

**THE EFFECTS OF MANAGEMENT'S FORECAST STRATEGY ON VENTURE
CAPITALIST INVESTMENT SCREENING JUDGMENT**

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(ABSTRACT)

Prior research indicates that management forecast strategies affect investors' perceptions of management, which, in turn, influence investors' judgments about the firm. The current study hypothesizes and demonstrates that decisions about the completeness and form of management's forecast disclosure affect venture capitalists' (VCs) investment screening judgments. In an experiment, 53 experienced VCs indicate whether they would recommend conducting due diligence on a new venture. I manipulate the completeness (inclusion vs. omission of quantitative data about the components of earnings) and form (point vs. range forecast values) of management's financial forecasts in a 2 X 2 between-subjects design. When management is more (less) complete in its forecast disclosure, participants make more (less) favorable investment screening judgments. Additionally, when managers provide less complete disclosures, the use of point rather than range forecasts leads to particularly unfavorable screening judgments, whereas when managers provide more complete disclosures, the use of point rather than range forecasts leads to particularly favorable screening judgments. Taken together, these results indicate that the completeness of forecast disclosure increases the favorability of screening judgments and decisions about the form of financial forecasts can offset some of the adverse consequences of less complete disclosure.

DEDICATION

I dedicate this dissertation to my family and friends. First and foremost, to my wife, Tiffani, who was an unwavering source of support, love, and understanding throughout my doctoral program; her love and commitment to our son, Jackson, was a constant source of encouragement. Second, to my parents, John and Marjorie, and sister, Amanda, who never failed to believe in my ability to succeed. Third, to my oldest and dearest friends, Christopher Gall and Isaac Garcia, who have always been by my side and are the best friends a man could ever have. Finally, to my mentors and friends—Andy Barnett, Chee Chow, Sharon Lightner, and Gene Whittenburg—who encouraged me to pursue a doctorate in accounting and have supported me throughout the entire process. The role each of you has played in my life has been vital in the successful completion of this dissertation, and I love each of you from the bottom of my heart.

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CHAPTER 1

INTRODUCTION

New ventures often need to secure financing from venture capital firms to obtain the resources necessary to turn promising ideas into commercial successes. The volume of new ventures seeking funding and the high cost of due diligence require venture capitalists (VCs) to screen out unacceptable new ventures early in the venture capital process by evaluating their potential for success. VCs screen potential investments based on limited information that is voluntarily disclosed by management—and management’s financial forecasts are a key part of this disclosure. Studies suggest that decisions about voluntary forecast disclosures are interpreted as value-relevant information cues or signals about management in forming investment-related judgments and decisions (e.g., Tan et al. 2002; Mercer 2005). Prior research demonstrates that perceptions of management are important when predicting new venture success (e.g., Shepherd 1999; Gompers and Lerner 2004), thus management’s forecast strategy should affect VCs’ evaluations of new ventures during the investment screening process. I test whether VCs’ screening judgments are consistent with this logic.

I use the term forecast strategy to describe management's disclosure decisions regarding the completeness and form of earnings forecasts. Management teams who are more complete in their forecast disclosures by including quantitative supplemental data about the components of earnings (e.g., revenue will be \$2.5 million) are likely to be perceived as more credible than those who only provide qualitative statements (e.g., revenue is expected to increase) to support their earnings forecasts (Hutton et al. 2003; Mercer 2005). The pervasive information asymmetry between managers and VCs makes perceptions of management's credibility an important factor in VCs' investment screening judgments and decisions (Feeney et al. 1999; Gompers and Lerner 2004). Additionally, management teams who report forecasts in the form of a point estimate are likely to be perceived as more certain about future outcomes than those who provide a range of values (Hirst et al. 1999; Libby et al. 2006). The inherently high level of uncertainty surrounding new ventures causes VCs to consider management's level of confidence about a venture's prospects during screening (Gompers and Lerner 2004). Therefore, decisions regarding the completeness of forecast disclosure serve as a judgment-relevant information cue about management's credibility, while decisions regarding the form of forecast disclosures signal management's uncertainty about the prospects of a new venture during investment screening.

