Exploring the Effects of Managerial Ownership on the Decision to Go Private: A Behavioral Agency Model Approach

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Exploring the Effects of Managerial Ownership on the Decision to Go Private: A Behavioral Agency Model Approach

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This paper utilizes the behavioral agency model to investigate why many formerly public companies have been converted to privately held corporations. Using a matched pairs sample and categorical binary regression, and controlling for effects found in previous studies, we explore how the equity ownership of those entrusted to manage firms, the firms’ executives, might affect their perceptions of the risks of going private and might therefore affect the decision to take a company private. This study complements prior research examining the predictors of public to private transactions and illustrates how behavioral agency theory can provide insight into a major decision regarding the firm’s corporate structure. It also extends the behavioral agency model to decisions involving organizational form.

Keywords: public to private transactions; decision theory; governance; agency theory

The process of going private involves the acquisition of a public company’s equity by a private company, which results in the company’s stock no longer being publicly traded. Many studies exploring the antecedents of public to private (PTP) transactions use the agency model as their theoretical framework (e.g., Gleason, Payne, & Wiggenhorn, 2007; Opler & Titman, 1993, Weir, Laing, & Wright, 2005a, b). For the most part, these studies examine PTP transactions using financial and stock market variables (e.g. Maupin, 1987) and do not take into account other possible influences on the decision. As noted by Gleason and his colleagues (2007, p. 217), the identification of other factors affecting the decisions to go private is an important research question, but has been outside of the scope of most studies.

Agency theory assumes that agents/managers are motivated by self-interest and might engage in adverse selection or moral hazard with principals/owners, aptly called “agency costs” (Eisenhardt, 1989). The theory espouses that agency costs can be mitigated through two means: close monitoring of agents, and aligning the agents’ interests with those of their principals. Current studies infer that going private becomes necessary when a previously public firm is unable to control agency costs through the traditional solutions of monitoring and alignment. Conversion of a public firm to private ownership alters the firm’s governance structure to a configuration in which management and ownership interests are much less separated, reducing the source of agency costs (Cummings, Siegel, & Wright, 2007; Vogi, 2005).

Transformation of a firm to private status is a far-reaching approach that goes beyond the normal responses used to address the agency issue. This suggests that agency theory cannot fully explain the decision to go private, as other influences also likely serve as factors in making such a major decision affecting organizational form. A broader theoretical perspective will be of assistance in studying the PTP phenomenon. The integration of agency theory with a behavioral approach was advocated by Wiseman and Gomez-Mejia (1998) in their seminal paper on managerial risk taking. Others noted that paying incentives to managers, especially in the form of equity, is supported by agency theory as both a method of ownership control of agents as well as to transform managers into owners and value maximizers (Morck, Shleifer, & Vishny, 1988). Incentive pay, however, means transferring risk to managers, causing the definitional assumptions made by agency theory regarding risk to become both “restrictive” and “naïve” (Wiseman...
LITERATURE REVIEW OF THE ANTECEDENTS OF GOING PRIVATE

The decision to go private has its theoretical underpinnings in agency theory (Froud & Williams, 2007). In public corporations, agency costs might be incurred because free cash flows are spent by managers in ways such as excessive compensation and unprofitable diversification that do not earn positive net cash flows. Such firms are more likely to go private (Jensen, 1986). While studies of firms that went private during the 1980s confirmed this supposition (Lehn & Poulsen, 1989; Opler & Titman, 1993; Rao, Waters, & Payne, 1995), this factor became less prevalent in the subsequent wave of PTP activity between 2003 and 2007 (Bharath & Dittmar, 2010; Weir et al., 2005b).

As agency costs are likely to affect all public corporations to some extent, the question arises why some firms decide to go private while others remain public. Managerial economists point to internal financial conditions as predictors of going private, and the prevalent financial factor in the going private decision is low market value (Andres, Betzer, & Weir, 2007; Bharath & Dittmar, 2008; Gleason et al., 2007; Maupin, 1987; Rao et al., 1995; Weir et al., 2005a, b). These studies are generally in agreement that undervaluation of the company makes it an attractive PTP candidate (Renneboog & Simons, 2005). Low market value indicates that the public firm has few investment opportunities, as low market-to-book ratios reflect poor investor perception of future reinvestment (Gleason et al., 2007). The ability of this firm to raise additional capital is limited, as the cost of raising capital in public markets becomes too expensive. As a result, the primary benefit of being a public corporation is diminished.

Performance variables are possible predictors of a PTP decision, as poor performance may be indicative of agency problems; however, empirical results fail to establish the relationship. For example, Block (2004) found that the absence of liquidity, defined as the inability to raise funds, was a key reason to go private. Since liquidity is a benefit of being public, as the liquidity benefit decreases, the tendency to go private increases (Bharath & Dittmar, 2010). However, Gleason and colleagues (Gleason et al., 2007) found that firms with high balance sheet liquidity were attractive acquisition targets because managers of the buyout firm could take the firm private and use the cash for its restructuring. The large amounts of cash meant that the firms did not need to raise funds in capital markets, thus negating the need to remain public. Although Andres, Betzer, and Weir (2007) hypothesized that illiquidity would result in favorable investor reaction to the PTP announcement, their findings were inconclusive. Empirical studies testing whether financial distress would lead to private status also produced mixed results. An early study found strong evidence that the potential for financial distress reduced the likelihood of going private (Opler & Titman, 1993), while a more recent study found the converse (Gleason et al., 2007), and another concluded that financial distress costs were not critical to the decision (Weir, Laing, & Scholes, 2008).

Agency theory suggests that weak governance precipitates the decision to go private. Support has been found for the non-optimal governance structure of CEO/Chair duality and going private, but not for a low percentage of outside directors (Weir et al., 2005b). When block holders own large equity stakes in a firm, it is expected that they monitor their investments, and thus the potential benefits from going private are mitigated. Accordingly, the stock price reaction to the going private announcement is higher for companies with scattered shareholdings due to the potential for efficiency improvements (Andres et al., 2007; Renneboog, Simons, & Wright, 2007). Other studies conclude that higher ownership concentration diminishes the benefits of being public, and may therefore encourage the decision to go private (Bharath & Dittmar, 2008). Alternatively, because the controlling shareholders are likely to be...

