The Influence of Corporate Governance in Navigating Difficult Economic Times: Evidence from Young Internet Firms after the Crash

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Abstract
We explore whether corporate governance (CG) characteristics including independent boards, high levels of monitoring incentives, and CEO pay-performance sensitivity are related to various outcomes following the capital market shakeout that occurred in the spring of the year 2000. Using a sample of 277 Internet firms that conducted IPOs from 1996—1999. We find that firms with more outsiders on the board and with greater CEO pay-performance sensitivities are less likely to fail, while firms whose CEO owns a greater percentage of stock are more likely to fail. We find this only when we examine the homogeneous subsample of a single SIC code. We conclude that a homogeneous sample helps to reveal how CG mechanisms protect shareholder investments. We also detect relations between survivorship and traditional measures of financial condition, suggesting that Internet firms are subject to traditional economic determinants.

Keywords: Corporate Governance, New Economy, Crisis, Monitoring

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1. Introduction

We investigate whether traditional corporate governance mechanisms can assist young firms in navigating a crisis. Corporate governance (CG) research has found evidence supporting the contention that strong CG is associated with stock returns (Gompers, Ishii, and Metrick (2003)). Other studies, however, have not found a link between CG and firm performance (see, e.g., Kang and Sørensen 1999; Dalton, Daily, Certo, and Roengpitya 2002).[1] While Gompers, Ishii, and Metrick (2003) find results that suggest that governance matters for a subset of large and established firms, we examine firms at the other end of the spectrum: Internet startups. In an attempt to increase the empirical evidence regarding what types of mechanisms and in what situation governance is beneficial, we explore the relationship between corporate governance and firm performance from two new perspectives. First, we argue that the some of the weak results in prior research may be due to the heterogeneous nature of the sample firms. If particular governance mechanisms are most effective under certain circumstances, then more homogeneous samples may be required to detect a governance-performance relationship (Denis 2001). Second, we choose a basic measure of performance, firm survival, and explore whether traditional CG mechanisms serve to protect shareholder wealth for young, small firms that are particularly likely to fail (Caves 1998).

[1] Gompers, Ishii, and Metrick (2003) show that a portfolio long in the highest decile and short in the lowest decile of an index of CG strength earns positive abnormal returns, has higher firm value, higher profits,

As our setting for homogeneous firms that are particularly likely to fail, we use a sample of 277 Internet firms that conducted initial public offerings (IPOs) during 1996–1999. We test whether firms that remained independent entities on January 1, 2003, had significantly different CG mechanisms as of January 1, 2000 than those firms that failed or were acquired in the years following the year 2000 "shakeout" in the Internet sector. We analyze the complete sample as well as a subset of firms that focus on software production (those firms in SIC 73 (Business Services)), which should have even greater homogeneity in their production functions and competitive conditions. Internet firms experienced a period of crisis following the severe drop in market values in the year 2000 (Demers and Lev 2001), and so this setting involves firms facing significant investor and customer pressures. We use logistic regression to analyze the relations among CG mechanisms and firm outcomes. We also report results using event history analysis that are consistent with the logit results. Since firms often exhibit a slow decline in performance before delisting (Baker and Kennedy 2002), we measure survivorship as of January 1, 2003, almost three years after the onset of the crisis.

Our analysis is predicated on the basic assumption that firms with stronger CG mechanisms are more likely to have survived the Internet contraction. Stronger CG mechanisms consist of more independent Boards of Directors (e.g., Boards with a greater proportion of outside directors), Boards of Directors with stronger incentives to exert monitoring effort (e.g., Boards that own larger amounts of firm stock), and CEOs with stronger incentives to exert effort that increases shareholder value (e.g., CEOs with contracts with higher pay-performance sensitivity). While it is tempting to use hindsight

sales growth, lower capital expenditures, and make fewer corporate acquisitions. The GIM study deals with the tails of the distribution, and extremely large firms.

to argue that CG mechanisms are second-order effects and that the "Internet bubble" was filled with companies that would fail regardless of CG, we argue that many of the firms had equally viable business models[2] and were competing for the same traffic and revenue, and that stronger CG mechanisms could have been the difference between a firm that won the battle for market share and a firm that lost. During this period, young small firms were taking every advantage to gain market share. One example, Schultz and Zaman (2001) find evidence consistent with Internet firms' rush to go public being driven by their desire to claim market share. We expect that incorporating stronger CG mechanisms could also help a firm acquire market share, and thus survive.

Good governance is a necessity for firms to achieve successful performance (Kaplan and Norton (2001)). Creating a good business plan, in and of itself, is not enough. To navigate a fluid, dynamic, uncertain environment, firms need proper leadership. These two items are complementarities (Milgrom and Roberts, 1995). Given a good business plan and good governance, firms are likely to be able to achieve a successful outcome and avoid failure.

Figure 1 describes the progression of our analysis from an exploration of the entire sample of 277 Internet firms to an investigation of more homogeneous subsamples. We separate firms that are no longer independent entities at January 1, 2003 into firms that failed and firms that were acquired. We recognize that acquisitions offer benefits to the shareholders, and we consider that both survival and acquisitions are positive outcomes.

[2] The fact that Big 5 independent auditors accepted 267 of our 277 sample firms (96%) as clients speaks to the high perceived quality of our firms' business plans. Johnstone and Bedard (2001) model the client acceptance decision and provide evidence that audit firms do consider client business risk in the acceptance decision. Nonetheless, we control for business plan quality in our empirical analyses.

We believe that the relationship between CG mechanisms and performance is likely to differ depending on whether the firm experiences a positive outcome or fails outright.

Our empirical results reveal some interesting patterns in the relations among CG mechanisms, financial condition, and firm survival. First, in the complete sample, several traditional financial variables are highly associated with outright failure: firms with higher Ohlson bankruptcy scores and lower business plan quality are more likely to fail. Second, increasing the homogeneity of our sample reveals relations among CG mechanisms and outright failure. In our SIC 73 subsample, firms with more outsiders on the Board and with greater CEO pay-performance sensitivities are less likely to fail, while firms whose CEO owns a greater percentage of stock are more likely to fail.

The results have several interesting implications for governance research and practice. First, our evidence supports our contention that the weak empirical support for a relation between CG mechanisms and firm performance could be due to the heterogeneity of most cross-sectional research samples. Second, these CG mechanisms are *traditional* mechanisms (i.e., they are mechanisms that developed in the non-Internet corporate control setting). Thus, we provide further evidence that Internet firms may not require new governance mechanisms to protect shareholder wealth (cf. Rajan and Zingales 2000). We do find a result, however, that supports both traditional and new CG mechanisms. Higher pay-performance sensitivity is associated with positive outcomes. This suggests that stock option compensation, which is sensitive to firm performance, is a useful mechanism in New Economy firms.

Finally, we document a strong association between failure and traditional financial performance measures. Since we control for the quality of the firm's business plan, this

evidence also demonstrates that so-called "new economy" firms are subject to the same financial performance requirements as traditional firms. We believe that future research can use our results to identify and document settings and sectors where corporate governance and firm performance are related.

The remainder of this paper is organized as follows. Section 2 discusses the topic of corporate governance while Section 3 describes the Internet and motivates our study. Section 4 develops our hypotheses and Section 5 describes our sample, variable definitions, and research design. Section 6 presents the results of our statistical analyses and Section 7 concludes.

2. Corporate Governance

Recent surveys of the CG literature describe the purpose of CG in several ways. Shleifer and Vishny (1997, 737) assert that CG "deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment." Denis (2001, 192) posits that CG exists to address the problems that the separation of ownership and control in corporations creates. She states that CG "encompasses the set of institutional and market mechanisms that induce self-interested managers (the controllers) to maximize the value of the residual cash flows of the firm on behalf of its shareholders." Bushman and Smith (2001, 238) claim that CG mechanisms "facilitat[e] the efficient flow of scarce human and financial capital to promising investment opportunities."

Despite the theoretical merits of corporate governance, the empirical findings regarding the relation between CG and performance have been weak and contradictory (Kang and Sørensen 1999; Dalton et al. 2002; Hermalin and Weisbach 2002, Gompers,

Ishii, and Metrick (2003)). We argue that this is a result of two main factors: (1) that the relationship between CG and firm performance is context-specific; and (2) that there may be many situations in which the returns to good governance are minimal because all firms are doing relatively well. We expand upon each of these points below.

