassessable.

##### Preferred Stock

The Company is authorized, subject to limitations prescribed by Delaware law, to provide for the issuance of Preferred Stock in one or more series, to establish from time to time the number of shares to be included in each such series, to fix the rights, preferences and privileges of the shares of each wholly unissued series and any qualifications, limitations or restrictions thereon, and to increase or decrease the number of shares of any such series (but not below the number of shares of such series then outstanding) without any further vote or action by the stockholders. The Board may authorize the issuance of Preferred Stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of the Common Stock. The issuance of Preferred Stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in control of the Company and may adversely affect the market price of the Common Stock and the voting and other rights of the holders of Common Stock. The Company has no current plans to issue any shares of Preferred Stock.

##### Registration Rights

Pursuant to an Investor Rights Agreement dated June 20, 1997 between the Company, the Founders and the Investors (the "Rights Agreement"), the Founders and the Investors have certain registration rights for the 59,171,767 and 17,774,447 shares of Common Stock, respectively, held by them after the completion of this offering (the "Registrable Securities"), at any time. Under the Rights Agreement, the Investors, by written request of at least two-thirds of the holders of the Investors' Registrable Securities then outstanding, may demand that the Company file a registration statement under the Securities Act covering all or a portion of the Investors' Registrable Securities, provided that, in the case of a registration on a form other than a Form S-3, the offering is for at least 50% of the then outstanding Investors' Registrable Securities, or in the case of a registration on a Form S-3,

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there is a reasonably anticipated aggregate offering price to the public of at least \$1,000,000. The Investors have the right to demand two registrations on a form other than Form S-3 and not more than one Form S-3 registration in any six-month period. These registration rights are subject to the Company's right to delay the filing of a registration statement, not more than once in a 12-month period, for not more than 90 days, in the case of a registration on a form other than a Form S-3, and 60 days, in the case of a registration on a Form S-3, after receiving the registration demand.

In addition, the Investors and Founders have certain "piggyback" registration rights. If the Company proposes to register any of its Common Stock under the Securities Act (other than pursuant to the Investors' demand registration rights noted above), the Investors or Founders may require the

Company to include all or a portion of their Registrable Securities in such registration; provided, however, that the managing underwriter, if any, of any such offering has certain rights to limit the number of, or in the case of the Company's initial public offering, to exclude all or a portion of the Registrable Securities proposed to be included in such registration.

All registration expenses incurred in connection with the above registrations would be borne by the Company. The selling Investor or Founder would pay all underwriting discounts, selling commissions and stock transfer taxes applicable to the sale of his or its Registrable Securities.

Demand and piggyback registration rights under the Rights Agreement terminate with respect to each Investor or Founder, as applicable, on September 24, 2005; provided that each Investor's and Founder's rights under the Rights Agreement will terminate earlier when such Investor or Founder may sell all of its or his shares in a three-month period under Rule 144 under the Securities Act.

#### Put/Call Options on Common Stock

In June 1997, each Founder entered into a separate Loan and Pledge Agreement with the Investors under which he obtained a full recourse loan of \$750,000, of which \$658,030 was made by Benchmark Capital Partners, L.P. and \$91,970 was made by Benchmark Founders' Fund, L.P. Each Founder secured his loan with a pledge of 6,887,754 shares of Common Stock for an aggregate of 13,775,508 shares, of which 12,086,271 shares were pledged to Benchmark Capital Partners, L.P. and 1,689,237 shares were pledged to Benchmark Founders' Fund, and a security interest in such Founder's rights under the Put Option Agreement and the Call Option Agreement each dated June 27, 1997 among the Investors and each Founder individually. The loans are due June 27, 2002 and bear interest, compounded annually, at a rate of 7% per annum. The loans were paid in full on January 12, 1999 subsequent to the exercise of the call by the Benchmark Funds under their Call Option Agreements with each Founder.

Under his Call Option Agreement, each Founder granted the Investors an option to call all of the shares covered by the option at any time from the date of the agreement up to June 27, 2001 at an exercise price equal to an aggregate of \$750,000 together with the aggregate amount of interest accrued through the date of exercise under the applicable Loan and Pledge Agreement. These call options were exercised on January 12, 1999.