The Heuristic-Systematic Model (HSM) is a social-cognitive model of information processing that suggests peoples' attention to source credibility during communication exerts both direct and indirect effects on judgment (Chaiken and Mahenswaran 1994; Chen and Chaiken 1999). In the screening context, the HSM suggests that firms with more credible management will tend to receive more favorable screening judgments. Thus, I predict that more complete forecast disclosure will result in more favorable investment screening judgments. In addition, the HSM suggests that the effect of forecast form will depend on

VCS' perceptions of management's credibility, as signaled by the completeness of forecast disclosures. Therefore, I predict that when VCS' view management as more credible (because they have provided more complete disclosure), point (versus range) forecasts are interpreted as a signal of greater certainty about future prospects and will result in more favorable screening judgments. On the other hand, when VCS view management as less credible (because they provided less complete disclosure), then point (versus range) forecasts are viewed with suspicion and will result in less favorable screening judgments.

I conducted an experiment in which 53 experienced VCS made investment screening judgments about a new venture. Using a 2 X 2 between-subjects design, I varied the completeness (inclusion vs. omission of quantitative data about the components of earnings to support the earnings forecasts) and form (point vs. range forecast values) of management's earnings forecasts. I find that when management forecasts contain supplemental quantitative data about the components of earnings, VCS make more favorable screening recommendations than when only qualitative supporting statements are provided. In addition, I find that *point* forecasts increase the favorability of screening judgments when management provides *more* complete forecast disclosure, whereas *range* forecasts increase the favorability of screening judgments when management provides *less* complete forecasts. These results suggest that more complete forecast disclosure increases the favorability of screening judgments and that decisions about the form of financial forecasts can offset some of the adverse consequences of less complete disclosure.

This study contributes to the literature by providing direct causal evidence relevant to the effects of management's strategic forecast disclosure decisions on investor judgment. It also extends prior research on investor reactions to forecast disclosure (e.g., Hirst et al. 1999; Libby et al. 2006) by documenting that VCS'

initial screening judgments are particularly attune to heuristic cues contained in management forecasts. Further, my study extends prior archival research (Hutton et al. 2003) and contemporaneous experimental research (Hirst et al. 2006) by (1) allowing for direct causal inference relevant to the management credibility effects of forecast disclosure strategies and (2) isolating the effect of management's uncertainty when management is perceived to be more or less credible. At an applied level, new venture managers may find these results useful in shaping effective forecast strategies that could ultimately impact their cost of capital and/or ability to acquire funding. This study also provides VCs with information to better understand their own decision making processes, which, in turn, provides an opportunity to increase their effectiveness during the investment screening process.

The remainder of this paper proceeds as follows. Chapter 2 describes the venture capital setting and develops the hypotheses. Chapter 3 and 4 describe the research method and results, respectively. Chapter 5 concludes with a discussion of the results, implications, and limitations of this research.

CHAPTER 2

BACKGROUND AND HYPOTHESES

2.1 Venture Capital Setting

Venture capital is equity financing provided by professionally managed firms that invest alongside entrepreneurs in new ventures. Venture capitalists take on the role of finding, screening, and deciding upon new ventures in which to invest.¹ New ventures are typically small in size, not listed on organized stock exchanges, and require external financing for new development and expansion (Wright & Robbie 1998; Gompers and Lerner 2004). These firm characteristics, and the associated problems of asymmetric information, distinguish venture capital investment from traditional corporate finance.² VCs are a unique group of investors in that they make illiquid investments in high-risk companies and

¹ See Sahlman (1990), Wright and Robbie (1998), and Gompers and Lerner (2004; 2001) for more in depth discussion of the organization and management of venture capital firms.