Attempting to find a link between CG and financial performance using a cross-sectional sample pooled over time and industry will yield little (Denis 2001; Hermalin and Weisbach 2002). Denis (2001, 198) argues, for example, that we should not expect the same set of governance controls to be optimal for firms in varied settings, and consequently "a relationship that exists only for a subset of firms may not show up empirically in a test using a larger population." For example, increasing the firm's leverage reduces managerial discretion, and therefore may be related to higher value. McConnell and Servaes (1995), however, show that this relationship only holds for firms in low-growth-opportunity settings and that the opposite effect obtains in high-growth-opportunity settings.

Denis's argument suggests that a sample with more homogeneous firms is likely to produce results, so long as the governance variables chosen are appropriate for the setting. For example, insider dominance may be essential in some settings where technical expertise is critical for success. Similarly, if certain CG mechanisms are substitutes for one another (Dalton et al. 2002; Shleifer and Vishney 1997), broad cross-sectional tests may not detect such tradeoffs.[3] Given a specific control setting, however, the appropriate CG mechanism may be obvious.

[3] Cui and Mak (2002) also invoke the homogeneity argument in their study of ownership organization and performance in high R&D firms. Their sample, however, includes firms from several industries with distinctly different product life cycles and production functions (e.g., software and biotechnology).

Finally, external mechanisms such as the market for corporate control, competition, the job market for managers, and monitoring by shareholders and regulatory agencies all contribute to the optimal level of total control for the firm. These external mechanisms are more likely to be at similar levels for firms in a homogenous environment. Firms facing similar markets are more likely to have a common need for internal CG mechanisms. Internal mechanisms include monitoring by the Board of Directors, incentive plans for managers and other employees, and the internal labor market. Research on CG assesses the use and effectiveness of these various mechanisms under specific firm circumstances (e.g., for firms with large proportions of their value tied to growth opportunities). While the three reviews from which we quote discuss some evidence that is consistent with theoretical expectations regarding the use and effectiveness of particular CG mechanisms, they agree that many unanswered questions about CG remain. We believe that the only way to answer these questions is to examine homogeneous samples. This reduces the variation of the external sources of control and provides a cleaner test of the internal CG-performance relation.

In addition, governance mechanisms may be most valuable when firms face great uncertainty about their survival. We hypothesize that the weak empirical support for a relation between firm performance and CG mechanisms is partly due to samples that consist mainly of firms whose shareholders have no incentives to complain about managerial rent-taking (that is, things are routine and everyone is receiving an adequate return). In a crisis situation involving financial distress, however, we argue that firms with stronger governance will fare better. In that vein, Gompers, Ishii, and Metrick (2003) find that firms that have extremely strong governance fare much better than firms

with extremely poor governance. The extreme cases are the ones in which results are seen.

We overcome these two problems with existing CG research in the following ways. First, we begin with a sample of firms that are somewhat homogeneous (sample-period firms participating in the Internet sector).[4] We then reduce the sample to those firms in one industry segment and expect those firms to face even more homogeneous pressures. Second, we examine firms that generally face great common uncertainty about their survival. We believe that CG mechanisms are more likely to affect firm performance (survival) under such circumstances. In the next section, we further describe the Internet sector and the characteristics that make it a potentially fruitful setting for examining the link between CG mechanisms and firm survivorship.

3. Internet Firms and Corporate Governance

Over 300 firms raised equity capital through initial public offerings between 1996 and 1999 (inclusive) in Internet-related ventures. In early 2000, the market value (and hence the viability) of many of these firms fell dramatically. As of April 2000, firms trying to compete in the Internet sector not only had common production functions (primarily based on technology and human capital) and serve similar clientele, they also faced a substantial amount of uncertainty regarding their financial future.

We argue that the 277 firms in our main sample compete in the same external environment. First, the firms' very existence depends on the macroeconomic adoption of a new technology (the Internet) by a sufficient number of users (Afuah and Tucci 2003). These firms then engage in competition for users (if your eyeballs are on Yahoo.com, they cannot be on Gap.com), human resource skills (the most sought-after managers were

being wooed with generous compensation packages), and the possibility of being acquired by other expanding Internet firms (Schultz and Zaman 2001, 349).

We also recognize, however, that there are differences in production functions and competitive conditions among firms in this sector (e.g., those serving consumers directly versus those serving other businesses), and propose that focusing on specific SIC groupings creates an even more homogeneous sample (For example., Yahoo.com does not grow at the expense of Gap.com, for example, but rather at the expense of its direct competitors in the portal group). We therefore examine one large industry segment, SIC 73 (Business Services). This segment (67% of our sample) consists primarily of software producers whose production functions and competitive environments are likely to be quite similar.

We acknowledge that firm characteristics beyond corporate governance may affect firm survival. There may have been some ventures funded during the "Internet Bubble" that, under calmer circumstances, would not have garnered investment capital. We control for this potential difference in business model quality with data on underwriter reputation. Underwriters who care strongly about their reputation would not support an IPO for a low-quality company (Loughran and Ritter 2003).

Gompers, Ishii, and Metrick (2003) examine 28 corporate governance mechanisms including blank check provisions, antigreenmail, and cash-out laws. The primary reasons for many of these provisions are to protect firms from takeovers. While governance can serve this role, it also can facilitate effective management. Therefore, we focus on a subset of governance mechanisms that are likely to be important for young firms that are navigating a crisis. We develop the hypotheses below related to the composition of the

[4] See section 5 for a definition of Internet firms.

board of directors, major shareholder ownership variables, and pay-performance sensitivity. We argue that these governance characteristics are the most salient in this setting.

4. Hypothesis Development

We develop our hypotheses from the perspective of standard resolutions of the problem of the separation of ownership and control (Fama and Jensen 1983). For example, we assume that managers who own less than 100% of the firm's stock are capable of extracting rents at the expense of other shareholders (Jensen and Meckling 1976) and that the "strength" of a particular governance mechanism depends on its ability to deter managers from extracting these rents. In this setting, as well, we define strong CG mechanisms as those that will assist a firm's managers in navigating a crisis. We expect that the measures that we examine will both deter managers from extracting rents and also guide them to good decisions. We develop hypotheses regarding three dimensions of CG: monitoring by the Board of Directors, incentive alignment through decision-maker ownership of the organization, and incentive alignment through pay-performance sensitivities in the CEO's contract.

Following Figure 1, we expect firms that achieve positive outcomes (remained independent or were acquired) will have stronger internal CG mechanisms than firms that fail.

Board Monitoring

In order to monitor management effectively, members of the board must (1) be independent of management and (2) have incentives aligned with those of external shareholders (to ensure exertion of necessary monitoring effort). In general, we expect

more independent boards and boards with incentives more closely aligned with shareholders to better protect the interests of shareholders. We consider measures of board structure and composition to be representative of board independence and measures of the stock ownership of board members to represent the alignment of incentives. While traditional CG literature has considered a high percentage of insiders on the board as a weak governance mechanism, this may not be true in the firms that we examine. Internet firms may have found it more valuable to rely on advisors with greater Internet expertise or vision. The tension exists because firms with many insiders on the board may have greater expertise that is valuable in these highly uncertain environments. Our first hypothesis is:

H1: Measures of Board independence (monitoring strength) are negatively associated with the outright failure of Internet firms.

We expect stronger results in the more homogeneous SIC 73 subsample.

The board independence measures we consider are Board size, the percentage of independent directors on the Board,[5] CEO duality,[6] whether the CEO is also a founder of the firm, and whether a venture capital firm has a representative on the Board. The next few paragraphs describe the evidence regarding these Board characteristics and CG strength.[7]

Research has demonstrated negative associations between the size of the Board and CG strength, consistent with smaller boards being able to reach decisions more quickly and being less susceptible to managerial influence. Smaller boards are more likely to remove

[5] Independent directors are not employees of the firm *and* are not employees of an organization that has significant business relationships with the firm.
[6] CEO duality is present if the CEO also holds the title of Chairman of the Board.
[7] Other monitoring variables considered in prior literature include whether the CEO sits on the compensation committee and whether the firm's Board is classified (i.e., whether only a fraction of the Board members are subject to re-election each year). We do not believe that these mechanisms are relevant

the CEO of a poorly performing firm (Yermack 1996; Wu 2000) and to negotiate CEO compensation contracts that are more sensitive to performance (Yermack 1996).