#### Anti-Takeover Provisions

##### Delaware Law

The Company is subject to the provisions of Section 203 of the Delaware General Corporation Law (the "Anti-Takeover Law") regulating corporate takeovers. The Anti-Takeover Law prevents certain Delaware corporations, including those whose securities are listed on the Nasdaq National Market, from engaging, under certain circumstances, in a "business combination" (which includes a

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merger or sale of more than 10% of the corporation's assets) with any "interested stockholder" (a stockholder who owns 15% or more of the corporation's outstanding voting stock, as well as affiliates and associates of any such person) for three years following the date that such stockholder became an "interested stockholder" unless (1) the transaction that resulted in the stockholders' becoming an "interested stockholder" was approved by the board of directors prior to the date the "interested stockholder" attained such status, (2) upon consummation of the transaction that resulted in the stockholder's becoming an "interested stockholder," the "interested stockholder" owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced (excluding those shares owned by (a) persons who are directors and also officers and (b) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer), or (3) on or subsequent to such date the "business combination" is approved by the board of directors and authorized at an annual or special meeting of stockholders by the affirmative vote of at least two-thirds of the outstanding voting stock that is not owned by the "interested stockholder." A Delaware corporation may "opt out" of the Anti-Takeover Law with an express provision in its original certificate of incorporation or an express provision in its certificate of incorporation or bylaws resulting from a stockholders' amendment approved by at least a majority of the outstanding voting shares. The Company has not "opted out" of the provisions of the Anti-Takeover Law. The statute could prohibit or delay mergers or other takeover or change-in-control attempts with respect to the Company and, accordingly, may discourage attempts to acquire the Company.

#### Charter and Bylaw Provisions

The Company's Amended and Restated Bylaws divide the Board into three classes as nearly equal in size as possible with staggered three-year terms. The classification of the Board could have the effect of making it more difficult for a third party to acquire, or of discouraging a third party from acquiring, control of the Company. In addition, the Amended and Restated Bylaws provide that any action required or permitted to be taken by the stockholders of the Company at an annual meeting or a special meeting of the stockholders may be taken only if it is properly brought before such meeting and may not be taken by written action in lieu of a meeting. The Amended and Restated Bylaws provide that special meetings of the stockholders may be called only by the Chairman of the Board, the Chief Executive Officer or, if none, the President or the Board.

The Company's Amended and Restated Certificate of Incorporation and its Amended and Restated Bylaws provide that the Company will indemnify officers and directors against losses that they may incur in investigations and legal proceedings resulting from their services to the Company, which may include services in connection with takeover defense measures. Such provisions may have the effect of preventing changes in the management of the Company.

#### Transfer Agent and Registrar

The Transfer Agent and Registrar for the Company's Common Stock is ChaseMellon Shareholder Services, L.L.C.

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#### SHARES ELIGIBLE FOR FUTURE SALE

Upon completion of this offering, the Company will have outstanding 125,092,222 shares of Common Stock, assuming no exercise of the Underwriters' over-allotment option and no exercise of outstanding options. Of these shares, the 6,500,000 shares sold in this offering will be freely tradeable without restriction under the Securities Act unless purchased by "affiliates" of the Company as that term is defined in Rule 144 under the Securities Act. Of the remaining shares, a total of 93,004,323 shares held by existing stockholders are subject to lock-up agreements generally providing that, with certain limited exceptions, the stockholder will not (1) offer to sell, sell, contract to sell, pledge or otherwise dispose of any shares of Common Stock owned of record or beneficially prior to the offering or any securities convertible into or exchangeable for such shares of Common Stock, (2) establish a "put equivalent position" with respect to such Common Stock within the meaning of Rule 16a-1(h) under the Securities Exchange Act of 1934, as amended, or

(3) publicly announce an intention to take any of the actions set forth in (1) or (2) for a period of 90 days following the date of the final prospectus for this offering without the prior written consent of Goldman, Sachs & Co. acting alone or each of the above listed representatives acting together. As a result of these lock-up agreements, notwithstanding possible earlier eligibility for sale under the provisions of Rules 144, 144(k) and 701, none of these shares can be sold until 91 days after the date of the final prospectus. Beginning 91 days after the date of the final prospectus, these shares will be eligible for sale in the public market, subject to certain volume limitations and the expiration of applicable holding periods under Rule 144 under the Securities Act and the Company's right to repurchase unvested shares.