& Gomez-Mejia, 1998, p. 135). Wiseman and Mejia’s assumption that risk influences behavior in ways not predicted by agency theory is set forth in several of their propositions, which suggest that managers’ decisions may be either risk averse or risk seeking, depending on conditions and managers’ risk preferences. We adopt a similar approach in analyzing the decision to change the firm from public to private status.

This paper contributes by adding a behavioral perspective to extant agency-based studies of the PTP decision and illustrates how behavioral agency model offers insight into phenomena not explained by agency theory alone. First is a review of research on the decision to go private. We then discuss the concepts of risk and risk perception, which have been developed in decision theory and are the basis of the behavioral agency model, and explore how equity ownership of a firm's executives might affect their perceptions of the risks of going private and hence affect the decision to go private. Several hypotheses based on this model are proposed and tested. Results and implications for research conclude the paper.
part of the acquisition group, the concentration of ownership is favorably related to the likelihood of going private (Koenig, 2004). Threats of a hostile takeover bid, another governance mechanism (Manne, 1965), may also be predictive of a firm's going private, as shareholders might use the PTP transaction to thwart such a threat. Nevertheless, PTP firms were not found to face a greater threat of hostile acquisition (Weir et al., 2005b).

Outside the domain of agency theory, macroeconomic factors affecting the PTP decisions have generally included the supply of credit in the economy and state of regulation. Low-cost credit fuels going private, as is evidenced by the rapid decline of PTP activity with the credit market crunch starting in mid-2007. When the availability of bank loans is large, the likelihood of going private increases due to the importance of bank financing for the transaction (Bharath & Dittmar, 2008). Since the passage of the Sarbanes-Oxley Act of 2002, attention has turned to regulatory pressures and the costs of being public. Several have found a positive relationship between increased regulatory burden and going private (e.g., Block, 2004; Engel, Hayes, & Wang, 2007).

The inference that can be drawn from the extant literature is that agency costs cannot solely determine whether a public company becomes private. This inference leads us to assume that other factors remain to be explored in the PTP process, and we focus on the role of risk.

THE DECISION TO GO PRIVATE:
TOWARD A BEHAVIORAL AGENCY APPROACH

Most of the early literature on managerial risk assumed that individuals are risk averse, and that one's propensity toward risk aversion is a stable attribute (Das & Teng, 2004). Based on these assumptions, agency theory presumes that managers are risk averse and will tend to favor less risky strategies. To discourage managerial risk aversion, agency theorists contend that by including incentive-based pay in executives' compensation, managers are more likely to act in the shareholders' interests because their risk preferences become aligned with those of the owners (Jensen & Meckling, 1976). Recognizing that empirical studies did not conclusively support this argument, Wiseman and Gomez-Mejia (1998) developed a behavioral agency model that combines elements of both agency and decision theories to explain why the risk inherent in incentive compensation affects executive decision-making. Relying on this model, we examine the effect of executive equity ownership on the decision to go private.

While agency theory makes normative assumptions regarding a decision-maker's choices based on rational expectations and utility maximization, decision theory takes into account the decision maker's risk perceptions and preferences, which depend on how a decision is framed, previous gains or losses, and individual risk-taking tendencies (Mukherji & Wright, 2002). We use the definition of risk as set forth by Sitkin and Pablo (1992): risk is the characteristic of decision-making that captures the degree of uncertainty regarding whether an expected, favorable outcome or an unexpected, disappointing outcome will occur. The degree of uncertainty often depends on the lack of knowledge about potential outcomes (Daft & Lengel, 1986) and the lack of control over outcome attainment (Sitkin & Pablo, 1992). The model known as the behavioral model of decision making identifies other factors affecting the risk of a decision, such as preferences, frames, and decision context (Allen, Renn, Moffitt, & Vardaman, 2007; Das & Teng, 2001). Utilizing the behavioral model of decision making, which includes prospect theory and the endowment effect, we will develop a framework regarding the effects of decision makers' equity in the firm, a common prescription of agency theory, on their risk perception of the decision to go private.

In decision theory, "risk" reflects the variation in the distribution of possible decision outcomes, their likelihoods, and their relative values (March & Shapira, 1987). The extent to which there is uncertainty about whether an undesirable outcome may result and the significance of such result make a decision more (or less) risky (Sitkin & Pablo, 1992). Decision risk can be used to characterize a particular decision alternative compared to other alternatives (Sitkin & Weingart, 1995). However, as noted by Wiseman and Gomez-Mejia (1998), risk perception is an important influence on a manager's assessment of risk and is affected by whether the decision is framed in positive or negative terms. An empirical study found support that the risk perceptions of managers are not stable, and depend on their perception of potential gains or losses (Larraza-Kintana, Wiseman, Gomez-Mejia & Welbourne, 2007), which supports the behaviors espoused by both prospect theory and the endowment effect.

Developed by Kahneman and Tversky (1979) from their study of decision making, prospect theory states that de-
Decisions are impacted by how decision-makers frame the alternatives. If an alternative is framed in a positive light, individuals tend to become more risk averse regarding other alternatives and more risk seeking if an alternative is framed negatively (Tversky & Kahneman, 1981). Potential losses also shift a decision-maker’s attention toward more risky and novel solutions, rather than well-established routines and procedures (George, Chattopadhyay, Sitkin, & Barden, 2006). Further, decision-makers tend to evaluate alternatives against a relevant benchmark or “reference point” (Kahneman & Tversky, 1979, p. 277). If known alternatives are preferable relative to the reference point, decision-makers will exhibit the risk-averse behavior of sticking with the alternatives, but will become increasingly risk seeking if the alternatives fall below the reference point. Further, risk-taking behavior for alternatives far below the reference point is more precipitous than the risk-averse behavior associated with those above the point (Kahneman & Tversky, 1979, p. 279).