Research has also demonstrated that Boards that have a larger proportion of outside directors (and, sometimes, non-employee directors) take actions consistent with independence from management. Boards with greater proportions of outside directors are more likely to remove the CEO of a poorly performing firm (Weisbach 1988) and appear to make acquisition-related decisions that are more conducive to increased shareholder value (Byrd and Hickman 1992).

Other characteristics of the Board may also determine the level of influence of the CEO over the board. For example, Goyal and Park (2002) demonstrate that Boards with CEO duality are less likely to replace a CEO given poor company performance. A similar argument suggests that boards for which the CEO is a founding member of the firm may also be less independent and therefore weaker monitors (though to our knowledge there is not explicit evidence on this Board characteristic).

Finally, Engel, Gordon, and Hayes (2002) show that the presence of venture capitalists (VCs) in entrepreneurial firms enhances performance. VCs are likely to have significant incentives to ensure that boards provide diligent monitoring effort. Baker and Gompers (2001) provide corroborating evidence.

Ownership Organization

Another CG dimension that can help align the interests of decision-makers with stockholders is the ownership organization of the firm's stock. Independent entities that

in this setting. Neither of these CG mechanisms should improve a firm's ability to navigate crises or uncertainty.

own relatively more of the firm's stock will have greater incentive to exert effective monitoring (and disciplining) effort. Our second hypothesis is:

H2: The ownership level of monitoring parties is negatively associated with the outright failure of Internet firms.

Many firms require that board members own stock and compensate board members only with firm stock and/or stock options. Owning shares of the firm's stock means that monitoring parties' wealth increases in alignment with shareholder wealth. Perry (2000) provides evidence that boards that own larger amounts of firm stock take actions consistent with greater monitoring effort. We expect larger percentage ownership by the monitoring entities to encourage boards to take decisions that are in the best interest of the shareholders (i.e. continued survival or acquisition). Similar arguments apply to large ownership stakes, or blocks: these shareholders should have more incentive to exert high monitoring effort (e.g., Wu 2000).

There are conflicting arguments for the effect of increasing CEO ownership on monitoring and performance. Jensen and Meckling (1976) argue that as the manager relinquishes more ownership his ability to maximize his own utility at the expense of shareholders increases. With lower ownership stakes, CEOs may choose to take on projects that benefit them directly, and do not benefit shareholders. Thus, lower CEO ownership may be associated with lower performance. Alternatively, high CEO ownership gives the CEO greater power in negotiations with the Board. Hermalin and Weisbach (1998) model the CEO-Board relationship as a bargaining game, and indicate that CEOs with greater bargaining power are more able to extract rents from shareholders. Shivdasani and Yermack (1999) and Baker and Gompers (2001) show that

the CEO's voting stake is associated with her bargaining power. Thus, greater CEO ownership may be associated with lower performance as CEOs extract rents from shareholders. We leave resolution of which effect is stronger to the empirical analyses.

Pay-Performance Sensitivity

Research using the principal-agent model suggests that the CEO compensation contract is a powerful means of reducing agency costs due to information asymmetry. Optimal contracts provide the CEO with incentives to take actions (i.e., exert high effort) that maximize the return to the residual claimants (see Lambert (2001)). Firms that implement contracts with a stronger relation between firm performance and CEO compensation may therefore be more likely to survive. This suggests our third hypothesis:

H3: The pay-performance sensitivity of CEO contracts is negatively associated with the outright failure of Internet firms.

5. Sample and Research Design

Sample Selection

Our sample consists of Internet companies[8] that conducted IPOs from 1996 through 1999 (inclusive). We begin in 1996 because there were few Internet IPOs before 1996 and because IPO Alert![9] (from which we identify additional firms and collect data) begins coverage in 1996. We identify 333 Internet IPOs using the Securities Data Corporation database and IPO Alert!. We eliminate 27 firms due to their foreign status

[8] We consider an "Internet firm" to be one that exists primarily because of the Internet. The firm might either conduct business with consumers or other businesses over the Internet or provide products and services (e.g., software or consulting) to other business to support their Internet operations. We confirm that a firm from SDC and/or IPO Alert! is in fact an Internet firm by reading the description of the business either from Hoover's (http://www.hoovers.com) or in the firm's Form 10-K.

and 29 firms due to data availability issues, leaving a final sample of 277 Internet firms. Panel A of Table 1 outlines the sample selection procedure.

Panel B of Table 1 indicates that 78% of our sample firms conducted their IPO in 1999 while only 2.5%, 8%, and 11.5% conducted their IPOs in 1996, 1997, and 1998, respectively. Further, Panel C of Table 1 reveals that 67% (185) of our sample firms are in two-digit SIC code 73 (Business Services); two-digit SIC code 59 is the next most highly represented with 9% (25) of the sample firms.

Variable Definitions

Dependent Variables

We are interested in the effects of traditional CG mechanisms in the Internet sector, with a maintained hypothesis that stronger traditional CG mechanisms make successful performance (survival as an independent entity or acquisition) more likely. We classify firms into one of four outcome categories. A firm is a *SURVIVOR* if its CRSP delist code as of January 1, 2003, is 100 (the code for a continuing independent entity). A firm is a *FAILURE* if it delists on or before January 1, 2003, and its delist code is 500 or greater (codes for firms that no longer trade on the exchange but were not acquired). A firm is considered an acquired firm (*ACQUIRED))* if it delists on or before January 1, 2003, and has a CRSP delist code between 200 and 299 (the codes for acquired firms).

Our analysis involves logistic analysis of the likelihood that a firm experiences failure relative to a positive outcome (surviving outright or being acquired).

Independent Variables

We measure our independent variables as close to the beginning of the Internet shakeout of Spring 2000 as possible. We obtain data for our measures of board

[9] IPO Alert!: www.alertipo.com.

monitoring, ownership organization, and pay-performance sensitivity from either the firm's proxy statement released in late 1999 or early 2000, from the firm's 10-K if no proxy is available, or the firm's IPO prospectus from late 1999 (for firms with no proxy or 10-K). We obtain our measures of financial condition from the COMPUSTAT annual industrial file for the end of the fiscal year on or before March 31, 2000.

We measure Board monitoring strength in several ways. *BDSIZE* is the number of members of the Board of Directors. We expect larger Boards to be positively associated with poorer performance since their ability to make decisions is impaired by their size and their monitoring ability is consequently decreased. *OUTSIDE* is the proportion of the Board of Directors that is not affiliated with the firm through either employment or business relationships. We expect greater proportions of outside directors to have more incentives to monitor and thus to be associated with better performance. *CHAIR* is 1 if the CEO is also the Chair of the Board (duality), and zero otherwise. We expect CEO duality to be associated with lower performance since the lack of existence of a separate Board Chair with specific monitoring responsibility implies lower control. *FOUNDER* is 1 if the CEO is also the (or a) founder of the firm, and zero otherwise. We expect *FOUNDER* to be associated with lower performance: if the CEO is also a founder of the firm, he or she will have greater relative power and thus the Board's monitoring strength will be lower. Finally, *VENCAP* is 1 if there is a representative of a venture capital firm on the Board, and zero otherwise. We expect that the presence of a venture capitalist on the Board will increase its incentive to monitor as well as its monitoring expertise. We anticipate that *VENCAP* will, therefore, be positively associated with performance.

We measure two dimensions of ownership organization: the CEO's ownership and the ownership of independent monitors. *CEOPER* is the percentage of the firm's shares that the CEO owns. A high value on *CEOPER* can have two opposing implications, as we discuss in Section 4. It may indicate that the CEO's interests are aligned with those of other shareholders, in which case *CEOPER* would be positively associated with performance. Conversely, high *CEOPER* could indicate that the CEO has the ability to extract rents and be relatively immune from monitoring efforts. We include the ownership of three types of independent monitors, *OUTPER*, *BLOCK*, and *BLOCKBD* are the percentages of the firm's shares that outside board members, 5% blockholder without Board representation, and 5% blockholders with Board representation own. We expect all of these variables to be associated with better performance since larger stakes provide all of these groups with greater incentives for monitoring management and exerting effort to help the firm survive.