² See Wright and Robbie (1998) and Hand (2005) for discussion on the distinctiveness of the venture capital market compared to the public equity market.

provide an array of advisory services to foster their investments and assist in the development of innovative products or services.³

VCs provide financing at various stages of new venture development. The focus of my study is on early-stage investing when new ventures are typically going concerns, have a management team in place, and have a proven product with increasing sales. At this stage, new ventures need financing for projects that will increase productivity, reduce unit costs, and build scalable distribution systems (Arkebauer 1998). VCs are interested in this stage of development because they can more adequately evaluate the prospects of a new venture, reasonably estimate a timeline for payout, and their funding, contacts, reputation, and advice can add the most value (Gompers and Lerner 2004).

The venture capital investment process is a series of complex judgments and decisions that are made prior to actually investing money in a new venture (see table 1). Investment screening is the first stage in the venture capital process during which VCs determine whether to investigate a new venture further for potential investment (Fried and Hisrich 1994; Berger & Udell 1998; Gompers & Lerner 2001). The majority of new investment proposals are unsolicited, so VCs engage in investment screening to minimize the costly due diligence process by quickly evaluating the potential success of new ventures (Fried & Hisrich 1994).⁴ Venture capital firms typically receive 200-300 funding requests per year and VCs spend an average of 10-15 minutes screening each proposal (Sweeting 1991;

³ VCs typically take a seat on an investee's board of directors; provide financial guidance, strategic discipline, and business contacts; assist in the recruitment of key personnel; and, if necessary, remove or replace management.

⁴ The screening process is less rigorously applied when new ventures are referred by a high quality third party (Fried and Hisrich 1994). The focus of my study is on unsolicited proposals because they are (1) more common than solicited proposals, (2) receive more scrutiny, and (3) have a more difficult time making it through the screening process.

Zider 1998). Field research indicates that approximately 90 percent of new ventures are rejected during investment screening (Proimos & Wright 2005). Without the ability to screen out unacceptable new ventures and entrepreneurs, VCs are unable to make efficient and appropriate decisions about where to invest (Gompers and Lerner 2004).

The underlying goal of investment screening is to accurately assess the future prospects of a new venture. A critical part of this analysis centers on management's financial forecasts (Wright and Robbie 1996). Management's strategic disclosure decisions regarding financial forecasts provide information cues or signals to VCs about the management team that can indicate a venture's likelihood of success (Morris 1987). These signals are relevant during investment screening because VCs rely heavily on perceptions of management when predicting future outcomes for new ventures (Tyebjee and Bruno 1984; MacMillian et al. 1985; Gorman and Sahlman 1989; Feeney et al. 1999; Shepherd 1999; Shepherd et al. 2000a; Shepherd et al. 2000b; Gompers and Lerner 2004).

2.2 Heuristic-Systematic Model

Within judgmental contexts where accuracy is the primary motivational concern, the Heuristic-Systematic Model (HSM) explicates two concurrent modes of information processing by which people make judgments (Chaiken 1980; Chaiken et al. 1989; Chen and Chaiken 1999). *Systematic processing* is the relatively analytic and comprehensive treatment of judgment-relevant information. On the other hand, *heuristic processing* is the activation and application of judgment rules or "heuristics" that, like other knowledge structures, are learned from experience, retrievable from long term memory, and relevant to the judgment task at hand (Chen and Chaiken 1999). Relative to systematic processing, heuristic processing places minimal cognitive demands on the judge. Both the heuristic and systematic modes of processing are assumed to occur

simultaneously to make judgments in the most efficient way possible.⁵ Prior research suggests that the simultaneous occurrence of these two processing modes exerts both independent and interdependent effects on judgment (Chaiken and Maheswaran 1994; Chen and Chaiken 1999).