Risk-taking behavior is also impacted by the endowment effect, which suggests that because people identify with their possessions, the value that a person places on an object substantially increases when the person takes possession of the object (Jervis, 2004). In the case of a certain gain, a person would be loss averse—i.e., would not want to risk losing such gain—because of the value attached to that gain. Thus, individuals would rather make a safe decision and give up the potential of gaining additional resources than risk losing what they already possess (George et al., 2006). But in the case of certain losses, the tendency for risk aversion diminishes. An inference that results from the endowment effect is that decision makers view opportunity costs related to threats differently than “out-of-pocket” costs: “Foregone gains are less painful than perceived losses” (Kahneman, Knetsch, & Thaler, 1991, p. 203). Samuelson and Zeckhauser (1988) further noted the existence of a status quo bias, a preference for the current state, because the disadvantages of change appear greater than its advantages (Kahneman et al., 1991).

The Risks of Going Private

We posit that the decision to go private arguably involves a high degree of risk and that the decision of whether to engage in the risks associated with a PTP transaction will depend on decision-makers’ risk perception. We also posit that their risk perception, in turn, will be affected by their equity investment in the firm.

Birdthistle and Henderson (2009) commented that going private deals are inherently risky because the conflicts of interests that exist among investors, managers, and fund advisors create a great deal of uncertainty among the participants in the process. Further, the decision to go private involves risk because it affects the fundamental structure of the corporation. During the period of public ownership, companies are likely to grow and adopt established routines consistent with expectations of their public shareholders. Those relationships vanish with private ownership making the firm’s future organizational configuration much less certain.

Public companies are often taken private specifically for the purpose of allowing companies to adopt a high-risk strategy, with the hopes of a high return several years into the future (Davis, 2009). In addition, it is typical for newly private companies to rely heavily on debt rather than equity financing, creating a higher debt-to-equity ratio. To the extent that private firms are highly leveraged, they will have greater incentives to make riskier decisions with the possibility of high payoffs (Greenfield, 2008) that accrue to owners (Schneider & Valenti, 2011). In addition, increased borrowing increases the risk of insolvency if the business is not successful (Davis, 2009). Thus, despite reports of extremely large profits made by private equity firms, 40% of private equity deals fail to even cover acquisition costs (Kelly, 2007). Their highly leveraged capital structure means that PTP firms tend to have a fragile financial structure (Weitzer & Darroch, 2008) and a heightened risk of bankruptcy (Guo, Hotchkiss, & Song, 2008).

The illiquid nature of the private firm also contributes to overall risk, as it becomes difficult to assess the potential risks and rewards. Investments in private equity funds are illiquid, as the life or lock-up period of private equity funds is generally three to seven years. Illiquidity restricts ownership transfer, as the investment is attractive only to investors with sufficiently long time horizons. In addition, the timing of future cash flows is unknown (Phalippou & Gottschalg, 2009). Fluctuations in private equity fund values, those funds which invest in firms that have converted to private status, do not necessarily reflect any intrinsic variability in returns or underlying risk of their portfolio firms (Weidig, Kemmerer, & Born, 2005).

While we acknowledge that under some circumstances remaining public may entail a greater level of risk, for exam-
ple, when a firm faces a necessary but costly restructuring and has particularly demanding public market shareholders, we propose that since going private involves a high degree of uncertainty, this decision is inherently more risky in most circumstances than is maintaining public status. We next evaluate the impact of executive ownership on this risky decision.

The Effects of Executive Ownership on the Decision to Go Private

Agency theorists posit that managers’ interests become more aligned with those of the shareholders when they own a substantial portion of the firm’s equity (Jensen & Meckling, 1976), and they become more likely to make decisions to maximize long-term shareholder wealth (Demsetz, 1983). The perceived advantages of the firm’s public or private ownership must therefore consider the effects of equity ownership of the firm’s managers. Agency theory clearly advocates for ownership of corporate stock by management. While managers are normally interested in pursuing short-term performance objectives, their interests become more aligned with those of the shareholders when they own a substantial portion of the firm’s equity (Jensen & Meckling, 1976), and they become more likely to make decisions to maximize long-term shareholder wealth (Demsetz, 1983). Research confirms that executive ownership in the public firm is positively associated with its entrepreneurship (Zahra, 1996) and R&D spending (Hill & Snell, 1988; 1989). However, agency theorists also suggest that as insider shareholdings become concentrated, the insiders become entrenched, for their ownership stakes provide them with significant power to guarantee their own employment (Morck et al., 1988). Agency theorists, however, have tended to examine the effects of managerial entrenchment solely with respect to firm value and ignore other consequences such as the decision to go private.

Decision theory analysis can be used to extend the predictions of agency theory and explaining the effects of concentrated ownership by managers. As their personal wealth becomes increasingly dependent on their equity in the company, managers’ portfolios become less diversified, and loss minimization rather than wealth maximization is of paramount concern (Latham & Braun, 2009; Wiseman & Gomez-Mejia, 1998). The endowment effect assumption similarly predicts that ownership of a substantial number of shares causes shareholders to place an unrealistic value on their stock, and therefore, they become less likely to make decisions that they perceive could result in a loss. Sanders (2001) found that when executives owned large amounts of company stock, they were less likely to engage in risky activities such as acquisitions, and going private can be considered as a form of acquisition. Latham and Braun (2009) found that managers with greater stock ownership bore an increased residual risk than did other managers and therefore engaged in less risky business investments in order to safeguard their personal investments. Evidence from publicly held, family-controlled corporations, which we suggest provides further insight into the case of publicly held firms with concentrated managerial ownership, indicates that family owners are more likely to avoid value-adding transactions deemed too risky (Anderson & Reeb, 2003). These findings suggest that executives with sizeable equity shareholdings in their firms will maintain the status quo and seek loss minimization rather than engage in the risky activity of going private.

Hypothesis 1: There will be a negative relationship between the value of executive ownership and a company’s going private.