Our measure of pay-performance sensitivity (*PPSENS*)[10] follows Murphy (1999) and captures the dollar change in CEO wealth per $1,000 change in shareholder wealth. We expect a positive association between the CEO's pay-performance sensitivity and firm performance.

Control Variables

While we expect that the strength of CG mechanisms has an effect on the likelihood of firm survival, we recognize that there are other factors that contribute to that

[10] The CEO's pay-performance sensitivity, or "b" value, calculated as $1{,}000*(MV)^{-1}*\{[\text{CEO Equity} *e_e] + [\text{CEO Options}*e_o] + \text{CEO Salary}*e_s]\}$. MV is the market value of the firm at the end of December 1999 (CRSP). CEO Equity is the market value of the CEO's stock holdings at the end of December 1999 (Proxy). CEO Options is the approximate value of the CEO's option portfolio at the end December 1999 (Proxy), using Murphy's (1999) estimation method. CEO Salary is the present value of an annuity of the CEO's fiscal 1999 salary assuming the CEO retires at 65 (or in 3 years if the CEO is currently over 65) and a 3% discount rate. e_e, e_o, and e_s are the elasticities of equity, option value, and salary, respectively, to changes in shareholder wealth.

likelihood. We consider the firm's financial condition as indicated by Ohlson's (1980) bankruptcy index (*OHLSON*),[11] the growth in the firm's sales from 1998 to 1999 (*SGROW*),[12] and the firm's 1999 net operating cash flow relative to its 1999 sales (*CASHFLOW*)[13] as financial controls for determinants of survival and/or value loss.

Following prior research on organizational failure (e.g., Baker and Kennedy 2002), we control for the age of the firm. We measure *AGE* as the time in years between the inception of the firm and the Internet shakeout in early 2000.[14] Dowell, Shackell, and Stuart (2002) provide evidence in support of the argument that younger firms have less well-established organizational routines and are consequently less likely to successfully adapt to environmental shocks such as the 2000 Internet correction.

We also expect that some Internet firms possess stronger business models and therefore enjoy a higher probability of success (Afuah and Tucci 2003). Our proxy for business plan quality (*BPQUAL*) is the reputation of the lead underwriter for the firm's initial public offering.[15] Loughran and Ritter (2003), for example, argue that the top-quality underwriters will not support firms that do not appear likely to succeed. The underwriter rankings reflect prestige. Firms want prestigious underwriters when they go public. This leads to prestigious underwriters having more potential clients to choose from than they can take public. Because of this, underwriters choose only the offerings

[11] Our results are invariant to the use of Altman's (1968) bankruptcy prediction index. We report Ohlson because of its superior performance in Begley, Ming & Watts (1996).
[12] SGROW is set to 1 when the firm had no sales in 1998 due to it not yet being in existence.
[13] The CASHFLOW variable (Operating Cash Flow/Sales) is set to the minimum sample value for firms with zero 1999 sales. Removal of these observations does qualitatively affect our results.
[14] Our results are robust to measuring *AGE* as the time from inception to the firm's IPO (Dowell et al. 2002).
[15] We use the quality rating of the lead underwriter, from http://bear.cba.ufl.edu/ritter/ipodata.htm. These ratings have appeared in Loughran and Ritter (2003) and are adaptations of the ratings that first appeared in Carter and Manaster (1990). The lowest rating is 1, the highest is 9.

with the best potential for success. (i.e. the best business plan).[16] Finally, we include the natural logarithm of the firm's total assets (*SIZE*).

Model Specification

We test our hypotheses using a logistic specification. Our logistic models predict the likelihood that a firm fails outright versus obtains a positive outcome (survives or is acquired). The model we estimate is:

$$\begin{aligned} FAILURE = {} & \beta_0 + \beta_1 * BDSIZE + \beta_2 * OUTSIDE + \beta_3 * CHAIR + \beta_4 * FOUNDER \\ & + \beta_5 * VENCAP + \beta_6 * CEOPER + + \beta_7 * OUTPER + \beta_8 * BLOCK \\ & + \beta_9 * BLOCKBD + \beta_{10} * PPSENS + \beta_{11} * OHLSON + \beta_{12} * SGROW \\ & + \beta_{13} * CASHFLOW + \beta_{14} * AGE + \beta_{15} * BPQUAL + \beta_{16} * SIZE + \varepsilon \end{aligned}$$

6. Results

Descriptive Statistics and Univariate Tests

Table 2 Panel A contains descriptive statistics for the complete sample (277 firms) and for the SIC 73 subsample (185 firms). The median Board size for the full sample is 7 members, while for SIC 73 firms the median Board has 6.5 members. SIC 73 firms are growing slightly faster (median *SGROW* of 166% in 1999 versus 149% for the full sample) and consuming cash more rapidly (median *CASHFLOW* of –5.05 versus –0.53 for the full sample). Finally, the *OHLSON* measure is lower for SIC 73 firms (SIC 73 mean .582, median -0.023; full sample mean .977, median 0.611).[17]

Table 2, Panels B and C, contains descriptive statistics for the performance outcome partitions. Panel B shows the results for all sample firms while Panel C contains results

[16] Carter, Dark, and Singh (1998) find that IPO underperformance is less severe for firms handled by more prestigious underwriters, and that the Carter-Manaster measure explains the most variation. Finance signaling models (for example Hughes 1986, Titman and Trueman 1986) model the relation between auditor and underwriter reputation and signal of firm value. This suggests that the choice of auditor or underwriter is a costly, credible signal of a firm's prospects.

for SIC 73 firms. Panels B and C also indicate the results of (two-tailed) t-tests (Wilcoxon signed rank tests) of the difference in means (medians) between the Positive outcomes subsample and the Failure subsample. For example, the Ohlson bankruptcy score (*OHLSON*) means (medians) of the Failure firms are significantly lower than those of the Positive outcome firms at the $p<0.01$ level in both the full sample and the SIC 73 subsample. Failures also have significantly lower business plan quality (*BPQUAL*) than Positive outcome firms (means different in the full sample (SIC 73 subsample) at the $p<0.01$ ($p<0.05$) level; medians different at the $p<0.10$ level in the full sample only). Similar results are reported in Panels D and E. These panels remove the Acquired firms and report only the Survivors verus Failures.

Table 3 contains Pearson correlation coefficients for the independent variables for the full sample and for the SIC 73 subsample. In the majority of cases, the sign and significance are the same for the full sample as for the SIC 73 subsample, and the coefficient magnitudes are very similar. Founder status, the share ownership of blockholders with Board representation, and the ownership by the CEO appear to be significantly related to the other variables of interest most frequently. Companies at which the founder is CEO tend to have larger boards with more outside directors and are more likely to have a CEO who is also chairman of the board. Blockholders with Board representation hold a larger percentage of total shares when Boards are larger, when there is a separate Chairman, when the CEO is the founder, and when a venture capitalist is on the Board. The last result is not surprising, of course, since venture capitalists often hold large blocks of shares.

Logit Analysis : *Positive Outcomes v. Failures*

[17] Higher values of the Ohlson (1980) score are associated with greater financial distress.

Table 4 contains the results of our logit analysis of Positive outcomes and outright failures. The dependent variable, *FAILURE*, takes on the value of 1 for firms that are delisted from CRSP for reasons other than acquisition prior to January 1, 2003, and 0 for all other firms (see Figure 1). For the full sample, only financial control variables are significantly related to failure. Firms with better Ohlson bankruptcy scores and more prestigious underwriters are significantly less likely to fail.

In the SIC 73 subsample, however, several corporate governance variables are significantly related to the likelihood of failure. This outcome is consistent with our conjecture that increasing sample homogeneity will improve our power to detect relations between CG and performance. In particular, Table 4 shows that firms with a higher proportion of outside board members and higher pay-performance sensitivity for the CEO are significantly less likely to fail, evidence consistent with our predictions in hypotheses 1 and 3. None of the non-CEO ownership variables has a significant coefficient, so the Table 4 evidence does not support hypothesis 2. Finally, firms where the CEO holds a higher percentage of the stock are more likely to fail, suggesting that the CEO's increased ability to extract rents dominates the increased incentives to act in the long-term best interests of the shareholders. The significant effect of *OHLSON* on the likelihood of failure persist in the SIC73 subsample, whereas the firm's business plan quality (*BPQUAL*) no longer has a significant effect, but the *CASHFLOW* does.[18]

To support our contention that these results have economic significance, we run baseline probability computations; the results are reported in Table 5. For the full

[18] We assess the robustness of our results by examining the impact of outlying observations and of changing variable specifications. We Winsorize the independent variables by setting extreme values to +/- three standard deviations from the mean of the variable. Our inferences do not change. We use alternative

sample, the baseline probability of failure is 16.84%. For firms that have OHLSON scores 2 standard deviations below the mean, their likelihood of failure is 5.4%, whereas firms whose scores are two standard deviations above the mean have a probability of failure of 41.75%. PPSENS shows the greatest relation with failure, 2 standard deviations below the mean is associated with a 72.17% chance of failure, whereas 2 standard deviations above is virtually assured survival (1.56% chance of failure). Panel B contains similar statistics for the SIC 73 sample. The variables that are significant in the logit analysis, with the exception of OUTSIDE, show quite different probabilities of failure for firms above and below the mean.