In general, under Rule 144 as currently in effect, a person (or persons whose shares are aggregated) who has beneficially owned Restricted Shares for at least one year (including the holding period of any prior owner except an affiliate) would be entitled to sell within any three-month period a number of shares that does not exceed the greater of (1) 1% of the number of shares of Common Stock then outstanding (which will equal approximately 1,250,000 shares immediately after this offering) or (2) the average weekly trading volume of the Common Stock during the four calendar weeks preceding the filing of a Form 144 with respect to such sale. Sales under Rule 144 are also subject to certain manner of sale provisions and notice requirements and to the availability of current public information about the Company. Under Rule 144(k), a person who is not deemed to have been an affiliate of the Company at any time during the three months preceding a sale, and who has beneficially owned the shares proposed to be sold for at least two years (including the holding period of any prior owner except an affiliate), is entitled to sell such shares without complying with the manner of sale, public information, volume limitation or notice provisions of Rule 144.

Rule 701 permits resales of shares in reliance upon Rule 144 but without compliance with certain restrictions, including the holding period requirement of Rule 144. Any employee, officer or director of or consultant to the Company who purchased his or her shares pursuant to a written compensatory plan or contract may be entitled to rely on the resale provisions of Rule 701. Rule 701 permits affiliates to sell their Rule 701 shares under Rule 144 without complying with the holding period requirements of Rule 144. Rule 701 further provides that non-affiliates may sell such shares in reliance on Rule 144 without having to comply with the holding period, public information, volume limitation or notice provisions of Rule 144.

The Company has filed a registration statement under the Securities Act covering a total of 24,397,986 shares of Common Stock subject to outstanding options under the 1996 Plan, the 1997 Plan, the 1998 Plan and certain non-plan options and reserved for issuance under the 1998 Plan, the Directors Plan and the Purchase Plan. Accordingly, shares registered under such registration statement are available for sale in the open market. Certain holders of shares of Common Stock are

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also entitled to certain rights with respect to registration of such shares of Common Stock for offer and sale to the public. See "Description of Capital Stock--Registration Rights."

There can be no assurance that an active public market for the Common Stock will continue after this offering. Future sales of substantial amounts of Common Stock (including shares issued upon exercise of outstanding options) in the public market after this offering could adversely affect market prices prevailing from time to time and could impair the Company's ability to raise capital through the sale of its equity securities. As described below, only a limited number of shares will be available for sale immediately after this offering due to certain contractual restrictions on resale. Sales of substantial amounts of Common Stock of the Company in the public market after the restrictions lapse could adversely affect the prevailing market price and the ability of the Company to raise equity capital in the future.

#### LEGAL MATTERS

The validity of the issuance of the shares of Common Stock offered hereby will be passed upon for the Company by Cooley Godward LLP, San Francisco, California. Certain legal matters in connection with this offering will be passed upon for the Underwriters by Shearman & Sterling, Menlo Park, California.

#### EXPERTS

The financial statements included in this prospectus have been audited by PricewaterhouseCoopers LLP, independent accountants. The companies and periods covered by these audits are indicated in the individual reports of PricewaterhouseCoopers LLP. Such financial statements have been so included in reliance on the reports of PricewaterhouseCoopers LLP given on the authority of said firm as experts in auditing and accounting.

#### ADDITIONAL INFORMATION

The Company has filed with the Securities and Exchange Commission (the "Commission") a Registration Statement on Form S-1 under the Securities Act with respect to the shares of Common Stock offered hereby. This prospectus does not contain all of the information set forth in the Registration Statement and the exhibits thereto. The Company files annual, quarterly and special reports, proxy statements and other information with the Commission. For further information with respect to the Company and the Common Stock offered hereby, reference is made to the Registration Statement and the exhibits thereto. Statements contained in this prospectus regarding the contents of any contract or any other document to which reference is made are not necessarily complete, and, in each instance, reference is made to the copy of such contract or other document filed as an exhibit to the Registration Statement, each such statement being qualified in all respects by such reference. A copy of the Registration Statement, the exhibits thereto and other information the Company has filed with the Commission may be inspected without charge at the offices of the Commission at Judiciary Plaza, 450 Fifth Street, Washington, D.C. 20549, and copies of all or any part of these documents may be obtained from the Public Reference Section of the Commission, Washington, D.C. 20549 upon the payment of the fees prescribed by the Commission. The Commission maintains a website (<http://www.sec.gov>) that contains reports, proxy and information statements and other information regarding registrants, such as the Company, that file electronically with the Commission.