We suggest that under certain circumstances ownership stakes by management will facilitate the decision to go public (Maupin, 1987). Prospect theory predicts that poor performance results in negatively framed decisions (Sanders, 2001). If stock prices decline below a target or threshold level, investors will be risk seeking and will favor the private status option if they intend to remain invested in the company. Escalation of commitment theory also supports this course of action (Arkes & Blumer, 1985). Investors will perceive an opportunity to recoup their past losses associated with the previously private entity by investing in the newly privately entity. If instead the public company has produced gains for its shareholders, they will be less inclined to “risk” going private. After all, if their investment has been fairly successful, there is little incentive to change the ownership structure of the organization. Conversely, a drop in share price below some threshold motivates owners to consider private status to avoid further declines and recoup prior losses.

As shareholdings become more concentrated, the effects of risk become more pronounced. While decision theory suggests that declines in share price result in riskier decision making, agency theory assumes that owners are well diversified and thus are not greatly affected by a loss to a small portion of their portfolios (Jensen & Meckling, 1976).
When the percentage of shares is concentrated in the hands of a few owners, ownership in a significant block of stock in a corporation might tend to represent a significant portion of the investor’s overall net worth. Ownership of a sizeable portion of a company often cannot be easily divested, making the opportunity for future ownership dispersion difficult. Thus, we suggest that the combination of decline in share price and concentration of ownership creates a scenario favorable to going private.

We propose that if a manager’s personal wealth is largely dependent on the firm’s value, the effect of a decline in its share value will greatly affect his/her overall personal wealth. In such circumstances, prospect theory holds that the manager will be more willing, rather than less willing, to take the company private regardless of whether the transaction is management-initiated. In other words, managers faced with a certain loss of wealth will become risk seeking and will opt for an increase in variation, with the hopes that private status will reverse declines. The research of March and Shapira (1987, p. 1409) confirms that managers tend to take more risks in “bad situations,” which supports prospect theory regarding increased risk taking when operating below one’s reference point. We therefore propose the following hypothesis, that share price will moderate the relationship between executive equity ownership and the decision to go private.

Hypothesis 2: Share price will moderate the relationship between the level of executive ownership and the firm’s going private; as share price declines below a reference value, it will be more likely that the firm will go private.

Stock options, or contracts in which executives are granted the right to purchase shares of stock at a pre-determined exercise price, have been used to align executives’ interests with those of shareholders (Wiseman & Gomez-Mejia, 1998). Because stock options must not necessarily be exercised, there is no downside risk associated with them. If share price declines below the exercise price, the option is simply not exercised, but if the price increases, option holders reap the gains (Sanders, 2001). In addition, agency theory assumes that the option holder does not attach any value to the upside potential of their unexercised options (Devers, Wiseman, & Holmes, 2007). Taken together, stock options should encourage executives to engage in corporate strategies that are less risk averse (Bryan, Hwang, & Lillien, 2000; Devers, McNamara, Wiseman, & Arrfelt, 2008). Empirical studies have shown that proposals to increase managerial option awards are met with positive share price reactions (e.g., DeFusco, Johnson, & Zorn, 1990). Agrawal and Mandelker (1987) found that acquisitions and divestitures were more likely to be made by firms with executive compensation contracts having a large option component.

Despite these predictions, studies have shown that managers overvalue the stock options awarded to them (Devers et al., 2007; Larraza-Kintana et al., 2007). They suggest that holders’ subjective value of their options exceed normative valuations due to the influences of the endowment affect and loss aversion. Using the assumptions of the behavioral agency model, stock options have an intrinsic value and will therefore be perceived to instantly endow the holder with wealth, even though possible exercise of the option may never occur or may occur several years into the future (Larraza-Kintana et al., 2007). Thus, as previously found, the value of unexercisable stock options should negatively affect executive risk-taking and the decision to go private. In the case of options which are exercisable and for which the fair market value exceeds the exercise price, however, the decision to go private will not be affected. Regardless of whether the company remains public or is taken private, the executive can exercise the option, immediately sell the stock and recognize a profit. There is no inflated perceived value associated with positively valued exercisable options and therefore no endowment effect.

Hypothesis 3a: There will be a negative relationship between the value of unexercisable stock option grants and a company’s going private.

Hypothesis 3b: No relationship will exist between the positive value of exercisable stock option grants and a company’s going private.

RESEARCH DESIGN

Sample Selection

The dependent variable in our study is whether or not a public firm went private. We used a matched-pair sample
design that involves choice-based sampling, appropriate when random sampling would yield a small number of suitable cases (Amemiya, 1985). Matched-pair sample design has been used in a number of management studies, including those investigating whether firms misreported financial results (O’Connor, Priem, Coombs, & Gilley, 2006), divested formerly acquired units (Shimizu, 2007), or recovered from a previous decline (Mueller & Barker, 1997). It has also been used in several studies of going private that focused on financial antecedents of the event (Gleason, Payne, & Wiggenhorn, 2007; Weir, Laing, & Wright, 2005a).

We first identified U.S. public firms that filed SEC Form 13E3/A, which indicated the firm’s decision to go private, between 2003 and 2007, using the Lexis/Nexis database. This produced 2,471 filings, although many of them were identified as duplicates for the same company because of refilings for amendments or addendums to the schedule. From that data base, we selected a random sample of 150 firms and ensured that the filing was in fact the original filing for the subject firm. We then attempted to match each of these firms (the test group) by industry, using the two- or four-digit SIC code with a U.S. public firm that did not make such an filing and that we verified remained public through 2009 (the control group). In some cases an appropriate match was not available, and in other cases the independent variables were not fully available for a test firm or a control firm. Our final sample of 100 matched pairs falls within the range of sample size of existing matched-pair studies (e.g., O’Connor et al., (2006) = 65; Weir, Laing, & Wright (2005a) = 95; Gleason, Payne, & Wiggenhorn (2007) = 215). The final sample was checked to ensure that no one industry dominated the field.

