Signaling, Resource-Based Power, and Pre-IPO Organizational Change

John S. Pearlstein
Robert D. Hamilton

The theory presented suggests that underwriters are both advisors and independent agents in the issuer's attempt to send "signals" of quality to investors by making pre-IPO organizational changes. These pre-IPO gambits are intended to increase IPO proceeds, and preemptively address potential investor concerns that would deter them from subscribing. These organizational changes initially can financially benefit founders, early investors and underwriters. But they can also have a long-term impact that some issuers, especially founders, would prefer to avoid. Utilizing signaling and resource-based power, we find that underwriter power is significantly associated with making pre-IPO gambits and lower levels of underpricing.

Keywords: initial public offerings, resource-based power, signaling, organizational theory, underpricing

Over the past thirty years and especially in the last ten, there has been an enormous amount of research on the signals of quality that differentiate and add value to new issues in the eyes of investors. One reason for this interest was the high levels of new issue underpricing that occurred in the 1990s, when average levels reached as high as 65% of offer price (Loughran & Ritter, 2004). In the late 1990s, strategy and entrepreneurship researchers turned their attention to initial public offerings (IPOs) and focused on identifying quality signals that increase investor perceptions of value and help reduce levels of underpricing (Beatty, 1989; Beatty & Ritter, 1986; Certo, 2003; Chemmanur & Paeglis, 2005; Grinblatt & Hwang, 1989; Gulati & Higgins, 2003). This attention is more than justified in the case of entrepreneurship. One cannot forget that the entrepreneurial process is not limited to the discovery of an innovation but the creation of value from the innovation, which involves the ability to gather the resources to create a viable business organization and navigate the environment to exploit the innovation's value. Among the many challenges is the ability to raise funds to support the growth of the organization, and that need, in many cases, leads to an IPO. Also for many entrepreneurs, the IPO is the first chance to monetize some of the sweat equity that has been accruing during the early stages of the firm.

Among the signal theory research streams, some have suggested that investors assign value to the backgrounds, experiences, and prestigious ties of an issuing firm's top management team (TMT), board of directors, and affiliates (Certo, 2003; Chen, Pollock, Jackson, & Hambrick, 2005; Filatotchev & Bishop, 2002; Gulati & Higgins, 2003). Identifying accurate signals of quality is particularly interesting to investors and academics because of the high volume of subsequent and dramatic failures that occurred in the late 1990s. Some of these signals are the result of industry choice, long-term strategy, and founding conditions that evolve slowly or are central to a firm's business model, while other signals can be manipulated prior to a firm's IPO in order "dress up" for a more successful sale to the public. Some firms choose to add prestigious executives, directors, and affiliates just before going public to add legitimacy and to address potential investor concerns preemptively. This process is particularly stressful for the entrepreneur, who has to relinquish part of the control and autonomy to the new management, but also stresses the existing organizations. These changes can be bittersweet; the cost of these new individuals is high, and top management changes can cause long-term disruption and shift in culture if these changes include replacing the original founding entrepreneurs or long-tenured employees. Therefore many issuers would be reluctant to bring in new people. Underwriters with their superior power, however, may challenge the issuer to make these changes regardless of cost or firm disruption, since they bear neither expense and these changes make the shares easier to sell (see Figure 1).

Past theories have looked at signals in a static state or a single point in time, and ignore movement occurring during the period leading up to the offer date. These theories identify the issuers as the signaling actor, whereas this study moves the underwriter into the forefront of pre-IPO signaling. Previous research has tested for the moderating effect of underwriter prestige, but has not looked at differences in relative power on a deal-by-deal basis. This study will empirically test the impact of relative bargaining power on issuers' pre-IPO strategies. Finally, the theory and methods used in this article will take a resources-based approach to measure each actor's bargaining strength compared to the other, and use that difference to predict outcomes at the deal level.