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eBAY INC.

#### INDEX TO FINANCIAL STATEMENTS

[Continues on with Full Financial Statements and Legal Notes.]

# Appendix M: Threshold Effects of Upper-Echelons Capital on IPO Firm Outcomes

## OLS Estimates of a Firm's Underwriter Prestige at IPO

| Variable  | Model 1          | Model 2            |
|---|------------------|--------------------|
| Pre-IPO Potential   | .392**<br>(.140) | .034<br>(.291)     |
| IPO Market Conditions at IPO  | .133<br>(.132)   | -.779*<br>(.284)   |
| Firm Profitability at IPO/IPO Float                                   | .164<br>(.119)   | .339+<br>(.194)    |
| Lambda  | .253<br>(.176)   | -.335<br>(.268)    |
| Prominent Venture Capitalist Backed (=1)                              | .657*<br>(.320)  | .565<br>(.425)     |
| High Uncertainty Industry (=1)  | .166<br>(.364)   | 1.622*<br>(.660)   |
| TMT Relevant Experience   | .045<br>(.173)   | -.252<br>(.247)    |
| TMT Industry Social Capital   | .169<br>(.418)   | 2.273**<br>(.738)  |
| TMT "Blue-Chip" Social Capital  | -.057<br>(.197)  | -.313<br>(.309)    |
| TMT Joint Work Experience   | -.437<br>(.625)  | 2.802*<br>(1.174)  |
| Board Relevant Experience   | -.362<br>(.309)  | .049<br>(.177)     |
| Board Industry Social Capital   | -.045<br>(.321)  | -1.695**<br>(.520) |
| Board "Blue-Chip" Social Capital                                      | .195<br>(.181)   | .541*<br>(.258)    |
| Team Prestigious Education  |                  | -1.590<br>(1.00)   |
| Board Rel. Experience 75 <sup>th</sup> – 100 <sup>th</sup> Percentile | 1.702+<br>(.923) |                    |
| Board Rel. Experience 50 <sup>th</sup> – 75 <sup>th</sup> Percentile  | 1.002<br>(.651)  |                    |
| Board Rel. Experience 25 <sup>th</sup> – 50 <sup>th</sup> Percentile  | 1.099*<br>(.481) |                    |
| Team Education 75 <sup>th</sup> – 100 <sup>th</sup> Percentile        |                  | 2.968+<br>(1.470)  |
| Team Education 50 <sup>th</sup> – 75 <sup>th</sup> Percentile         |                  | 1.423<br>(1.126)   |
| Team Education 25 <sup>th</sup> – 50 <sup>th</sup> Percentile         |                  | 1.277<br>(.871)    |
| Constant  | -.553<br>(.580)  | -2.253*<br>(.817)  |
| R <sup>2</sup>  | .406             | .730               |
| Adjusted R <sup>2</sup>   | .279             | .489               |
| N   | 92               | 37                 |