We use Somer's D statistic to assess the predictive ability of the models presented in Tables 4 and 6 (see, for example Morris and Nichols 1988). This statistic is constructed by comparing pairs of observations, and determining whether, in each pair, the observation that our model predicts has a higher probability of failing, did in fact fail. If the observation with a higher predicted failure probability failed, this is called concordance, while if the observation with a lower predicted failure probability failed, it is called discordance. These comparisons are made across all possible pairwise comparisons in the data, and the end result is a correlation statistic, indicating whether our model, in general, correctly predicts those firms with higher risks of failure. The Somer's D statistic in all of our models is positive and ranges between 0.50 and 0.58, with slightly higher results for the SIC 73 subsample, indicating that our model predicts failures slightly better within the more homogeneous sample of firms.

specifications for firm age (age at IPO) and size (revenues), and our inferences are not sensitive to this change.

Logit Analysis: *Survivors versus Failures*

We are assuming that acquisition is a positive result. In some cases, that may not be true. To consider this possibility, we remove the acquisition firms from the sample and re-run the analysis. Table 6 contains the results of the logistic regression of Failures versus Survivors. The same patterns from our original analysis emerge. In the full sample, only the economic variables are significant (*OHLSON*, *BPQUAL*, and *CASHFLOW*). In the more homogeneous subsample, the same corporate governance variables (OUTSIDE, CEOPER, and PPSENS) are significantly related to failure.

Sensitivity Analysis

To ensure that our results are not dependent on our variable specifications and research design choices, we conducted several robustness checks:

- We control for the heteroskedasticity in our measure of growth (*SGROW*) by taking the natural logarithm of *SGROW*. The coefficient on *BLOCK* in the full sample becomes significant ($p<0.1$), while all other variables retain their Table 4 levels of significance in both the full and SIC 73 only samples.
- We ran our logistic regressions without deflating *CASHFLOW*. In the full sample, the coefficient on *OUTSIDE* becomes significant ($p<0.1$) while that on *SIZE* is no longer significant. In the SIC 73 sample, the coefficient on *CASHFLOW* is no longer significant. All other variables retain their Table 4 levels of significance in both the full and SIC 73 only samples.

These checks serve only to increase the support for our hypotheses regarding the relationship between governance strength and positive shareholder outcomes; none of the governance variables we report as significant in Table 4 are affected.

As a further robustness check, we perform event history analysis. This technique enables us to account not only for whether a firm was delisted for a given reason, but how much time elapsed between the time it went public and when it was delisted. The event-history results generally agree with the logistic regression results, as governance variables

found to be significant in the logistic regressions remain significant in event history analysis. The event history results also find additional governance variables to be significant in both the full sample and SIC 73 subsample, strengthening the support for our hypotheses.[19]

7. Implications and Conclusions

In this paper, we study the relationship between corporate governance and firm survival in the Internet sector. Our goal is to demonstrate that relations between CG and performance may be hidden in prior research by sample heterogeneity and by providing evidence that governance may matter more for issues of firm survival after a severe environmental shock than for issues of routine annual returns. We are interested in contributing additional evidence related to the question of whether so-called "new economy" (in our case, Internet) firms are fundamentally different from traditional firms.

Our results are in line with our expectations. We do not detect relations between CG mechanisms and firm survival in our full sample, but focusing on the more homogeneous SIC 73 subsample improves our ability to detect relations. Finally, we find relations among Internet firm survival and *traditional* measures of both corporate governance strength and financial condition. Our results therefore add to the body of evidence (e.g., Hand 2000) that indicates the "new economy" may not be nearly as different as some have argued (e.g., Rajan and Zingales 2000).

[19] In order to do this analysis, we create a variable that represents the number of days that elapse between the day that the firm goes public, and the day that it is delisted or the observation period ends (December 31, 2002). The event history formulation then calculates the probability that a firm will be delisted on day t, given that it was still listed on day t-1, controlling for the time that the firm has been publicly listed and for the covariates used in the logistic regression presented in Tables 5 and 6.

Some caution is required, however, in interpreting and generalizing our results. Our sample focuses on Internet firms; the "new economy" also includes other firms whose primary source of value is human capital. Additionally, there is empirical evidence that Internet firms are different from other firms along certain dimensions. Dowell et al. (2002) show that, after controlling for known determinants of stock price volatility, a firm's Internet status retains significant explanatory power. The relations we detect, therefore, between CG mechanisms and firm survival may not generalize to other types of firms. Finally, ours is the first study to focus exclusively on a sector of the economy during a time of competitive crisis. Our results lead to many future research opportunities that continue to identify circumstances in which governance is related to performance.

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Figure 1 Internet firm partitions for corporate governance analysis (SIC 73 firms in brackets)

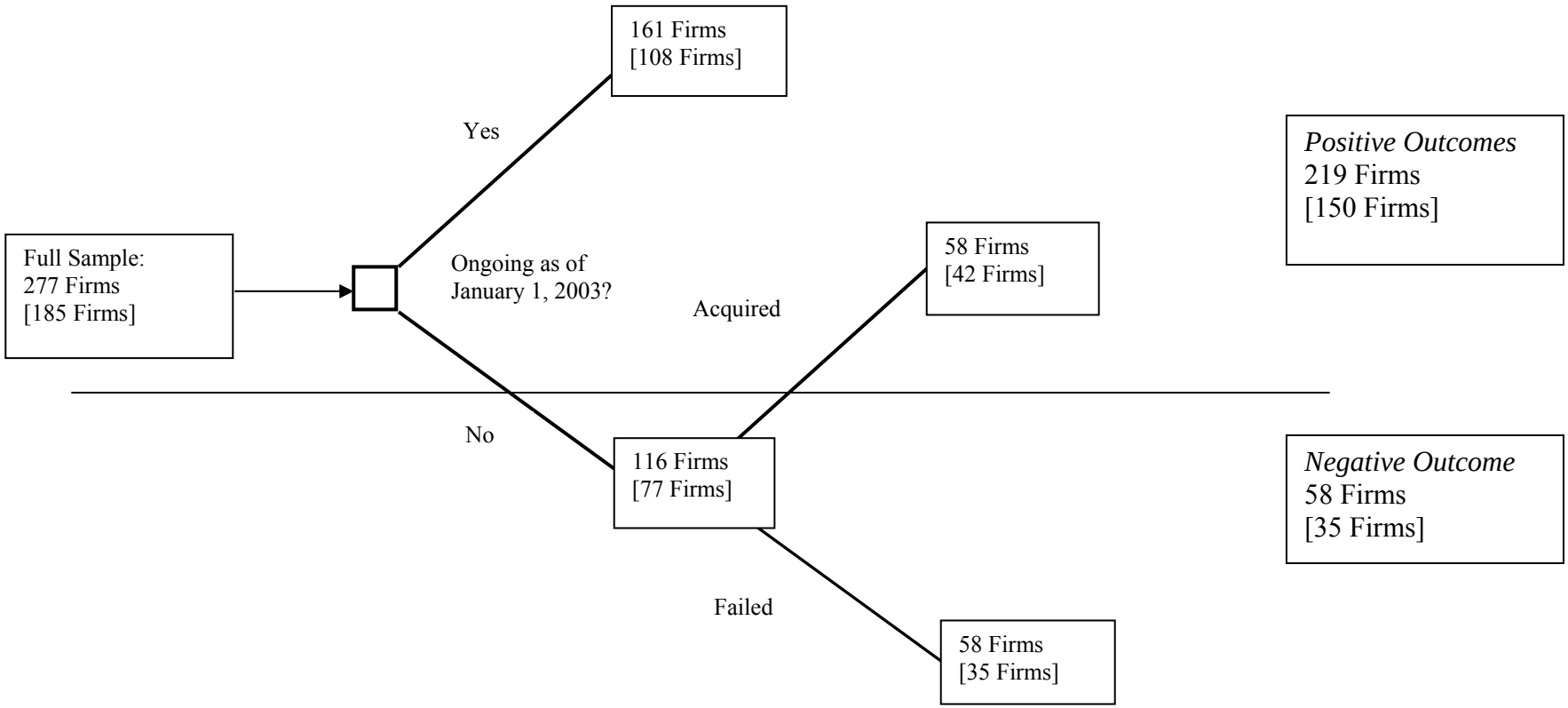

TABLE 1
Sample information

Panel A: Selection procedure		
Internet firms identified on SDC and IPO Alert		333
Firms eliminated due to:		
Foreign status	27	
Acquired or failed prior to January 1, 2000	19	
Lack of CRSP/Compustat/proxy statement data	10	
Total firms eliminated		56
Firms in final sample		277