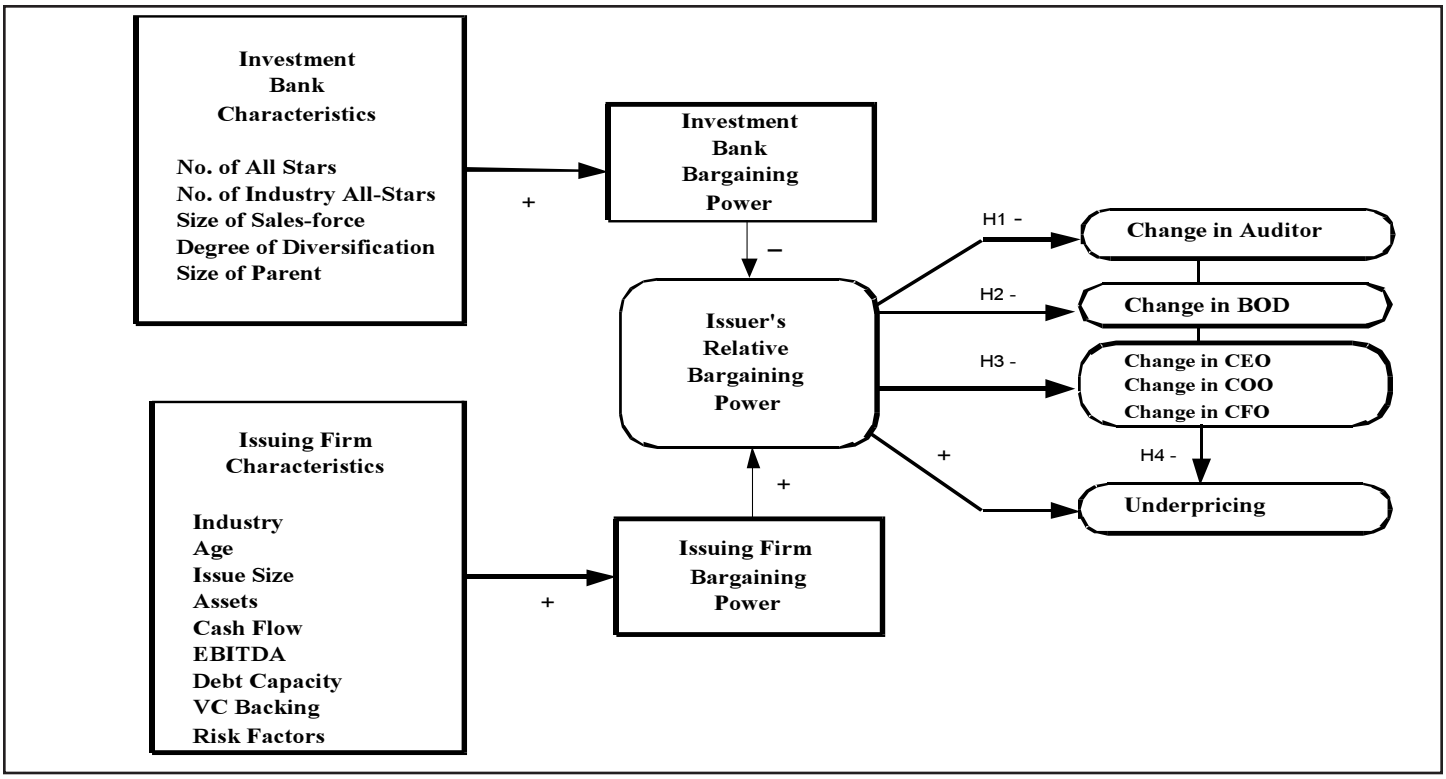

Figure 1. Model of Pre-IPO Organizational Change and Effect on Underpricing

Background

The market for IPOs is characterized by product uncertainty, asymmetric information, and adverse selection. In these markets, it is critical for sellers to signal a high-quality firm image; otherwise, buyers cannot differentiate between their product and lower quality vendors. Akerlof (1970) referred to this as a "lemons problem" where in the absence of quality signals, buyers are only willing to pay the lowest possible price. Spence (1973) defined signals as "observable characteristics [that convey information] attached to the individual [in this case firm] that are subject to manipulation by him" (p. 357). We apply these concepts and definitions in the context of new issues; the signaler [firm] attempts to convey favorable information to affect the [receiver's] subjective assessment about the quality of the firm's equity. Spence (1973) separated attributes into two categories, indices and signals.

Investors seek information about the issuer, which managers, along with their underwriter, provide in the form of a prospectus and to some a "road show." The preliminary prospectus meets the criteria of a signal in that it is both observable and known in advance of the investment decision (Daily, Certo, & Dalton, 2005; Ross, 1977), and contains a plethora of indices and signals. Indices that are unalterable attributes include industry (Bain, 1968; Porter, 1980), geographic location(Porter, 1990), firm age, and size (Kim & Ritter, 1999; Singh, House, & Tucker, 1986). Each of these attributes has been empirically found to add firm value or enhance chances for survival. Financial data, prestigious executives, and alliances can be manipulated over time by the firm and as such we categorize them differently as "signals." The resources used by the applicant to create this signal Spence terms "signaling costs."

Signals of quality come in many different forms. Academics who favored the knowledge-based view have focused on intellectual properties, R&D spending, and scientific capabilities (DeCarolis & Deeds, 1999; Deeds, DeCarolis, & Coombs, 1998; Higgins & Gulati, 2006), while others have looked at social ties and legitimacy (Higgins & Gulati, 2003). A firm that is taken public by a prestigious underwriter assumes the gloss of that underwriter's industry reputation and corporate brand image (Beatty & Ritter, 1986; Benveniste & Spindt, 1989; Carter & Manaster, 1990; Cooney, Singh, Carter, & Dark, 2001). Simunic and Stein (1987), Beatty (1989), and Balvers et. al. (1988) found that IPO market participants pay a premium for auditor credibility.

The prestigious ties of top executives and board members allow the firm access to a broader and richer set of resources (Certo, 2003; Certo, Daily, & Dalton, 2001; Chemmanur & Paeglis, 2005; Jackson & Hambrick, 2002; Podolny, 1993) and can also be a signal to investors. Further, firms become a reflection of their top managers (Hambrick & Mason, 1984). Chemmanur and Paeglis (2005) suggested that TMTs that

exhibit high quality and noteworthy reputations can "convey the intrinsic value of their firm more credibly to outsiders" and provide a certification function (p.332).

Signaling Theory

An important feature of Spence's 1973 signaling model is its dynamic and iterative nature as signals of applicant quality are sent to employers and wage schedules as a function of the signals and indices are sent back potential applicants.The same can be said for new issuing firms and the prospectus signals. Investors send signals in the form of equity orders and concerns during the book-building process and through ultimate purchase. Further, investors can communicate additional valuation signals indirectly through the underwriters during the roadshows. These signals can include intent to buy, concerns of operating history, management experience, industry position, and investment risk. Underwriters have stored signals from these investors' previous deals and purchase experience. As a consequence, the underwriter becomes a repository of both *signals of quality* and *signals of concern,* which they translate into current investor's preferences and pricing schedules and is graphically shown in Figure 2.

Thus, an important benefit of hiring an active underwriter with a good track record is its ability to counsel issuing firms on the best way to market themselves to investors. Underwriters inform issuers of investors' preferences during the preparation and registration periods of the pre-IPO process, completing the signaling cycle. Underwriters typically suggest changes the firm can implement to improve both the array and quality of their signals to improve investors' likely reaction.