Independent and Control Variables

All independent and control variables were collected through secondary resources, specifically the proxy materials filed with the SEC and Compustat. We collected data for each test firm and its matched control firm for three years: the year immediately preceding the year in which Form 13E-3/A was filed, and the two previous years.

**Independent Variables.** The value of the shares owned by the CEO and the non-CEO executives in the aggregate, as well as the number and value of the CEO’s and executives’ exercisable and unexercisable options, were determined from the proxies covering the year immediately preceding the year in which Form 13E-3/A was filed. Share price change was calculated as the difference in price at the close of the year immediately preceding the year in which Form 13E-3/A was filed and the price at the close two years prior. Interaction variables were developed by first mean-centering the predictor variables and then calculating the product terms, as is recommended (Jaccard, 2001).

**Control Variables.** Previous research on the decision to go private found that firm size and market capitalization were negatively related to going private (Bharath & Dittmar, 2010; Gleason et al., 2007; Renneboog, Simons, & Wright, 2007; Weir et al., 2005a). Accordingly, we include market capitalization and firm size (log of assets) as control variables. Other control variables we employed that are commonly used in the governance literature include the percentage of outsiders on the board (Baysinger & Hoskisson, 1990; Mace, 1986; Zajac & Westphal, 1994) and percentage of ownership held by institutional or joint venture investors; both are proxies for shareholder monitoring of corporate management (Davis, 1991; Johnson & Greening, 1999; Rediker & Seth, 1995). Firm performance has also been cited as a reason to take a corporation private (Gleason et al., 2007) and is often used as a control in governance studies (e.g., Berger, Ofek, & Yermak, 1997). Here we used return on assets. Consistent with prior studies which noted the importance of share ownership as a predictor variable (Maupin, 1987; Weir et al., 2005b), ownership concentration was included as a control. Ownership concentration was determined as of the close of the year immediately preceding the year in which Form 13E-3/A was filed; it is the percentage of ownership reported by the CEO, executives, board members, and other shareholders owning five percent or more of the corporation’s shares. Finally, CEO age was included as having been recognized as a personal characteristic of the CEO which influences risk-taking (Larraza-Kintana et al., 2007).

**DATA ANALYSIS AND RESULTS**

As our dependent variable is binary, our hypotheses were tested using conditional stepwise binary logistic regression (Field, 2000). This method is appropriate for estimating models with matched pairs designs (O’Connor et al., 2006) and provides us with key statistics, including the Hosmer and Lemeshow, Wald, and exp(B) statistics. Means, standard deviations, and correlation coefficients are reported in Table 1, Parts A and B.
Table 1, Part A
Means, Standard Deviations and Correlations

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<th></th>
<th>Means</th>
<th>S.D.</th>
<th>Went Private</th>
<th>Log Market Cap</th>
<th>Log Market Cap</th>
<th>Outsider %</th>
<th>Inst. Ownership %</th>
<th>Joint Venture %</th>
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<tr>
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<td>11176</td>
<td>-.300**</td>
<td>1</td>
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<td>Log Assets</td>
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<td>15.11</td>
<td>-.100</td>
<td>.013</td>
<td>1</td>
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<td>Outsider %</td>
<td>.7232</td>
<td>.1502</td>
<td>-.065</td>
<td>.106</td>
<td>-.088</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>Inst. Ownership %</td>
<td>.0913</td>
<td>.1364</td>
<td>-.218**</td>
<td>-.011</td>
<td>-.032</td>
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<td>Joint Venture %</td>
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<td>.1055</td>
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<td>-.075</td>
<td>-.036</td>
<td>.122</td>
<td>-.043</td>
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<tr>
<td>Owner Concentration</td>
<td>.4456</td>
<td>.4108</td>
<td>.375**</td>
<td>-.260**</td>
<td>-.078</td>
<td>-.052</td>
<td>.032</td>
<td>.197**</td>
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<tr>
<td>CEO Age</td>
<td>54.29</td>
<td>9.906</td>
<td>.097</td>
<td>.006</td>
<td>.025</td>
<td>-.059</td>
<td>-.035</td>
<td>-.128</td>
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<tr>
<td>Return on Assets</td>
<td>1.1854</td>
<td>1.1358</td>
<td>.100</td>
<td>-.084</td>
<td>-.092</td>
<td>-.134</td>
<td>-.115</td>
<td>-.020</td>
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<tr>
<td>Share Price Change</td>
<td>-35.56</td>
<td>34.06</td>
<td>.435**</td>
<td>-.360**</td>
<td>.027</td>
<td>-.199**</td>
<td>-.143*</td>
<td>.126</td>
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<tr>
<td>CEO Share Value</td>
<td>6.6418</td>
<td>1.3592</td>
<td>-.303**</td>
<td>.269**</td>
<td>-.077</td>
<td>.155*</td>
<td>.126</td>
<td>-.065</td>
</tr>
<tr>
<td>Exec Share Value</td>
<td>5.6026</td>
<td>2.473</td>
<td>-.301**</td>
<td>.226**</td>
<td>-.051</td>
<td>.372**</td>
<td>.161*</td>
<td>.064</td>
</tr>
</tbody>
</table>

Table 1, Part B
Means, Standard Deviations and Correlations

<table>
<thead>
<tr>
<th></th>
<th>Means</th>
<th>S.D.</th>
<th>Owner Concentration</th>
<th>CEO Age</th>
<th>Return on Assets</th>
<th>Share Price Change</th>
<th>CEO Share Value</th>
<th>Exec Share Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owner Concentration</td>
<td>.4456</td>
<td>.4108</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEO Age</td>
<td>54.29</td>
<td>9.906</td>
<td>.011</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return on Assets</td>
<td>1.1854</td>
<td>1.1358</td>
<td>.143*</td>
<td>.052</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share Price Change</td>
<td>-35.56</td>
<td>34.06</td>
<td>.299**</td>
<td>-.074</td>
<td>.122</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEO Share Value</td>
<td>6.6418</td>
<td>1.3592</td>
<td>.009</td>
<td>.152*</td>
<td>-.071</td>
<td>-.404**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Exec Share Value</td>
<td>5.6026</td>
<td>2.473</td>
<td>-.091</td>
<td>-.010</td>
<td>-.109</td>
<td>-.252**</td>
<td>.379**</td>
<td>1</td>
</tr>
</tbody>
</table>

Note. **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).
The first regression model tested the effects of both executive ownership and price change (Hypotheses 1 and 2). In the interest of parsimony, we report only the full model (Table 2). The model’s Hosmer and Lemeshow statistic was .80, well above the threshold of .05, indicating an overall good fit in binary regression (Field, 2000). The model correctly predicted 83.0 percent of the cases overall. This is a statistically significant improvement from the classification percentage that results (50%) when no predictor variables are included in the model (Pallant, 2010).