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

# Appendix N: Threshold Effects of Upper-Echelons Capital on IPO Firm Outcomes

## OLS Estimates of a Firm's IPO Valuation

| Variable   | Model 1            | Model 2            |
|--|--------------------|--------------------|
| Pre-IPO Potential  | .439**<br>(.060)   | .172<br>(.137)     |
| IPO Market Conditions at IPO                                   | .009<br>(.054)     | -.120<br>(.134)    |
| Firm Profitability at IPO/IPO Float                            | -.027<br>(.049)    | -.031<br>(.093)    |
| Lambda   | .228**<br>(.072)   | -.172<br>(.128)    |
| Prominent VC and Ibank Factor                                  | -.027<br>(.072)    | .306**<br>(.088)   |
| High Uncertainty Industry (=1)                                 | .272+<br>(.147)    | .634+<br>(.325)    |
| TMT Relevant Experience  | -.090<br>(.071)    | -.214+<br>(.114)   |
| TMT Industry Social Capital                                    | .271<br>(.177)     | .284<br>(.364)     |
| TMT "Blue-Chip" Social Capital                                 | -.031<br>(.082)    | .016<br>(.146)     |
| TMT Joint Work Experience                                      | .005<br>(.257)     | .386<br>(.578)     |
| Board Relevant Experience                                      | -.056<br>(.056)    | -.141<br>(.084)    |
| Board Industry Social Capital                                  | .092<br>(.127)     | -.006<br>(.252)    |
| Board "Blue-Chip" Social Capital                               | .007<br>(.075)     | -.069<br>(.127)    |
| Team Prestigious Education                                     |                    | -.838+<br>(.477)   |
| Ibank Prestige 75 <sup>th</sup> – 100 <sup>th</sup> Percentile | 1.003**<br>(.191)  |                    |
| Ibank Prestige 50 <sup>th</sup> – 75 <sup>th</sup> Percentile  | .647**<br>(.162)   |                    |
| Ibank Prestige 25 <sup>th</sup> – 50 <sup>th</sup> Percentile  | -.348<br>(.237)    |                    |
| Team Education 75 <sup>th</sup> – 100 <sup>th</sup> Percentile |                    | 1.774*<br>(.717)   |
| Team Education 50 <sup>th</sup> – 75 <sup>th</sup> Percentile  |                    | 1.123*<br>(.540)   |
| Team Education 25 <sup>th</sup> – 50 <sup>th</sup> Percentile  |                    | 1.117*<br>(.423)   |
| Constant   | 16.692**<br>(.171) | 15.645**<br>(.411) |
| R <sup>2</sup>   | .767               | .833               |
| Adjusted R <sup>2</sup>  | .718               | .684               |
| N  | 92                 | 37                 |

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

# Appendix O: Threshold Effects of Upper-Echelons Capital on IPO Firm Outcomes

## OLS Estimates of a Firm's One-Year Post-IPO Stock Performance

| Variable   | Model 1          | Model 2           |
|--|------------------|-------------------|
| Pre-IPO Potential  | .287<br>(.177)   | .119<br>(.179)    |
| IPO Market Conditions at IPO   | .039<br>(.131)   | .145<br>(.118)    |
| Firm Profitability at IPO/IPO Float                                  | .067<br>(.105)   | .091<br>(.103)    |
| Lambda   | .085<br>(.165)   | -.011<br>(.163)   |
| One-Year Post-IPO Industry/Market Factor                             | .036<br>(.124)   | .085<br>(.118)    |
| Prominent VC and Ibank Factor  | -.050<br>(.166)  | .141<br>(.126)    |
| High Uncertainty Industry (=1)                                       | .326<br>(.354)   | .070<br>(.353)    |
| IPO Market Valuation   | -.073<br>(.265)  | .226<br>(.226)    |
| TMT Relevant Experience  | .110<br>(.162)   | -.837*<br>(.371)  |
| TMT Industry Social Capital  | .054<br>(.397)   | -.100<br>(.394)   |
| TMT "Blue-Chip" Social Capital                                       | .020<br>(.185)   | .053<br>(.184)    |
| TMT Joint Work Experience  | .159<br>(.594)   | .068<br>(.585)    |
| Board Relevant Experience  | .005<br>(.139)   | .047<br>(.135)    |
| Board Industry Social Capital  | .114<br>(.313)   | .124<br>(.307)    |
| Board "Blue-Chip" Social Capital                                     | -.164<br>(.172)  | -.208<br>(.172)   |
| Ibank Prestige 75 <sup>th</sup> – 100 <sup>th</sup> Percentile       | .842+<br>(.499)  |                   |
| Ibank Prestige 50 <sup>th</sup> – 75 <sup>th</sup> Percentile        | .391<br>(.388)   |                   |
| Ibank Prestige 25 <sup>th</sup> – 50 <sup>th</sup> Percentile        | -1.235<br>(.845) |                   |
| Team Rel. Experience 75 <sup>th</sup> – 100 <sup>th</sup> Percentile |                  | 2.618*<br>(1.024) |
| Team Rel. Experience 50 <sup>th</sup> – 75 <sup>th</sup> Percentile  |                  | 1.810*<br>(.689)  |
| Team Rel. Experience 25 <sup>th</sup> – 50 <sup>th</sup> Percentile  |                  | 1.144*<br>(.530)  |
| Constant   | 5.332<br>(4.425) | -.854<br>(3.919)  |
| R <sup>2</sup>   | .357             | .375              |
| Adjusted R <sup>2</sup>  | .174             | .196              |
| N  | 82               | 82                |