It is interesting to note that underwriters are depicted in Figure 2 as an independent third party in the iterative process and not simply as part of the issuer's team.Treating the underwriter as independent is an extension of Spence's dyad and a departure from the way strategy and finance researchers have applied signaling theory to the IPO context. Issuers and underwriters work together to subscribe the offering fully but they also have divergent motives as well. Extant theory has not characterized the underwriter as an additional, independent actor in the signaling loop. However, underwriters take title to the equity in "firm offer" IPOs—the most common type (Ellis, Michaely, & O'Hara, 2001). They then sell the equity to their own customers whom they have an ongoing relationship. Therefore, underwriters have an independent financial self-interest to maximize, as well as their own reputation to protect and may not share congruent objectives with the issuer. For example, underwriters may not communicate all of the signals they receive from investors during the book-building process, choosing instead to keep a portion of that information private (Biais, Bossaerts, & Rochet, 2002). Signals regarding the actual demand, and the price investors are willing to pay, can be screened by

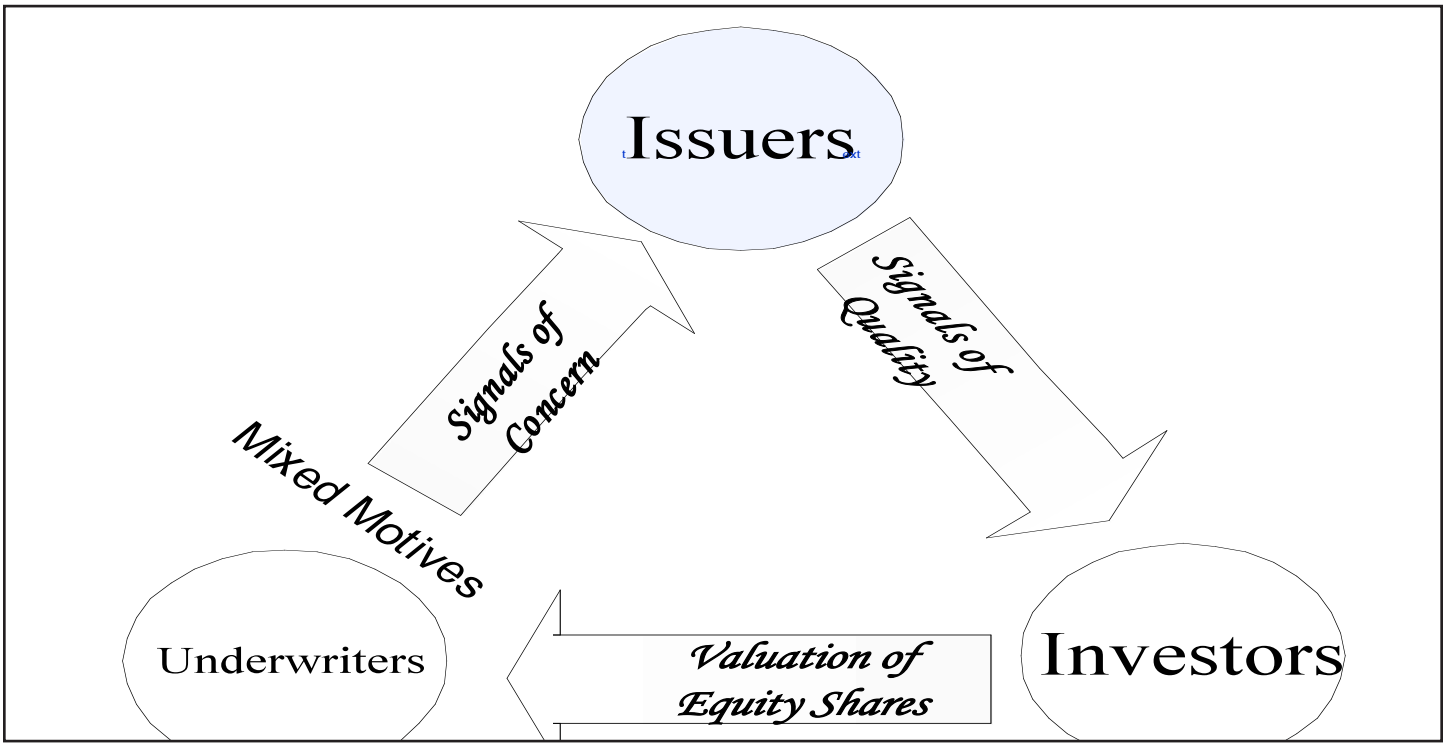

Figure 2. Iterative 3-way Communication of Signaling

underwriters wanting to set a lower offer to increase profit for their investing clients and lower their risk (Houston, James, & Karceski, 2006; Loughran & Ritter, 2004).

Long-Term Signals vs. Short-Term Gambits

While most industry and performance characteristics cannot be changed close to the IPO, some IPO signals can be modified during the preparation stages. Examples include earnings (Teoh, Welch, & Wong, 1998), use of proceeds (Busaba, Benveniste, & Guo, 2001), and the auditor of record (Balvers et al., 1988; Carpenter & Strawser, 1971). However, previous research has not differentiated human capital signals based on the length of time at the firm so executives who are brought in a few months before the IPO are not considered part of a short-term *actively signaling* strategy. For that reason, short-term, pre-IPO firm changes with the intent to increase the value of the firm, we term "gambits." For both the investor and the academic, it is important to differentiate organically-derived long-term signals of firm quality from short-term, pre-IPO gambits aimed at increasing IPO proceeds, since these strategies can have different short-term and long-term consequences (see Table 1).

Strategies aimed at increased short-term proceeds may have negative long-term financial or organizational impact. Another reason to distinguish organizational changes close to the time of the IPO is to determine who is actually doing the signaling. Is it the issuer attempting to increase demand and equity value? Or, is it the underwriter attempting to maximize its profit and reduce risk while having the issuer bear the signaling costs?

Making changes to members of the TMT can create short-term disruption and trigger longer-term turbulence. Hannan, Polos, and Carroll (2003) term this effect "cascading organizational change." This process begins with a change in an organization's formal architecture and prompts other changes in the organization, generating a cascade of changes that initiate periods of reorganization. Burton, Helliar, and Power (2004) questioned executives in the top management on change prior to their flotation. Forty-six percent of respondents observed that after the decision to go public was made, there was a change in top management personnel prior to the flotation. After the flotation, 44 percent of those who changed observed additional changes in top management. The organizational changes can effect culture, corporate mission, personnel policies, internal processes, and alter employee's implicit contracts, bases of power and fit with the organization resulting in turnover (O'Reilly, Chatman, & Caldwell, 1991). In summary, pre-IPO organizational changes can have positive or negative impact on the issuing firm. We argue that the issuing firm's managers would resist making these changes and incurring these additional costs unless the firm encountered strong underwriter influence, and it lacked the requisite bargaining power to resist.