Panel B: Timing of initial public offerings	
1996	7
1997	22
1998	32
1999	217

Panel C: Two-digit SIC codes	
27	1
35	6
36	12
47	3
48	14
50	4
51	1
54	1
56	1
59	25
60	2
61	3
62	6
64	4
65	1
73	185
78	2
79	1
86	1
87	4

TABLE 2
Descriptive statistics

Panel A: Full sample

Variable	**All SIC Codes (N=277)**					**SIC 73 Subsample (N=185)**				
	Mean	Std. Dev.	Min.	Median	Max.	Mean	Std. Dev.	Min	Median	Max
BDSIZE	6.74	1.70	3	7	12	6.59	1.68	3	6.5	12
OUTSIDE	0.60	0.22	0	0.67	1	0.62	0.21	0	0.67	1
CHAIR	0.38	0.49	0	0	1	0.37	0.48	0	0	1
FOUNDER	0.38	0.49	0	0	1	0.38	0.49	0	0	1
VENCAP	0.69	0.46	0	1	1	0.68	0.47	0	1	1
CEOPER	0.11	0.13	0	0.06	0.79	0.11	0.13	0	0.06	0.79
OUTPER	0.20	0.19	0	0.16	0.94	0.20	0.19	0	0.16	0.84
BLOCK	9.52	10.56	0	7.12	58.45	9.25	10.7	0	7.12	58.45
BLOCKBD	23.17	22.73	0	18.79	98.6	23.07	21.68	0	19.35	96.7
PPSENS	170.40	556.70	0	72.1	8,951	181.51	668.91	0	70.88	8,950.65
OHLSON	0.977	3.64	-6.92	0.611	16.83	0.582	3.30	- 5.71	-0.023	10.51
SGROW	8.23	63.27	-0.79	1.49	1,027	10.38	77.17	-0.79	1.66	1,027
CASHFLOW	- 3.19	16.81	- 200	- 0.53	1.35	- 1.73	4.06	- 35.53	- 5.05	1.35
AGE	5.64	3.60	1	5	27	5.53	3.39	1	5	27
BPQUAL	7.70	1.98	1	8	9	7.65	2.09	1	8	9
SIZE	4.57	1.29	1.53	4.52	9.12	4.55	1.22	1.53	4.52	9.12

(The table is continued on the next page.)

Panel B: Full Sample, Positive Outcomes and Failures Subsamples

Variable	Positive Outcomes (N = 210)			Failures (N=57)		
	Mean	Med	SD	Mean	Med	SD
BDSIZE	6.75	7.00	1.74	6.74	7.00	1.55
OUTSIDE	0.61	0.67	0.22	0.57	0.63	0.24
CHAIR	0.62	1.00	0.49	0.62	1.00	0.49
FOUNDER	0.62	1.00	0.49	0.60	1.00	0.49
VENCAP	0.70	1.00	0.46	0.64	1.00	0.49
CEOPER	0.11	0.06	0.13	0.11	0.05	0.13
OUTPER	0.21	0.17	0.19	0.16*	0.08	0.19
BLOCK	8.92	6.75	10.52	11.76*	8.40†	12.30
BLOCKBD	23.95	19.40	22.94	20.20	13.40	21.90
PPSENS	183.40	77.87	621.34	121.3	30.00	139.70
OHLSON	0.51	0.18	3.49	2.75‡	1.93‡	3.67
SGROW	8.08	1.54	69.24	8.79	1.12	32.09
CASHFLOW	-2.13	-0.46	12.98	- 7.18	- 1.36‡	26.55
AGE	5.72	5.00	3.72	5.36	5.00	3.09
BPQUAL	7.90	9.00	1.80	6.93‡	8.00†	2.43
SIZE	4.62	4.55	1.22	4.39	4.26	1.51

Notes:

* Significantly different from *SURVIVORS/ACQUIRED* at the 0.10 level.

† Significantly different from *SURVIVORS/ACQUIRED* at the 0.05 level.

‡ Significantly different from *SURVIVORS/ACQUIRED* at the 0.01 level.

(The table is continued on the next page.)

Panel C: SIC73, Positive Outcomes and Failures Subsamples

Variable	Positive Outcomes (N = 150)			Failures (N=35)		
	Mean	Med	SD	Mean	Med	SD
BDSIZE	6.54	6.00	1.69	6.75	7.00	1.63
OUTSIDE	0.63	0.67	0.20	0.57	0.62	0.25
CHAIR	0.62	1.00	0.49	0.67	1.00	0.49
FOUNDER	0.63	1.00	0.48	0.58	1.00	0.50
VENCAP	0.71	1.00	0.45	0.56*	1.00*	0.50
CEOPER	0.10	0.06	0.13	0.12	0.06	0.15
OUTPER	0.21	0.17	0.19	0.14†	0.05†	0.17
BLOCK	9.25	7.12	11.00	9.26	6.70	9.77
BLOCKBD	24.2	20.80	21.64	18.35	11.45*	21.51
PPSENS	194.40	74.84	741.24	132.0	68.98	151.10
OHLSON	0.11	-0.35	3.07	2.56‡	2.05‡	3.53
SGROW	10.20	1.71	83.72	11.11	1.11	40.47
CASHFLOW	-1.15	-0.49	2.19	- 4.12†	- 1.15	7.70
AGE	5.58	5.00	3.57	5.31	5.00	2.56
BPQUAL	7.87	9.00	1.88	6.74†	8.00	2.65
SIZE	4.63	4.56	1.13	4.23	4.07	1.52

Notes:

* Significantly different from *SURVIVORS/ACQUIRED* at the 0.10 level.

† Significantly different from *SURVIVORS/ACQUIRED* at the 0.05 level.

‡ Significantly different from *SURVIVORS/ACQUIRED* at the 0.01 level.

(The table is continued on the next page.)

Panel D: Full Sample, Survivors and Failures Subsamples

Variable	Survivors (N = 161)			Failures (N=57)		
	Mean	Med	SD	Mean	Med	SD
BDSIZE	6.88	7.00	1.76	6.74	7.00	1.55
OUTSIDE	0.61	0.67	0.22	0.57	0.63	0.24
CHAIR	0.61	1.00	0.49	0.62	1.00	0.49
FOUNDER	0.62	1.00	0.49	0.60	1.00	0.49
VENCAP	0.68	1.00	0.47	0.64	1.00	0.49
CEOPER	0.11	0.06	0.14	0.11	0.05	0.13
OUTPER	0.19	0.14	0.17	0.16	0.08	0.19
BLOCK	8.33	6.30	10.36	11.76*	8.40	12.30
BLOCKBD	22.81	18.78	22.59	20.20	13.40	21.90
PPSENS	199.9	85.37	715.36	121.3	30.00	139.70
OHLSON	0.437	0.06	3.61	2.75‡	1.93‡	3.67
SGROW	9.93	1.63	80.90	8.79	1.12	32.09
CASHFLOW	- 2.57	- 0.48	15.13	- 7.18	- 1.36‡	26.55
AGE	5.80	4.00	4.03	5.36	5.00*	3.09
BPQUAL	7.92	9.00	1.87	6.93‡	8.00	2.43
SIZE	4.65	4.55	1.29	4.39	4.26	1.51

Notes:

* Significantly different from *SURVIVORS* at the 0.10 level.