Judgments formed on the basis of heuristic processing reflect the activation of judgmental heuristics by relevant cues contained in a communication. For instance, characteristics of forecast disclosure serve a value-expressive function during investment screening insofar as VCs believe that disclosure decisions reflect certain management attributes. Heuristic cues may exist in various forms and appear throughout communications. In many cases, heuristic cues are embedded in the content of a communication and revealed only through engaging in some level of systematic processing (Chen and Chaiken 1999). Heuristics may be activated by a combination of internal (e.g., frequent use) and/or external (e.g., presence of salient cues relevant to the heuristic) factors in a judgment setting. The functionality of heuristic processing largely depends on the association between particular heuristics and particular judgment tasks (Eagly and Chaiken 1998). Thus, the stronger the perceived functionality of heuristics, the more motivated one will be to rely on heuristic processing (Higgins 1996; Chen and Chaiken 1999).

The HSM's *bias hypothesis* posits that heuristic cues create expectancies about other judgment-relevant information cues in a communication, which can then bias information processing and judgment. Chen and Chaiken (1999) argue

⁵ The HSM assumes, like many other judgment models, that people are “economy-minded” information processors and are guided in part by a “principle of least effort” (Beach and Mitchell 1978; Chaiken 1980; Fiske and Taylor 1991; Payne et al. 1993; Chen and Chaiken 1999). The HSM maintains that people attempt to strike a balance between minimizing effort and feeling sufficiently confident that their judgments satisfy other motivation concerns, such as accuracy (Chaiken et al. 1989; Chen and Chaiken 1999).

this bias is “most likely to occur in settings in which individuating judgment-relevant information is ambiguous and hence amenable to differential interpretation.” The unstandardized nature of voluntary disclosure often makes characteristics of financial forecasts open to differential interpretation. Obviously, investment screening involves a certain amount of systematic processing, but time and information constraints likely motivate VCs’ use of heuristic processing (Ratneshwar and Chaiken 1991; Eagly and Chaiken 1998; Chen et al. 1999). In this study, I investigate the effects of judgmental heuristics activated by management’s forecast disclosure on VCs’ investment screening judgments.

2.3 Activated Heuristics and Forecast Disclosure

Based on the HSM, I argue that the inferences drawn about management from their forecast disclosures will affect VCs’ investment screening judgments. The theoretical relations between management’s forecast decisions, the activated judgmental heuristics, and the effects of these heuristics on VCs’ screening judgments are schematically presented in Figure 1.

2.3.1 Management’s Credibility

Psychology research demonstrates that source credibility is a significant determinant of people’s ability to influence others’ judgments and decisions through communication (Hovland et al. 1953; Giffin 1967; Beach et al. 1978; Birnbaum and Stegner 1979; Eagly and Chaiken 1993; Chaiken and Maheswaran 1994; Pornpitakpan 2004). Prior accounting research finds that source credibility cues affect commercial loan officers’ loan decisions (Beaulieu 1994), investors’ earnings predictions (Hirst et al. 1999), tax professionals’ consulting engagement judgments (Alexander 2003), and audit committee members’ recommendations for accounting adjustments (DeZoort et al. 2003). During the screening process, management is the primary source of information about the prospects of a new

venture. Given the illiquid and long-term nature of venture capital investing, the adverse consequences of information asymmetry (e.g., concealing negative information) make perceptions of management's credibility an important heuristic during investment screening (Ring and Van de Ven 1992; Gompers and Lerner 2004).

I define management's credibility as VCs' perceptions of management's *competence and trustworthiness in financial reporting* (Mercer 2005). In the context of forecast disclosure, *competence* refers to the extent to which management is perceived as being a source of valid assertions (Hovland et al. 1953) and *trustworthiness* is the degree of confidence in management's intent to provide valid disclosures (Hovland et al. 1953; Barney & Hansen 1994; Mayer et al. 1995).⁶ Management's credibility differs from other types of credibility (e.g., disclosure credibility) because it is an enduring trait that can be expected to carryover into multiple facets of management behavior (Mercer 2004).⁷