Relative Bargaining Power and Hypotheses

Instead of thinking of underwriters as commissioned sales agents, they can be viewed as a larger retailer who profits on every unit sold. The parties negotiate on the price paid for the product and the resulting margin with each side wanting to maximize its position. This framework is conceptually grounded in bargaining power and dependence perspective (Pfeffer & Salancik, 1978). In the IPO context, the issuer offers its equity for sale. If it is a strong company, its resources will be a well-known brand name. The underwriter has its own resources such as co-managers, a strong book of institutional and retail investors, and most importantly stock analysts who can help promote the stock in the aftermarket. A firm that has the option to contribute or withhold an important resource or input can use that option as bargaining leverage (Pfeffer, 1981). For example, the underwriter could refuse to continue the IPO if the firm chooses not to make organizational changes or does not accept the offer price.

During the IPO process, issuers are required by the Securities and Exchange Commission (SEC) to furnish a detailed description of the firm's operations, and audited financial statements (Beatty, 1989). The prestigious auditor

Table 1. A Topology of IPO Signals

	Issuer Attributes	*Description*
Indices	Age, size, industry, geography, etc.	Observable and unalterable.
Signals of quality (issuers)	Firm performance, IP portfolio, profits, debt-level, product offerings, long-term employees and affiliates, etc.	Intrinsic and gained through organic growth or the execution of long-term strategy.
Signals of concern (investors)	Short operating history, insufficient revenue/profit, inexperienced management, uncertain of present/future technology pipeline.	Concerns voiced or inferred by investors during book-building process, or from past deals that negatively affect demand for equity offering
Gambits	Choice of underwriter, auditor, CEO, CFO, COO, chairman, directors, etc.	Alterable through execution of short-term IPO strategy to project quality image and allay investor's concerns

selection is important to address investors' agency-related concerns about the firm's control system (Simunic & Stein, 1987), add legitimacy and transfer status (Stuart, Hoang, & Hybles, 1999), address the ex ante uncertainty, and signal the quality of private information about the firm's future prospects to investors who fear a "lemons problem." Support for this idea is provided in Carpenter and Strawser's (1971) review, which found that underwriters can influence an issuer to switch from their smaller or regional auditor to a large, nationally recognized firm. The foundation of bargaining power is evident in hypothesis 1.

H1: Issuers with lower relative bargaining power are more likely to change auditors.

As the firm is a reflection of the top managers (Hambrick & Mason, 1984), the CEO will attract the most scrutiny from investors. Young entrepreneurial firms with a short operating history, or an inexperienced management team, generate fears about the CEO's ability to successfully transition from a private to a public firm (Flamholtz, 1986), and meet future prospectus expectations. Public firms experience more governmental requirements, shareholder scrutiny, and interference from special interest groups, in addition to creating and implementing their strategic plan. The CEO's job has a high level of complexity, ambiguity, and information overload (Mintzberg, 1973). Even though inexperienced managers can be helped by veteran directors, investors will be concerned if the requisite skills do not reside in the top executive. Therefore, in situations of young inexperienced founders and or managers whose firm is now moving to a new level of expectation, underwriters will try to replace the CEO with a manager that has recognized legitimacy in the role and will address investor concerns. However, convincing a CEO to step aside is a difficult task especially if the CEO is entrenched or has substantial ownership. In those cases, underwriters can move to bolster the signals to investors by bringing in an experienced manager to be the chief operating officer (COO). Potential investors will also signal concern if the issuer's chief financial officer (CFO) lacks public corporation experience.

During the registration process, issuers use their underwriter to help prepare the necessary disclosures to the SEC. However, after the public offering the responsibility for financial disclosure becomes the obligation of its corporate financial officers. On-going shareholder communication can be difficult for financial officers with limited, pre-IPO experience yet managing stockholders expectations and resultant stock prices is a central CFO responsibility (Zhang & Margarethe, 2009; Zorn, 2004). New public enterprises require stable, reliable earnings, which may require income smoothing, expense accruals for the year ahead, and earnings estimates for portfolio managers (Teoh et al., 1998). Private companies usually have more leeway to have profits in peaks and valleys, whereas public firms must have a more reliable profitability consistent with management's forecasts. Small, private companies with home-grown accountants and bookkeepers lack this experience. The CFO also has a primary responsibility to shareholders to disclose accurate financial results. Shareholder and stock analysts will be assessing the reliability of the internal financial disclosures of the issuer. The higher the prestige of the financial officer's background the more confident investors will feel about the firm's prospective financial reporting. Different from the auditor who certifies past performance and current inventories, the CFO certifies future cash flows and cash needs. The struggle between current management and the underwriter's wishes is evident in the next three hypotheses.

H2a: Issuers with lower relative bargaining power are more likely to change CEOs.
H2b: Issuers with lower relative bargaining power are more likely to add a COO.
H2c: Issuers with lower relative bargaining power are more likely to change CFOs.
H2d: Issuers with lower relative bargaining power are more likely to change the chairman of the board.

Agency theorists have long been concerned about the conflict of interest between shareholders and management (Fama & Jensen, 1983). This concern is more acute in young firms that may not have a quality signaling reputation. Neubaum, Mitchell, and Schminke (2004) found a positive relationship between firm age and an ethical climate focused on self-interest and company profit. They suggested that young firms "faced with the liability of newness, scarcity of resources, and concerns for survival might be pressured to make choices that run counter to the tenets of more developed ethical and moral reasoning" (p. 336). IPO firms tend to be young, with an average age of seven years (Ritter, 1991). Directors can also have a positive effect on young TMTs and bring a wealth of experience, social capital, and legitimacy to firms short on operating history or management experience. Issuers and underwriters can signal equity quality to investors through the prestige of its board members, which enhances the firm's social networks and access to critical resources (Higgins & Gulati, 2003; Pfeffer & Salancik, 1978). They are also perceived as valuable mentors to young managers (Gomez-Mejia & Wiseman, 1997; Johnson, Ellstrand, & Daily, 1996). Experienced investors will signal concerns about potential deficiencies in a limited board of directors. Investor's concerns might be placated with the addition of directors with operating experience, or prestigious social networks and backgrounds in financial control. Underwriters

will then press issuers to add directors with these qualities. The intersection between these actors' preferences and the interplay of the relative bargaining power of the issuer and underwriter are evident in the next hypothesis.