† Significantly different from *SURVIVORS* at the 0.05 level.

‡ Significantly different from *SURVIVORS* at the 0.01 level.

(The table is continued on the next page.)

Panel E: SIC 73, Survivors and Failures Subsamples

Variable	Survivors (N = 108)			Failures (N=35)		
	Mean	Med	SD	Mean	Med	SD
BDSIZE	6.75	7.00	1.76	6.75	7.00	1.63
OUTSIDE	0.62	0.67	0.21	0.57	0.62	0.25
CHAIR	0.60	1.00	0.49	0.67	1.00	0.49
FOUNDER	0.63	1.00	0.49	0.58	1.00	0.50
VENCAP	0.67	1.00	0.47	0.56	1.00	0.50
CEOPER	0.11	0.06	0.13	0.12	0.06	0.15
OUTPER	0.19	0.14	0.18	0.14	0.05	0.17
BLOCK	9.01	7.10	11.09	9.26	6.70	9.77
BLOCKBD	22.85	19.80	21.53	18.35	11.45*	21.51
PPSENS	215.8	83.70	861.8	132.0	68.98	151.10
OHLSON	0.02	-0.46	3.17	2.56‡	2.05‡	3.53
SGROW	12.94	1.84	98.63	11.11	1.11	40.47
CASHFLOW	- 1.26	- 0.53	2.38	- 4.12†	- 1.15	7.70
AGE	5.60	4.00	3.88	5.31	5.00*	2.56
BPQUAL	7.88	9.00	1.98	6.74†	8.00*	2.65
SIZE	4.64	4.56	1.17	4.23	4.07	1.52

Notes:

* Significantly different from *SURVIVORS* at the 0.10 level.

† Significantly different from *SURVIVORS* at the 0.05 level.

‡ Significantly different from *SURVIVORS* at the 0.01 level.

(The table is continued on the next page.)

BDSIZE	The number of members of the Board of Directors.
OUTSIDE	The percentage of Board members that are outsiders (excluding affiliated directors).
CHAIR	1 if the CEO is also chairs the Board of Directors, 0 otherwise.
FOUNDER	1 if the CEO is also the (or a) founder of the firm, 0 otherwise.
VENCAP	1 if a venture capital firm has a representative on the Board of Directors, 0 otherwise.
CEOPER	The percentage of the firm's total shares outstanding that the CEO owns.
OUTPER	The percentage of the firm's total shares outstanding that the outside directors collectively own.
BLOCK	The percentage of the firm's total shares outstanding that 5% blockholders without Board representation own.
BLOCKBD	The percentage of the firm's total shares outstanding that 5% blockholders with Board representation own.
PPSENS	The CEO's pay-performance sensitivity, expressed as the dollar increase in CEO wealth for a $1,000 increase in shareholder wealth.
OHLSON	Ohlson's (1980) bankruptcy prediction index, calculated as -2.63 -0.267*SIZE +5.63*(Total Liabilities divided by Total Assets) - 1.43*(Working Capital divided by Total Assets) + 0.585*(Current Liabilities divided by Current Assets) - 2.35*(Net Income divided by Total Assets) - 1.99*(Cash Flow From Operations divided by Total Assets) + 0.307*(Indicator for Negative Net Income in Past Two Years) - 1.56*(Indicator for Total Liabilities greater than Total Assets) - 0.5092*(Percentage Change in Net Income)
SGROW	The percentage growth in sales from 1998 to 1999 [(1999 Revenues – 1998 Revenues)]/1998 Revenues.] We set this variable equal to 1 (100% growth) for firms with no 1998 revenues.
CASHFLOW	A measure of the cash consumption rate of the firm. Following Demers and Lev (2001), the value is the firm's 1999 net operating cash flows divided by 1999 total revenues.
AGE	The number of years from firm inception to January 1, 2000.
BPQUAL	The quality of the firm's business plan. We use the quality rating of the lead underwriter, from http://bear.cba.ufl.edu/ritter/ipodata.htm. These ratings have appeared in Loughran and Ritter (2003) and are adaptations of the ratings that first appeared in Carter and Manaster (1990). The lowest rating is 1, the highest is 9.
SIZE	The natural logarithm of the firm's total assets (Compustat Data Item #6).

TABLE 3
Correlation analysis results

Panel A: Full sample

	BDSIZE	*OUTSIDE*	*CHAIR*	*FOUNDER*	*VENCAP*	*CEOPER*	*OUTPER*	*BLOCK*	*BLOCKBD*	*PPSENS*	*OHLSON*
OUTSIDE	0.04										
CHAIR	- 0.13 †	- 0.03									
FOUNDER	- 0.19 ‡	- 0.16 ‡	0.19 ‡								
VENCAP	0.11 *	0.11 *	- 0.05	- 0.04							
CEOPER	- 0.23 ‡	- 0.06	0.23 ‡	0.34 ‡	- 0.19 ‡						
OUTPER	0.13 †	- 0.01	- 0.02	- 0.13 †	0.27 ‡	- 0.26 ‡					
BLOCK	- 0.09	- 0.02	- 0.02	0.06	0.05	- 0.06	- 0.15 †				
BLOCKBD	0.17 ‡	0.02	- 0.14 †	- 0.23 ‡	0.23 ‡	- 0.36 ‡	0.68 ‡	- 0.29 ‡			
PPSENS	- 0.07	0.04	- 0.02	0.05	- 0.12 †	0.20 ‡	- 0.02	- 0.08	0.03		
OHLSON	0.05	- 0.01	0.03	0.05	0.04	- 0.14 †	-0.03	0.09	0.03	0.07	
SGROW	0.10 *	0.04	0.02	0.08	0.07	- 0.03	0.02	- 0.01	0.02	- 0.01	0.01
CASHFLOW	- 0.18 ‡	- 0.01	0.04	0.09	- 0.05	0.00	0.05	0.01	0.07	0.01	- 0.20 ‡
AGE	- 0.03	0.07	0.12 †	0.05	- 0.13 †	0.15 ‡	- 0.08	- 0.03	- 0.12 †	0.00	- 0.08
BPQUAL	0.16 ‡	0.00	- 0.05	0.00	0.33 ‡	- 0.21 ‡	0.22 ‡	- 0.09	0.25 ‡	- 0.02	- 0.29 †
LNTA	0.27 ‡	0.13 †	- 0.05	- 0.14 †	0.12 †	- 0.15 ‡	0.11 *	- 0.07	0.10 *	- 0.13 †	- 0.44 ‡

	SGROW	*CASHFLOW*	*AGE*	*BPQUAL*
CASHFLOW	0.00			
AGE	- 0.07	0.09		
BPQUAL	0.06	0.13 †	- 0.07	
LNTA	0.04	0.07	- 0.11 †	0.53 ‡

Notes

* Significant at the 0.10 level.

† Significant at the 0.05 level.

‡ Significant at the 0.01 level.

(The table is continued on the next page.)

Panel B: SIC 73 subsample

	BDSIZE	*OUTSIDE*	*CHAIR*	*FOUNDER*	*VENCAP*	*CEOPER*	*OUTPER*	*BLOCK*	*BLOCKBD*	*PPSENS*	*OHLSON*
OUTSIDE	0.08										
CHAIR	- 0.06	- 0.05									
FOUNDER	- 0.16 †	- 0.18 †	0.21 ‡								
VENCAP	0.08	0.09	- 0.05	- 0.06							
CEOPER	- 0.22 ‡	- 0.11	0.23 ‡	0.33 ‡	- 0.15 †						
OUTPER	0.12 *	0.11	- 0.01	- 0.16 †	0.30 ‡	- 0.24 ‡					
BLOCK	- 0.08	- 0.05	- 0.01	0.13 *	0.06	- 0.05	- 0.21 ‡				
BLOCKBD	0.17 †	0.10	- 0.11	- 0.32 ‡	0.20 ‡	- 0.36 ‡	0.74 ‡	- 0.31 ‡			
PPSENS	- 0.06	0.04	- 0.04	0.01	- 0.13 *	0.15 †	0.01	- 0.07	0.09		
OHLSON	0.02	- 0.03	0.06	0.09	- 0.08	- 0.07	-0.05	0.06	- 0.02	0.13*	
SGROW	0.13 *	0.04	0.03	0.11	0.07	- 0.04	0.03	- 0.01	0.04	- 0.02	0.02
CASHFLOW	- 0.08	- 0.02	- 0.02	0.05	0.12 *	0.06	0.10	- 0.07	0.11	0.01	- 0.40 ‡
AGE	- 0.09	0.06	0.13 *	0.00	- 0.10	0.06	- 0.04	0.05	- 0.07	- 0.06	- 0.10
BPQUAL	0.15 †	0.00	0.00	0.04	0.38 ‡	- 0.19 ‡	0.23 ‡	- 0.01	0.23 ‡	- 0.02	- 0.40 †
LNTA	0.30 ‡	0.17 †	- 0.04	- 0.13 *	0.17 †	- 0.18 †	0.15 †	- 0.08	0.14 *	- 0.14 *	- 0.52 ‡

	SGROW	*CASHFLOW*	*AGE*	*BPQUAL*
CASHFLOW	- 0.02			
AGE	- 0.08	- 0.01		
BPQUAL	0.06	0.28 ‡	- 0.18 †	
LNTA	0.05	0.19 †	- 0.20 ‡	0.56 ‡

Notes

* Significant at the 0.10 level.