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

**Appendix P: Threshold Effects of Upper-Echelons Capital on IPO Firm Outcomes**

**OLS Estimates of a Firm's Two-Year Post-IPO Stock Performance**

| Variable  | Model 1            | Model 2           | Model 3           |
|---|--------------------|-------------------|-------------------|
| Pre-IPO Potential   | .884**<br>(.304)   | .611+<br>(.321)   | .830*<br>(.322)   |
| IPO Market Conditions at IPO  | -.287<br>(.218)    | -.096<br>(.220)   | -.088<br>(.229)   |
| Firm Profitability at IPO/IPO Float                                   | .298<br>(.275)     | .444<br>(.282)    | .454<br>(.290)    |
| Lambda  | .667*<br>(.279)    | .455<br>(.287)    | .495<br>(.300)    |
| Two-Year Post-IPO Industry/Market Factor                              | -.059<br>(.257)    | -.060<br>(.273)   | -.118<br>(.287)   |
| Prominent VC and Ibank Factor   | -.438<br>(.334)    | -.002<br>(.303)   | -.113<br>(.318)   |
| High Uncertainty Industry (=1)  | 1.292+<br>(.647)   | .721<br>(.686)    | .899<br>(.703)    |
| IPO Market Valuation  | -.616<br>(.450)    | -.067<br>(.405)   | -.048<br>(.408)   |
| TMT Relevant Experience   | -.083<br>(.297)    | -1.331+<br>(.666) | -.397<br>(.340)   |
| TMT Industry Social Capital   | .518<br>(.698)     | .548<br>(.722)    | .880<br>(.720)    |
| TMT "Blue-Chip" Social Capital  | -.393<br>(.302)    | -.489<br>(.326)   | -.205<br>(.328)   |
| TMT Joint Work Experience   | 1.264<br>(1.091)   | 1.254<br>(1.193)  | 1.122<br>(1.172)  |
| Board Relevant Experience   | -.210<br>(.248)    | -.230<br>(.255)   | -.937+<br>(.558)  |
| Board Industry Social Capital   | .284<br>(.539)     | .310<br>(.561)    | .306<br>(.593)    |
| Board "Blue-Chip" Social Capital                                      | .008<br>(.365)     | -.115<br>(.396)   | -.263<br>(.374)   |
| Ibank Prestige 75 <sup>th</sup> – 100 <sup>th</sup> Percentile        | 2.317*<br>(.898)   |                   |                   |
| Ibank Prestige 50 <sup>th</sup> – 75 <sup>th</sup> Percentile         | .670<br>(.684)     |                   |                   |
| Ibank Prestige 25 <sup>th</sup> – 50 <sup>th</sup> Percentile         | -3.435+<br>(1.734) |                   |                   |
| Team Rel. Experience 75 <sup>th</sup> – 100 <sup>th</sup> Percentile  |                    | 3.752*<br>(1.787) |                   |
| Team Rel. Experience 50 <sup>th</sup> – 75 <sup>th</sup> Percentile   |                    | 2.304+<br>(1.218) |                   |
| Team Rel. Experience 25 <sup>th</sup> – 50 <sup>th</sup> Percentile   |                    | 2.580**<br>(.927) |                   |
| Board Rel. Experience 75 <sup>th</sup> – 100 <sup>th</sup> Percentile |                    |                   | 2.716+<br>(1.553) |
| Board Rel. Experience 50 <sup>th</sup> – 75 <sup>th</sup> Percentile  |                    |                   | 1.338<br>(1.084)  |
| Board Rel. Experience 25 <sup>th</sup> – 50 <sup>th</sup> Percentile  |                    |                   | 1.609*<br>(.782)  |
| Constant  | 13.495+<br>(7.555) | 2.649<br>(7.018)  | 3.075<br>(6.963)  |
| R <sup>2</sup>  | .517               | .474              | .440              |
| Adjusted R <sup>2</sup>   | .305               | .242              | .194              |
| N   | 60                 | 60                | 60                |