H3: Issuers with lower relative bargaining power are more likely to add new directors.

For the issuer, one financial purpose of making these changes prior to going public is to reduce the level of underpricing. Many studies have shown a negative relationship between TMT prestige and underpricing (Certo, 2003; Chen et al., 2005; Cohen & Dean, 2005). Hiring new top managers with an eminent IPO can be costly as these individuals will be looking to be compensated in both salary and equity. Pre-IPO equity will be available at a discount and worth more at this point. So the benefits in additional proceeds should outweigh the cost in salary and in benefits. Otherwise it would be more sensible to wait until after the IPO and pay with shares that are worth more and options with a higher strike price. Therefore, it would follow that

H4a: Issuers that add new top executives in the six months prior to their IPO will experience lower levels of underpricing.
H4b: Issuers that add new directors in the six months prior to their IPO will experience lower levels of underpricing.

Sample and Methods

Data and Sample

The sample was limited to firms that had their initial public offering between May 1991 and June 1998 and were drawn from the *SDC New Issues Database.* All the firms from eight individual SIC codes were included, producing a total of 338 firms. The industries of Computer and Telecommunication Hardware, Men's and Women's Apparel, Pharmaceuticals, and Computer Software and Services provide the population of firms used for this study.These industries represent both high-growth and mature industries, manufacturing and service, as well as high-technology and research-intensive firms. Unit offerings, and issues with offering prices below $5 were dropped, consistent with Loughram and Ritter (2004).To avoid confusion between original hires and new hires, I dropped firms less than two years old. Data for this sample was drawn from *SDC* and *COMPUSTAT.* Data on management, tenure, and equity ownership were obtained from S-1's and final prospectuses filed with the SEC. Information on firm founding dates, for issuers that went public after 1996, was updated using data provided by Alexander Ljungqvist, New York University. Data collection techniques are detailed in Ljungqvist and Wilhelm (2003). Additionally, underwriter data were drawn from the *Securities Industry Yearbook.* IPOs with missing data from either the issuer or underwriter were dropped to yield the final sample of 224 issuing firms. The 66 lead underwriters associated with these IPOs had a combined market share of 92.6% of the total IPO industry in the United States.

Measures

Dependent Variables. There are 7 different dependent variables for the hypotheses being tested. Five dummy variables represent a single change in NewAuditor, NewCEO6, NewCOO6, NewCFO6, and New Chair6, in the six months preceding the public offering. One additional dummy, Top Change6, represents a single change in any of the four TMT positions.An executive is considered new if his or her tenure in that position is less than six months.There are two continuous dependent variables, one for NewDirector, which is the number of new directors with less than six months tenure, and underpricing, which can be obtained by combining the offer price taken the final prospectus filed with the SEC, and the first day closing price from the Center for Research in Security Prices (CRSP) utilizing the calculations: $UP = P_1 - P_0)/P_0$ (Certo et al., 2001; Pollock & Rindova, 2003).

Independent Variable. The measure for underwriter power was a factor score created using factor analysis, a statistical technique abundant in social science literature and employed to generate indexes used in regression analysis (Chatterjee, Jamieson, & Wiseman, 1999). The items in this factor are (1) number of institutional sales representatives, (2) number of offices, (3) total number of *Institutional Investor (II)* all-star analysts, (4) number of II all-star analysts covering the industries of the issuer, (5) total assets of the underwriters parent, (6) total departments of parent, and (7) total employees of parent.The final factor had an eigenvalue of 4.84, explained 69.1% of the variance, and had a Cronbach alpha of 0.883.

The measure for *Issuer power* is also a factor score created using factor analysis.The items in this factor are: (1) assets, (2) liabilities, (3) expected market capitalization, and (4) offer size. The factor analysis produced an eigenvalue 3.61, explained 31.2% of the variance, and had a Cronbach alpha of 0.807.

The measure of relative power is the ratio between issuer power and underwriter power. Since the measures of power are factor scores, they vary from a negative score to a positive score with a mean of zero. In order to properly reflect relative power, it was necessary to make both component scores positive by adding a constant, such that the minimum score is 1.0. In determining the impact of such a relative score in regression analysis, it is necessary to enter the two component scores in an initial model, and then add the relative score to determine whether relative power of the two parties explains further variance.

Control Variables. Several issuer and underwriter measures used in prior studies were included as controls to enhance the confidence that significant findings here would be adding to the base of knowledge in this area. Daily et al. (2003) performed a meta-analysis on variables previously associated with IPO underpricing in at least three prior studies (effect size 241, n=161,013). Their work was used as a starting point in identifying control variables. Their meta-analysis included: (1) retained equity (percent of officers and director shares), (2) underwriter prestige (using Carter and Manaster measure updated by Loughram and Ritter (2004), (3) auditor reputation (1 if a Big 5 firm, else 0), (4) number of risk factors, (5) firm size, (6) firm age, (7) number of uses, (8) venture capital equity (1 or 0), (9) offer price, and (10) IPO gross proceeds. The variable number of uses was dropped here because it was not significant in their meta-analysis. Most of the rationale for the variables included here has been discussed earlier, however, for more information see Daily, Certo, Dalton, and Roengpitya (2003). In addition, I include dummy variables representing the four industry groups, and a year variable to capture time-fixed effects.