Table 2
Logistic Regressions Predicting the Effects of CEO Ownership and Change in Share Price on the Decision to Go Private

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>S.E.</th>
<th>Wald*</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)**</th>
<th>95% C.I. for Lower</th>
<th>EXP(B) Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Market Cap</td>
<td>.000</td>
<td>.000</td>
<td>2.558</td>
<td>1</td>
<td>.110</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Log Assets</td>
<td>-.021</td>
<td>.023</td>
<td>.833</td>
<td>1</td>
<td>.361</td>
<td>.979</td>
<td>.937</td>
<td>1.024</td>
</tr>
<tr>
<td>Outsider Percentage</td>
<td>2.559</td>
<td>1.816</td>
<td>1.985</td>
<td>1</td>
<td>.159</td>
<td>12.928</td>
<td>.368</td>
<td>454.589</td>
</tr>
<tr>
<td>Institutional Ownership</td>
<td>-4.975</td>
<td>1.632</td>
<td>9.292</td>
<td>1</td>
<td>.002</td>
<td>.007</td>
<td>.000</td>
<td>.169</td>
</tr>
<tr>
<td>Venture Cap Ownership</td>
<td>-2.606</td>
<td>2.287</td>
<td>1.298</td>
<td>1</td>
<td>.254</td>
<td>.074</td>
<td>.001</td>
<td>6.530</td>
</tr>
<tr>
<td>Owner Concentration</td>
<td>4.886</td>
<td>1.100</td>
<td>19.718</td>
<td>1</td>
<td>.000</td>
<td>132.465</td>
<td>15.327</td>
<td>1144.869</td>
</tr>
<tr>
<td>CEO Age</td>
<td>-.025</td>
<td>.022</td>
<td>1.308</td>
<td>1</td>
<td>.253</td>
<td>.976</td>
<td>.935</td>
<td>1.018</td>
</tr>
<tr>
<td>Return on Assets</td>
<td>-.170</td>
<td>.185</td>
<td>.843</td>
<td>1</td>
<td>.359</td>
<td>.844</td>
<td>.587</td>
<td>1.213</td>
</tr>
<tr>
<td>Price Change</td>
<td>.156</td>
<td>.064</td>
<td>5.881</td>
<td>1</td>
<td>.015</td>
<td>1.168</td>
<td>1.030</td>
<td>1.325</td>
</tr>
<tr>
<td>Log CEO Value</td>
<td>-.624</td>
<td>.264</td>
<td>5.605</td>
<td>1</td>
<td>.018</td>
<td>.536</td>
<td>.319</td>
<td>.898</td>
</tr>
<tr>
<td>Log Executive Value</td>
<td>-.382</td>
<td>.199</td>
<td>3.683</td>
<td>1</td>
<td>.055</td>
<td>.682</td>
<td>.462</td>
<td>1.008</td>
</tr>
<tr>
<td>CEO Val x Price Change</td>
<td>-.081</td>
<td>.064</td>
<td>1.593</td>
<td>1</td>
<td>.207</td>
<td>.923</td>
<td>.814</td>
<td>1.046</td>
</tr>
<tr>
<td>Exec Val x Price Change</td>
<td>-.005</td>
<td>.004</td>
<td>1.961</td>
<td>1</td>
<td>.161</td>
<td>.995</td>
<td>.987</td>
<td>1.002</td>
</tr>
</tbody>
</table>

Note. N=200
Chi Sq=121.12
R Sq=.454 (Cox and Snell); .606 (Nagelkerke)
-2LL=156.138
Hosmer and Lemeshow=.80
Percent Predicted=83
*Wald test statistic
**Odds ratio

Of the control variables, institutional ownership percentage and ownership concentration were significantly related to the decision to go private, and were negative and positive, respectively. This suggests that firms with little institutional investment but having other types of block holders, such as founding family members and hedge fund investors, are more likely to go private than their counterparts.
To test Hypothesis 1, we first included only the value of the shares owned by the CEO and by all other executives collectively as well as a price change variable. The mean value of shares owned by the CEO was $51,287,303, and by all the executives as reported in the proxy, $16,240,704. The model’s Hosmer and Lemeshow Test showed significance of .380, and the model accurately predicted 82.0 percent of the cases. The coefficients for both ownership variables were negative and was significant for CEO ownership (p<.05), indicating that the higher the value of the shares owned by the CEO, the less likely the firm will go private. Thus, Hypothesis 1 was supported with respect to shares owned by the CEO but was only marginally supported at the p=.055 level regarding senior executives. The price change variable was also negative (-.010) but not significant.

We then added a product variable to test for an interaction effect between the change in share price and CEO ownership. As seen in Table 2, adding the interaction variables did not affect either the sign or the significance of the CEO or executive ownership predictor variables. Further, the confidence interval for the Exp(B) of the interaction term contained the value of 1.0, indicating that the interaction effect was not significant (Jaccard, 2001). Thus, the endowment effect (Hypothesis 1) holds, and Hypothesis 2 is not supported. Interestingly, adding the product term caused the price change variable to become positive and significant, further supporting the endowment effect. An incremental increase in share price makes the decision to go private less likely as CEO ownership increases. Table 2 summarizes the results from these two analyses.