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$



## Appendix Q: Threshold Effects of Upper-Echelons Capital on IPO Firm Outcomes

### OLS Estimates of a Firm's One-Year Post-IPO Profitability

| Variable   | Model 1          |
|--|------------------|
| Pre-IPO Potential  | .133*<br>(.063)  |
| IPO Market Conditions at IPO   | -.023<br>(.051)  |
| Firm Profitability at IPO/IPO Float                                  | .027<br>(.041)   |
| Lambda   | .054<br>(.062)   |
| One-Year Post-IPO Industry/Market Factor                             | -.097*<br>(.045) |
| Prominent VC and Ibank Factor  | .043<br>(.048)   |
| High Uncertainty Industry (=1)                                       | -.200<br>(.132)  |
| IPO Market Valuation   | -.037<br>(.081)  |
| TMT Relevant Experience  | -.278*<br>(.135) |
| TMT Industry Social Capital  | -.105<br>(.163)  |
| TMT "Blue-Chip" Social Capital                                       | -.059<br>(.067)  |
| TMT Joint Work Experience  | -.232<br>(.228)  |
| Board Relevant Experience  | -.029<br>(.055)  |
| Board Industry Social Capital  | .003<br>(.109)   |
| Board "Blue-Chip" Social Capital                                     | -.085<br>(.066)  |
| Team Rel. Experience 75 <sup>th</sup> – 100 <sup>th</sup> Percentile | .775+<br>(.390)  |
| Team Rel. Experience 50 <sup>th</sup> – 75 <sup>th</sup> Percentile  | .422<br>(.261)   |
| Team Rel. Experience 25 <sup>th</sup> – 50 <sup>th</sup> Percentile  | .241<br>(.199)   |
| Constant   | .266<br>(1.399)  |
| R <sup>2</sup>   | .345             |
| Adjusted R <sup>2</sup>  | .130             |
| N  | 74               |

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

## Appendix R: Threshold Effects of Upper-Echelons Capital on IPO Firm Outcomes

### OLS Estimates of a Firm's Two-Year Post-IPO Profitability

| Variable   | Model 1          |
|--|------------------|
| Pre-IPO Potential  | .151**<br>(.052) |
| IPO Market Conditions at IPO   | -.027<br>(.036)  |
| Firm Profitability at IPO/IPO Float                                  | .060<br>(.061)   |
| Lambda   | .068<br>(.049)   |
| Two-Year Post-IPO Industry/Market Factor                             | -.052<br>(.049)  |
| Prominent VC and Ibank Factor  | -.004<br>(.045)  |
| High Uncertainty Industry (=1)                                       | -.035<br>(.101)  |
| IPO Market Valuation   | -.117+<br>(.064) |
| TMT Relevant Experience  | -.146<br>(.106)  |
| TMT Industry Social Capital  | -.027<br>(.135)  |
| TMT "Blue-Chip" Social Capital                                       | -.016<br>(.061)  |
| TMT Joint Work Experience  | -.214<br>(.217)  |
| Board Relevant Experience  | -.054<br>(.044)  |
| Board Industry Social Capital  | -.011<br>(.084)  |
| Board "Blue-Chip" Social Capital                                     | -.113+<br>(.064) |
| Team Rel. Experience 75 <sup>th</sup> – 100 <sup>th</sup> Percentile | .728*<br>(.318)  |
| Team Rel. Experience 50 <sup>th</sup> – 75 <sup>th</sup> Percentile  | .301<br>(.215)   |
| Team Rel. Experience 25 <sup>th</sup> – 50 <sup>th</sup> Percentile  | .287<br>(.179)   |
| Constant   | 1.609<br>(1.060) |
| R <sup>2</sup>   | .456             |
| Adjusted R <sup>2</sup>  | .159             |
| N  | 52               |

+  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$