Results

Descriptive statistics and inter-item correlations for the variables in the study can be found in Table 2. The results of this study show that 224 issuers chose to make 465 new top man-

Table 2. Logistic Regressions

	New Auditor		New CEO		New COO		New CFO		New Chairman	
Variable	Control	Model 1	Control	Model 2a	Control	Model 2b	Control	Model 2c	Control	Model 2d
Constant	-2.614**	-1.854	-0.802	0.151	3.986	-3.895	-1.693	-2.609	-10.158**	-10.084**
	(1.201)	(2.742)	(1.769)	(4.308)	(2.415)	(6.643)	(1.156)	(2.333)	(1.27)	(2.803)
Tele/Comp	-0.243	-0.259	-1.684*	-1.685*	-0.992	-0.545	-0.065	0.039	0.697	0.699
	(0.491)	(0.498)	(1.14)	(1.132)	(1.081)	(1.117)	(0.393)	(0.406)	(0.597)	(0.591)
Apparel	1.27**	1.283**	2.169	2.608	-3.047**	-2.925*	-0.589	-0.378	1.257*	1.273*
	(0.607)	(0.633)	(0.894)	(1.022)	(1.228)	(1.515)	(0.616)	(0.647)	(0.734)	(0.745)
Pharmaceuticals	-1.393**	-1.361**	-1.139	-1.158	-2.321**	-2.260*	-0.519	-0.545	-0.327	-0.403
	(0.639)	(0.647)	(0.707)	(0.72)	(1.095)	(1.334)	(0.412)	(0.43)	(0.649)	(0.661)
Age of Firm	-0.02	-0.023	-0.4**	-0.4**	-0.596**	-0.594**	-0.01	-0.002	-0.224*	-0.226*
	(0.016)	(0.017)	(0.056)	(0.06)	(0.024)	(0.028)	(0.015)	(0.015)	(0.017)	(0.017)
Year	-0.037	-0.055	-0.432	-0.453	-0.547	-0.807	0.019	0.046	-0.216	-0.235
	(0.122)	(0.124)	(0.167)	(0.18)	(0.275)	(0.352)	(0.098)	(0.103)	(0.133)	(0.138)
Pct. Insider Equity	0.011	0.012	-0.016	-0.017	-0.011	-0.012	0.001	0.000	1.380**	1.365**
	(0.008)	(0.008)	(0.012)	(0.012)	(0.015)	(0.016)	(0.007)	(0.007)	(0.009)	(0.009)
Risk Factors	0.01	0.012	-0.02*	-0.02*	0.045	0.085	-0.005	-0.001	-0.24***	-0.24***
	(0.036)	(0.036)	(0.052)	(0.055)	(0.089)	(0.096)	(0.031)	(0.033)	(0.039)	(0.04)
Venture Backed	-0.09	-0.074	0.008	0.198	-0.434	-0.67	0.125	0.212	0.072**	0.072**
	(0.414)	(0.419)	(0.575)	(0.607)	(0.722)	(0.773)	(0.331)	(0.344)	(0.469)	(0.478)
Auditor Prestige	0.667	0.705	2.057	2.353	-0.546	-0.291	1.127	1.298	-0.339	-0.278
	(0.758)	(0.774)	(1.293)	(1.362)	(1.186)	(1.239)	(0.803)	(0.828)	(0.722)	(0.744)
Offer Price	0.018	-0.002	-0.08	0.019	-0.153	0.059	-0.001	0.091	0.103	0.138
	(0.045)	(0.063)	(0.073)	(0.09)	(0.095)	(0.152)	(0.036)	(0.052)	(0.047)	(0.07)
Underwriter Power		-0.28		-0.788		0.499		-0.085		-0.531
		(0.615)		(0.906)		(1.700)		(0.465)		(0.61)
Issuer Power		0.394		0.259		-2.408		-0.518		0.325
		(0.731)		(1.233)		(2.204)		(0.606)		(0.74)
Issuer Power Ratio		-0.446		-2.881		5.463		-0.773		-1.737
		(2.203)		(3.559)		(6.212)		(1.785)		(2.202)
-2 Log likelihood	184.446	183.429	113.107	108.111	58.941	52.853	269.51	258.969	160.409	158.89
PseudoRsq		0.313		0.025		0.014		0.001		0.218

* $p \leq .10$; ** $p \leq .05$; *** $p \leq .01$

agement, and board hires in the six months leading up to their IPO. The average number of days in registration for the sample was 98 days and many firms work with their underwriters preparing documents before the registration period begins. There were 36 firms that switched auditors prior to the IPO. The average age of the issuers since founding was 12 years, with the median at 7 years. This suggests that firms were not strictly backfilling normal attrition. Most common were new board members and CFOs. This could be to give investors the perception that there is sufficient supervision of management (Certo et al., 2001) and adequate oversight to the preparation of the financial disclosures to reduce information asymmetry (Cohen & Dean, 2005). One in 10 issuers hired a new CEO, and 1 in 3.5 brought in a CFO. Of all the new hires, the CEO position in particular meant that someone else was replaced. Of the 224 companies in the sample, 74 made new hires. The remaining 150 companies made an average of more than 3 top management new hires prior to going public.

Logistic regression analysis was used to test Hypotheses 1 to 2d. Each of the dependent variables was created and coded 1 if there was a change in that position in the six months prior to the offer date, otherwise 0. Since relative bargaining power is theorized to help issuers resist influence to make organizational changes, the hypothesized coefficient should be negative. Multicolinearity did not pose a problem, as the variance inflation factors for the full regression model with 224 observations ranged from 1.06 to 1.86 (Chatterjee, Hadi, & Price, 2000). The results for change in auditor, CEO, and chairman show no significant association with relative bargaining power, and in fact, underwriter prestige does not significantly add to the explanation of variance (see Table 3). Therefore, there is no support for Hypotheses 1, 2a, 2c, or 2d. In all but one, new COO, the coefficient for relative resource power is negative in the theoretical direction, however they were not significant. As a group, the addition of explanatory variables reduced the -2 Log likelihood a significant amount; however, no single variable was significant on its own. Because the Issuer Power Ratio is a linear combination of the other two power measures, the VIF scores rose above 14 for those variables in the last step, suggesting high multicollinearity. Ultimately, Hypotheses 1 and 2 were not supported.