A second regression was estimated using a subset of the sample to include only those firms which use stock options in their CEO or executive pay packages, thereby reducing the number of observations to 78 matched pairs. The model’s Hosmer and Lemeshow statistic was .526, and the model correctly predicted 86.7 percent of the cases. Only the value of the CEOs’ exercisable options was positive and significant, indicating that a company is more likely to go private when the CEO holds “in the money” exercisable options. None of the other predictor variables were significant in the model. Of the control variables, ownership concentration was significant and positive, as in the previous regression, and market capitalization was significant and negative, as has been found in previous studies (e.g., Bharath & Dittmar, 2010; Gleason et al., 2007).

**DISCUSSION**

In examining the decision to go from public to private status, reliance on an agency-theoretic prescriptive approach has been at the forefront of contemporary research. Unrelated to this stream of research, management studies have long begun to incorporate the element of risk in strategic decision-making (Bromley, 1991; Fiegenbaum & Thomas, 1988). Recent decision studies have included the divestiture of formerly acquired units, using a combination of prospect theory, behavioral theory, and the threat-rigidity thesis (George et al., 2006; Shimizu, 2007) and the effects of executive compensation design on firm risk, using the behavioral agency model, agency theory, and prospect theory (Devers et al., 2008; Wiseman & Gomez-Mejia, 1998). Drawing from these approaches, this paper sought to determine the extent to which extant research on private equity will be informed by use of behavioral decision theories.

Hypothesis 1 tested the endowment effect, proposing that the extent of the equity holdings of CEOs and managers provide a frame of reference that affects their support or disagreement with the transaction. While an endowment effect was seen with respect to shareholdings by the CEO, it was not observed for non-CEO executives. One reason could be simply that the CEO is the most powerful actor in organizations and has the most influence in major strategic decisions than other executives (Rajgopal & Shevlin, 2002). CEOs have a disproportionate impact on the outcomes of the firm; thus their decision-making is the most critical to organizational structure. Further, the mean value of CEOs’ shares was significantly greater than that of other managers, suggesting that the endowment effect is more pronounced when shareholdings are substantial. From a financial perspective, the more stock owned by interested parties, the greater the owner’s sensitivity to risk (Latham & Braun, 2009). This finding generally supports Wright and colleagues (Wright, Ferris, Sarin, & Awasthi, 1996), who observed that when executives have a low level of equity ownership, their stockholdings encourage risk-taking, but as ownership grows, their risk-taking is reduced. Our results support the endowment effect theory regardless of the change in share price, and further, that as shares become more valuable due to stock price increases, the endowment effect becomes more pronounced. These findings differ from previous conclusions which suggested that stock ownership by managers and directors increased the likelihood of going private because these influential parties are in a position to facilitate the transaction (Maupin,
### Table 3

**Logistic Regressions Predicting the Effects of Exercisable and Unexercisable Options on the Decision to Go Private**

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>S.E.</th>
<th>Wald*</th>
<th>df</th>
<th>Sig.</th>
<th>Exp(B)**</th>
<th>95% C.I. for Lower</th>
<th>EXP(B) Upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Market Cap</td>
<td>-1.060</td>
<td>.501</td>
<td>4.471</td>
<td>1</td>
<td>.034</td>
<td>.347</td>
<td>.130</td>
<td>.925</td>
</tr>
<tr>
<td>Log Assets</td>
<td>-.027</td>
<td>.091</td>
<td>.087</td>
<td>1</td>
<td>.769</td>
<td>.974</td>
<td>.815</td>
<td>1.163</td>
</tr>
<tr>
<td>Outside Board Percent</td>
<td>.100</td>
<td>1.458</td>
<td>.004</td>
<td>1</td>
<td>.945</td>
<td>1.105</td>
<td>.063</td>
<td>19.248</td>
</tr>
<tr>
<td>Institutional Ownership</td>
<td>-3.275</td>
<td>2.969</td>
<td>1.217</td>
<td>1</td>
<td>.270</td>
<td>.038</td>
<td>.000</td>
<td>12.728</td>
</tr>
<tr>
<td>Venture Cap Ownership</td>
<td>-.031</td>
<td>2.642</td>
<td>.000</td>
<td>1</td>
<td>.991</td>
<td>.969</td>
<td>.005</td>
<td>171.932</td>
</tr>
<tr>
<td>Owner Concentration</td>
<td>4.386</td>
<td>1.128</td>
<td>15.123</td>
<td>1</td>
<td>.000</td>
<td>80.350</td>
<td>8.808</td>
<td>733.004</td>
</tr>
<tr>
<td>CEO Age</td>
<td>-.023</td>
<td>.025</td>
<td>.857</td>
<td>1</td>
<td>.355</td>
<td>.977</td>
<td>.930</td>
<td>1.026</td>
</tr>
<tr>
<td>Return on Assets</td>
<td>.142</td>
<td>.427</td>
<td>.111</td>
<td>1</td>
<td>.739</td>
<td>1.153</td>
<td>.499</td>
<td>2.661</td>
</tr>
<tr>
<td>CEO Value Exercisable</td>
<td>.559</td>
<td>.261</td>
<td>4.582</td>
<td>1</td>
<td>.032</td>
<td>1.749</td>
<td>1.048</td>
<td>2.918</td>
</tr>
<tr>
<td>CEO Value Unexercisable</td>
<td>-.212</td>
<td>.227</td>
<td>.876</td>
<td>1</td>
<td>.349</td>
<td>.809</td>
<td>.518</td>
<td>1.262</td>
</tr>
<tr>
<td>Executive Value Exercisable</td>
<td>-.062</td>
<td>.268</td>
<td>.054</td>
<td>1</td>
<td>.816</td>
<td>.940</td>
<td>.556</td>
<td>1.587</td>
</tr>
<tr>
<td>Executive Value Unexercisable</td>
<td>.057</td>
<td>.293</td>
<td>.038</td>
<td>1</td>
<td>.846</td>
<td>1.059</td>
<td>.596</td>
<td>1.881</td>
</tr>
<tr>
<td>Constant</td>
<td>1.425</td>
<td>2.040</td>
<td>.488</td>
<td>1</td>
<td>.485</td>
<td>4.159</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** N=156  
Chi Sq=19.192  
R Sq=.192 (Cox and Snell); .358 (Nagelkerke)  
-2LL=51.490  
Hosmer and Lemeshow=526  
Percent Predicted=86.7  
*Wald test statistic  
**Odds ratio