† Significant at the 0.05 level.

‡ Significant at the 0.01 level.

All variables are as defined in Table 2.

TABLE 4
Logistic regression results: Positive Outcomes versus Failures

$$FAILURE = \beta_0 + \beta_1*BDSIZE + \beta_2*OUTSIDE + \beta_3*CHAIR + \beta_4*FOUNDER + \beta_5*VENCAP + \beta_6*CEOPER + \beta_7*OUTPER + \beta_8*BLOCK + \beta_9*BLOCKBD + \beta_{10}*PPSENS + \beta_{11}*OHLSON + \beta_{12}*SGROW + \beta_{13}*CASHFLOW + \beta_{14}*AGE + \beta_{15}*BPQUAL + \beta_{16}*SIZE + \varepsilon$$

		Entire Sample		SIC 73 Subsample	
		Estimate	Standard Error	Estimate	Standard Error
INTERCEPT		- 0.737	1.127	- 0.815	1.611
BDSIZE	(+)	- 0.017	0.105	0.124	0.141
OUTSIDE	(-)	- 1.151	0.728	- 1.894 *	1.023
CHAIR	(+)	- 0.087	0.347	0.092	0.468
FOUNDER	(+)	0.114	0.367	0.226	0.520
VENCAP	(-)	0.028	0.396	- 0.083	0.514
CEOPER	(?)	2.174	2.988	9.730 *	5.452
OUTPER	(-)	- 0.947	1.140	- 2.438	1.730
BLOCK	(-)	0.018	0.015	- 0.007	0.022
BLOCKBD	(-)	0.005	0.010	0.007	0.016
PPSENS	(-)	- 0.002	0.003	- 0.009 *	0.005
OHLSON		0.174 ‡	0.053	0.190 †	0.090
SGROW		0.000	0.003	- 0.000	0.003
CASHFLOW		- 0.007	0.008	- 0.102 *	0.062
AGE		- 0.008	0.051	- 0.074	0.092
BPQUAL		- 0.212 †	0.100	- 0.115	0.131
SIZE		0.316	0.168	0.174	0.284
N		277		185	
-2*Log Likelihood		249.03		145.43	
Likelihood Ratio χ^2		32.58 ‡		34.14 ‡	

Notes
* Significant at the 0.10 level.
† Significant at the 0.05 level.
‡ Significant at the 0.01 level.

FAILURE 1 if the firm was delisted but not acquired, 0 if the firm is a Survivor or is acquired.

All other variables are as defined in Table 2.

TABLE 5
Panel A: Full Sample Comparison of Probability of Failure
Baseline Probability of Failure (All Variables at Mean) = 16.84%

	Probability of Failure at			
Variable	-2(sigma)	-1(sigma)	+1(sigma)	+2(sigma)
BDSIZE	17.65	17.24	16.45	16.06
OUTSIDE	25.15	20.69	13.58	10.88
CHAIR	18.04	17.43	16.27	15.71
FOUNDER	15.33	16.07	17.64	18.46
VENCAP	16.48	16.66	17.02	17.21
CEOPER	10.32	13.24	21.18	26.27
OUTPER	22.49	19.51	14.47	12.38
BLOCK	12.09	14.30	19.72	22.96
BLOCKBD	14.03	15.38	18.41	20.08
PPSENS	72.17	42.02	5.36	1.56
OHLSON	5.41	9.72	27.59	41.75
SGROW	15.97	16.40	17.29	17.74
CASHFLOW	20.35	18.53	15.28	13.83
AGE	17.63	17.23	16.46	16.08
BPQUAL	31.89	23.54	11.75	8.05
SIZE	8.22	11.87	23.35	31.42

Panel B: SIC 73 Sample Comparison of Probability of Failure
Baseline Probability of Failure (All Variables at Mean) = 21.72%

	Probability of Failure at			
Variable	-2(sigma)	-1(sigma)	+1(sigma)	+2(sigma)
BDSIZE	15.48	18.40	25.45	29.58
OUTSIDE	23.10	22.40	21.05	20.39
CHAIR	20.26	20.98	22.47	23.25
FOUNDER	18.19	19.89	23.66	25.72
VENCAP	23.08	22.39	21.06	20.41
CEOPER	2.16	7.26	49.57	77.69
OUTPER	41.20	30.60	14.86	9.90
BLOCK	24.50	23.08	20.41	19.17
BLOCKBD	16.86	19.17	24.50	27.50
PPSENS	100.00	99.31	0.05	0.00
OHLSON	7.34	12.91	34.17	49.28
SGROW	22.68	22.19	21.25	20.79
CASHFLOW	38.80	29.55	15.50	10.82
AGE	31.39	26.27	17.76	14.40
BPQUAL	30.94	26.07	17.92	14.66
SIZE	15.36	18.33	25.54	29.78

All variables are as defined in Table 2.

TABLE 6
Logistic regression results: Survivors and Failures

$$FAILURE = \beta_0 + \beta_1*BDSIZE + \beta_2*OUTSIDE + \beta_3*CHAIR + \beta_4*FOUNDER + \beta_5*VENCAP + \beta_6*CEOPER + \beta_7*OUTPER + \beta_8*BLOCK + \beta_9*BLOCKBD + \beta_{10}*PPSENS + \beta_{11}*OHLSON + \beta_{12}*SGROW + \beta_{13}*CASHFLOW + \beta_{14}*AGE + \beta_{15}*BPQUAL + \beta_{16}*SIZE + \varepsilon$$

		Entire Sample		SIC 73 Subsample	
		Estimate	Standard Error	Estimate	Standard Error
INTERCEPT		- 0.198	1.195	- 0.189	1.613
BDSIZE	(+)	- 0.070	0.115	0.025	0.154
OUTSIDE	(-)	- 1.029	0.756	- 2.099 *	1.101
CHAIR	(+)	- 0.082	0.370	0.249	0.498
FOUNDER	(+)	0.188	0.385	0.159	0.535
VENCAP	(-)	0.015	0.409	0.046	0.529
CEOPER	(?)	2.273	3.173	9.623 *	5.405
OUTPER	(-)	0.126	1.223	- 1.752	1.878
BLOCK	(-)	0.020	0.016	- 0.006	0.023
BLOCKBD	(-)	0.002	0.011	0.005	0.017
PPSENS	(-)	- 0.003	0.003	- 0.010 *	0.006
OHLSON		0.176 ‡	0.055	0.227 †	0.094
SGROW		0.000	0.003	- 0.001	0.003
CASHFLOW		- 0.005	0.009	- 0.074	0.056
AGE		- 0.013	0.052	- 0.067	0.092
BPQUAL		- 0.238 †	0.107	- 0.165	0.141
SIZE		0.360	0.176	0.332	0.304
N		218		143	
-2*Log Likelihood		219.59		129.00	
Likelihood Ratio χ^2		30.93 †		30.16 †	

Notes
* Significant at the 0.10 level.
† Significant at the 0.05 level.
‡ Significant at the 0.01 level.

FAILURE 1 if the firm was delisted but not acquired, 0 if the firm is a Survivor. Acquired firms are not included.

All other variables are as defined in Table 2.