Hierarchical multiple regressions were used to test Hypotheses 3 and 4. Consistent with the results found for the TMT positions, the coefficients for issuer and underwriter power are not significant or in the theoretical direction. Hypothesis 3 is not supported. Hypothesis 4 was tested two ways: with the independent variable as dummy representing change in any of the 4 top management positions, and as a continuous variable representing the sum of changes in the top positions. The coefficient for bank prestige is positive and significant, which is consistent with previous studies of the underpricing in the 1990s. The coefficient for issuer power is negative and significant, consistent with results from the first two chapters. The issuer power ratio continues to be not significant. When top management change is added, both coefficients are negative and significant, suggesting that the addition of one or more new top management executives will reduce underpricing in a cumulative fashion. Therefore Hypotheses 4a and 4b find strong support. The coefficient for NewDirector <6 is negative in the theoretical direction but not significant. Hypothesis 4c then is not supported.

Discussion

Past studies of signaling theory have examined signals in a static state. This research focuses on a subset of signals that are part of an active selling strategy. Further, new measures of power were incorporated to test whether the active signaling is a strategy of the issuer or the underwriter. There are two aspects of the signaling activity tested here: (1), whether the signals are achieving the desired results, namely higher IPO proceeds; and (2) whether the signals are coming from the issuer or the underwriter. On the first point, it is clear from the results that short-term gambits to improve the quality of the TMT have a significant positive effect on IPO proceeds. The average issue size in this study is $46.3 million and the average level of underpricing is 18.8%. According to Model 4a and 4b, the reduction in underpricing can vary from $304,654 to $548,377 with the addition of one top management executive. In a study of firms that made changes in the final year prior to the IPO, Chen, Hambrick, and Pollock (2008) found that firms spent between $120,000 to $385,000 per executive, depending on the proximity to offer date and prestige of the individual. Combining the findings of the two studies, firms will be more than compensated for the cost of new hires through the reduction of underpricing.

While it is clear that issuers would enjoy these reduced levels of underpricing, we know from other studies that there is also a partial adjustment phenomenon, whereby the underwriter only incorporates a small portion of the change in value of a firm in the final few months before the offer date (Bradley & Jordan, 2002; Hanley, 1993; Loughran & Ritter, 2004). While we can count in dollars the financial benefits and costs to the issuer, we can only guess the impact and entrepreneurial intensity on the entrepreneurial founding members. Among the 237 sample firms, 131 still had at least one founder in the company. However, some of these founders were now chairman, functional department heads, or CEOs. It was beyond the scope of this research project to track the number of founders who were "kicked upstairs" to make room for a new CEO, or "kicked sideways" to a functional job, such as head of technology, or "kicked out" entirely as issuers and underwriters made pre-IPO organizational changes.

Table 3. Regressions: Dependent Variable New Directors and Underpricing

	New Directors < 6		*Underpricing*		*Underpricing*		*Underpricing*	
Parameter	***Control***	***Model 1***	***Control***	***Model 4a***	***Control***	***Model 4b***	***Control***	***Model 4c***
(Constant)	1.643**	3.371**	-0.385*	-0.363*	-0.385*	-0.342	-0.385*	-0.354
	(0.714)	(1.491)	(0.215)	(0.214)	(0.215)	(0.215)	(0.215)	(0.218)
Comp/Telecom	0.075	0.069	0.039	0.043	0.039	0.037	0.039	0.04
	(0.294)	(0.296)	(0.043)	(0.042)	(0.043)	(0.043)	(0.043)	(0.043)
Apparel	0.22	0.204	-0.018	-0.019	-0.018	-0.008	-0.018	-0.017
	(0.399)	(0.407)	(0.059)	(0.058)	(0.059)	(0.059)	(0.059)	(0.059)
Pharma	-0.257	-0.243	-0.101**	-0.105**	-0.101**	-0.11**	-0.101**	-0.103**
	(0.292)	(0.297)	(0.043)	(0.043)	(0.043)	(0.043)	(0.043)	(0.043)
Age	-0.007	-0.01	0.000	0.000	0.000	-0.001	0.000	-0.001
	(0.008)	(0.008)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Year	0.018	-0.002	0.000	0.000	0.002	0.000	0.002	0.002
	(0.068)	(0.068)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Insider Equity	-0.006	-0.006	0.001	0.001	0.001	0.001	0.001	0.001
	(0.005)	(0.005)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Risk Factors	0.011	0.015	0.006**	0.007**	0.006**	0.007**	0.006**	0.007**
	(0.021)	(0.021)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
VC Backed	-0.394*	-0.378	0.04	0.041	0.04	0.04	0.04	0.037
	(0.234)	(0.235)	(0.034)	(0.034)	(0.034)	(0.034)	(0.034)	(0.034)
Auditor Prestige	-0.512	-0.494	-0.1*	-0.094	-0.1*	-0.093	-0.1*	-0.104*
	(0.411)	(0.418)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.061)
Offer Price	0.052**	0.028	0.023***	0.024***	0.023***	0.024***	0.023***	0.023***
	(0.026)	(0.035)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
IssuerPower		0.646	0.103**	0.101**	0.103**	0.095**	0.103**	0.099**
		(0.393)	(0.046)	(0.045)	(0.046)	(0.046)	(0.046)	(0.046)
UnderwriterPower		-0.48	-0.13**	-0.134**	-0.13**	-0.128**	-0.13**	-0.124**
		(0.316)	(0.057)	(0.056)	(0.057)	(0.056)	(0.057)	(0.057)
IssuerPowerRatio		-1.354	0.202	0.19	0.202	0.172	0.202	0.19
		(1.18)	(0.17)	(0.169)	(0.17)	(0.17)	(0.17)	(0.171)
Top Change6				-0.062**				
				(0.031)				
Total TMT Change						-0.035*		
						(0.019)		
NewDirector6								-0.009
								(0.01)
R2	0.179	0.181	0.264	0.293	0.265	0.290	0.264	0.265
Adj. R2	0.133	0.130	0.218	0.246	0.219	0.242	0.218	0.216
_ R2	0.179	0.001	0.264	0.029	0.265	0.025	0.264	0.001
F Statistic	3.843	0.334	5.789	8.630	5.792	7.341	5.789	0.407
Significance	0.000	0.564	0.000	0.004	0.000	0.007	0.000	0.524

* p ≤ .10; ** p ≤ .05;*** p ≤ .01; Unstandardized Coefficients shown.