In our study, once the overall effect of ownership concentration was controlled, the direct effects of CEO and executive ownership could be measured; they were negative and, in the case of CEO shares, significant. Our predictions regarding the impact of executive stock option ownership did not develop. The endowment effect was not evident with respect to unexercisable stock options. In addition, the value of CEO exercisable options was positively related to the decision to go private, suggesting that a difference does exist in how executives value stock ownership and stock options. As noted by Sanders (2001, p. 479), the risk and reward characteristics of outright stock ownership are “fundamentally different” than those of stock options and thus will have “distinct effects” on decision-making. Stock options present an opportunity for executives to benefit from increases in stock price that might occur if the company realizes significant gains from decisions that entail a fair degree of risk. At the same time, executives bear...
no downside risk if the decision results in a failure, so there is little disincentive for them to select a more risky alternative. Conversely, exercisable options bring both upside and downside risk to executives, akin to the conditions faced by shareholders. Executives holding “in the money” exercisable options are subject to the risk that a decline in share price decreases the spread between the fair market value and the exercise price, thus decreasing the value of the option.

**IMPLICATIONS AND FUTURE RESEARCH**

Our study contributes to existing research in several important respects. First the results extend the current studies on the public to private decision. Not included in current agency-based studies but included in our hypotheses is the effect of managers’ risk propensity on the decision to go private. We theorized that the decision to go private involves risk, for it affects the fundamental structure of the corporation, and found that CEO ownership had a negative effect on going private. Our findings confirm the strong effect of the subjective value owners place on their property, which causes them to become loss averse.

Conversely, while both agency and prospect theories would suggest that stock price decline might facilitate a risky decision such as going private, our results instead suggest that price increases are more likely to predict the PTP decision (See Table 2). A possible explanation is that the price of the shares rose in anticipation of the company being taken private, as shareholders of the public company tended to benefit from its going private in the form of premiums paid for their shares (Lehn & Poulsen 1989). It is estimated that its public shareholders receive a premium of approximately 40% when a firm goes private (Renneboog & Simons, 2007). We also confirmed a positive relationship between ownership concentration and going private, but found the nuance of a negative effect of institutional ownership, suggesting that institutional owners effectively monitor the corporate management of public firms within their investment portfolio and encourage firms to maintain their public status.

This research also extends the behavioral agency model that has been the basis of several empirical tests. The behavioral agency model is primarily concerned with the construct of compensation risk and its influences on executive behavior (Devers, Cannella, Reilly, & Yoder, 2007). Specifically the model has been used to test whether different pay components have different risk properties thereby predicting risk-seeking or risk adverse behavior. Thus, Larraza-Kintana and colleagues (Larraza-Kintana et al., 2007) found that both the downside risk of essential pay and positively valued stock options were negatively associated with CEO risk-taking. Similarly, restricted stock ownership will also exhibit a negative relationship with firm strategic risk (Devers et al., 2008). In both studies, the executives’ desire to minimize losses exceeded their value to maximize gains. Our findings that outright stock ownership also negatively correlates with CEO risk-taking are consistent with the model. Conversely, our results regarding the influence of CEO and executive exercisable or unexercisable stock options on risk framing do not follow the same logic. In a 2008 study Devers and colleagues (Devers et al., 2008) predicted that the value of unexercisable options exhibits a positive relationship with strategic risk, while stock options which are both exercisable and “in the money” endow personal wealth to the executive and therefore reduce strategic risk investments. In fact, they found a concave relationship between the cumulative value of the exercisable option and strategic risk. Our results did not detect any relationship between risk and unexercisable options, but did find a positive and linear relationship with respect to positive valued, exercisable options. A number of conditions may account for the results, including the possibility that a change in ownership triggers immediate exercisability and an increase in share price due to the potential premium paid to acquire stock by the private equity firm. In summary, a difference exists in how executives value outright stock ownership and stock options, so that the agency-theory inspired reliance on stock and stock options as a general corporate control mechanism might possibly have varying effects.

While our study fills the gap in the current understanding of the decision to go private, it also raises additional questions. For example, contrary to our predictions, a previous decline in stock price did contribute to a managerial preference to go private, suggesting that prospect theory’s general prediction of more risky behavior in loss situations does not apply in all cases. However, our research design accounted for share price change using a long-term window of two years prior to the decision year. Reactions to decreases in share price may be much more immediate and thus quarterly analyses may be more appropriate. Besides timing issues, stock price volatility may be a more complex construct than a simple measure of increases and decreases and may have differing interactive effects on executive
decision-making depending on factors not taken into account in our research design. Thus, further inquiry into the managers’ overall investment portfolio and other sources of income may shed light on their assessment of share price decline on their net worth. Further inquiry is also needed regarding the role of board of directors’ equity ownership, their investment portfolios, and their other sources of income in affecting the decision to go private. We also suggest a study of an array of competing options available to public firms in changing their organizational form, which include mergers and acquisitions involving another public company, to discern those factors that differentiate the decision to go private versus changing the firm’s organizational form but continue to remain part of a public firm.

Our study covered a unique period of time from 2003 through 2007, when external financing was readily available and private equity firms were involved in nearly half of the PTP deals (Bargeron, Schlingemann, Stulz, & Zutter, 2008). After the economic turndown, credit markets become much tighter, changing the dynamics of the transactions and the parties involved. Nevertheless, many companies might consider exiting the public arena when credit is more easily available, leading to a new era of going private activity, and an understanding of the driving factors may further our knowledge of the effects of risk perceptions on the decision.

REFERENCES


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