While the issuers have extracted a benefit from adding new hires, so has the underwriter. Thus, the second question still remains: Who is doing the signaling? Unfortunately, the remainder of the results here are inconclusive vis-à-vis an association between organizational change and relative resource power. In some of the regression analyses, relative power approached significance. So part of the reason these theories were not empirically supported was for the shortcomings in the research tools and variables identified in the present study. I believe there is still work to be done in honing the methods and identifying modifiers. Yet there is also the possibility that issuers are not being pressured into making changes, but are doing so for other reasons. The lack of significance in the predictors associated with change in auditors could also suggest that issuers in these industries began operations with national firms. The Big 5 accounting firms are prevalent in IPO companies, and it may be that the effort on their part to provide service to smaller technology firms precluded the need for small firms to upgrade auditors. In fact, during the period from 1998 to 2001 in these same industries, only seven firms chose to go public with a firm that was not one of the Big 5.

The lack of significance in the bargaining predictors for CEOs and chairmen also suggests alternative explanations. It was originally theorized that investors would be less confident of managers with limited operating experience. In practice, the age or experience of CEOs may not have been as big a concern to investors as originally thought. One rationale for the addition of a new chairman or COO would be to bolster the experience level of young CEOs. However the average age of new chairmen was 49.3, versus the average age of the CEO in those companies, which was 47.7. Such a small difference in age would not warrant making such a change. Similar findings were noted for the COO, where the average age of the new hire was 42.5, while the CEO's average age was 49.5 in those companies. Operating history also did not seem a concern, as the cumulative amount of the new hires reached the midpoint with firms that were of the median age of 7 years. Financial reporting may have been more important as 50% of the total number of CFOs hired occurred with firms 5 years or younger. Although some CFOs could be replacing competent incumbents, it is also possible that some of these young firms were hiring their first finance manager capable of performing the accounting function for a public corporation. In that case the issuer was not dressing up, but arming itself with the right tools to be successful.

The results surrounding the addition of new directors are also puzzling. In Certo's previous study, overall board size was found to be significantly associated with reduced levels of underpricing. However, the addition of new directors in this study had no effect on underpricing. Although many new directors were hired, young firms may not have been changing directors as much as staffing the positions in the first place. To this point, a future retesting of this phenomenon might include a measure on prestige. Furthermore, many board positions run for three-year terms, so a larger amount of turnover might occur in these positions as compared to the CEO, COO, and CFO. Finally, the sample itself and the make-up of firms included many with venture capital backing. In such cases, members of the VCs might hold board positions that they may prefer to vacate after a liquidating event; new hires in this scenario would not be hired as a result of influence, but of need.

An analysis of the control variables is also of interest. First, in the models for new CEOs and COOs, year is significant and negative, suggesting that as the decade progressed fewer companies were bringing in these types of executive at the eleventh hour. This could be a reflection of the learning that occurred earlier in the decade, that replacing technology intensive company's leaders may have had some of the negative effects described earlier. Another possible explanation could be a lack of candidates as the sheer number of new public companies would have taxed the available pool of appropriate candidates. In the case of a new chairman, the percent equity held variable reflects the current management team's ability to inhibit the addition of a "new boss," so that combined with the increase in risk factors may require the addition of someone to address investors' concerns. Issuer size was also positive and significant in regressions for new chairmen, implying that larger firms may require a separation of board leadership from the executive team to address investor's concerns about potential agency conflicts. Finally, underwriter prestige was negative and significant in many of the regressions on new hires. This could be an indication that more prestigious underwriters tend toward issuers who already have completed their final TMT implementation. There are ongoing relationships between VCs and prestigious underwriters. One of the responsibilities of venture firms is to evaluate the TMTs of the firms in which they invest, and make appropriate changes as a normal course of business. That said, venture capital backing was not significant in any of the regressions.

Limitations and Future Research

This study has several limitations that should be acknowledged. First, although the industries chosen for the sample are reflective of the companies that went public in abundance during the 1990s, there is significant weighting toward technology that limits the generalizability of the findings. Technology firms in particular have higher levels of uncertainty in valuation, and as such the addition of known individuals may have a more pronounced effect on underpricing than in other more easily valued industries. Second, an assumption has been made that organizational changes made

within six months of the IPO date are after the issuer and underwriter agree to work together. This may not always be the case. Actual contract dates are not available to the researcher so the assumption is reasonable in most but not all cases. Third, I made the assumption that new hires made just before the IPO would be made with an eye to upgrade the organization from the perception of investors. I did not, however, track prestigious affiliations that could provide an interesting filter. Fourth, although my argument for underwriter influence hinges on relative power derived from resources, I did not pursue key informant observations from individuals involved with each IPO

Future research should attempt to refine the measures of relative bargaining power in this setting. Key informant studies would be helpful to uncover any latent variable not included here. It would also be of keen interest to track exactly how many original founders were displaced and what effect it had on those individuals as well as the entrepreneurial spirit of the firm. In addition, it would be of great interest to track the tenure and performance of these late hires to see if they have a positive or negative long-term effect on the issuing firm.

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About the Authors

JOHN S. PEARLSTEIN (john.pearlstein@stockton.edu) is an assistant professor of management at Richard Stockton College. His research interests are initial public offerings and entrepreneurship. He earn his B.S. and M.B.A from the Stern School of Business at New York University, and PhD from the Fox School at Temple University.

ROBERT D. HAMILTON (rdhiii@temple.edu) is a professor of strategic management at Temple University in Philadelphia, Pennsylvania. His academic training includes a bachelor's degree from Cornell University, his M.B.A. degree from the Darden School of the University of Virginia and his Ph.D. from Northwestern University. His academic research has focused on industry competitive analysis and managerial control, particularly the control of multinational enterprises. He has published in journals such as *Management International Review, Long Range Planning, IEEE Transactions on Engineering Management*, and *R and D Management.*