Accounting research documents that management's forthrightness regarding forecast disclosure positively affects investor beliefs about management's credibility. Three facets of disclosure forthrightness appear to be important predictors of management's perceived credibility: accuracy, timeliness, and completeness (Mercer 2005). Prior research demonstrates the effect of accuracy (Hirst et al. 1999; Tan et al. 2002) and timeliness (Libby and Tan 1999; Mercer 2005) on management's credibility. However, these aspects of forthrightness are primarily relevant when forming judgments about management of publicly traded firms. For instance, the timing of forecast disclosure is relevant

⁶ Trustworthiness is not trust per se—rather trustworthiness is an antecedent that helps build the foundation for the development of trust (Mayer et al. 1995). Further, trustworthiness should be thought of as a continuum, rather than the trustee being either trustworthy or untrustworthy.

⁷ Mercer (2004) suggests that disclosure credibility is short-term in nature and independently appraised for each disclosure.

because the market has expectations about future earnings, particularly when forecasts provide warnings of unexpected negative earnings changes (Libby and Tan 1999; Mercer 2005). Similarly, the accuracy of forecast disclosure can be determined for publicly traded firms because information is available to compare prior forecasts with realized results. In contrast, current forecast disclosure is typically devoid of prior period forecast data, future actual results are not available during investment screening, and VCs have no basis for specific estimates about future results. VCs can, however, assess the completeness of forecast disclosures.

Two studies examine investor reactions to the completeness of forecast disclosures. Using archival data, Hutton et al. (2003) find that managers can increase the credibility of their earnings forecasts by supplying verifiable quantitative data about the components of earnings rather than qualitative “soft talk” disclosures to supplement their earnings forecasts.⁸ In an experiment, Hirst et al. (2006) hold constant forecast verifiability (i.e., they only provide numerical values) and show that disaggregated earnings forecasts are perceived to be more credible than aggregated forecast disclosures. Neither of these studies, however, explicitly examines management’s credibility, but these results are consistent with the argument that more complete forecast disclosure containing quantitative data about the components of earnings conveys greater management credibility (King et al. 1990; Botosan 1997; Mercer 2005).

⁸ Hutton et al.’s (2003) archival data suggest that good news forecasts are only informative to the market when accompanied by quantitative supplemental statements about the components of earnings. Good news is disclosure that reports positive earnings forecasts. I focus on the good news scenario because financial disclosure for new ventures during the investment screening stage does not typically contain a negative outlook. Further, research shows that managers who report bad news are perceived to be more credible than those who report good news because bad news disclosures are inconsistent with manager’s reporting incentives (Mercer 2004, 2005; Hodge et al. 2006).

More complete forecast disclosure likely signals management's credibility because it provides better justification for management's optimism about future earnings (Dye 1986) and gives an objective yardstick for measuring and testing management's assumptions (Bhide 1992). Research also suggests that managers are less likely to bias more complete earnings forecasts because quantitative supporting data enhance investors' ex post ability to detect forecast misrepresentations (Rogers and Stocken 2005). Further, managers likely know that quantitative supplemental data make it less costly for investors to more quickly uncover potential causes of differences (should they arise) between actual and forecasted values (Bloomfield 2002; Krische 2005). Some new venture management teams, however, may choose not to provide supplemental quantitative data early in the venture capital process to protect proprietary information about their competitive advantage⁹ and/or to avoid committing themselves to a specific course of action.

2.3.2 Management's Uncertainty

Because new ventures lack a proven track record, their prospects for future financial success are more uncertain than those of established firms. Research in psychology suggests that the definitiveness of an estimate depends on the extent of confidence in the knowledge upon which it is based (Frischoff 1994).¹⁰ Accounting research suggests that managers match the form of their forecasts to their own confidence in information about the business environment and/or predictability of future earnings (King et al. 1990).¹¹ Gompers and Lerner (2001)

⁹ VCs seldom sign nondisclosure agreements because they often see similar plans and do not want any potential liability if they sign one new venture's nondisclosure agreement and decide to fund another (Kawasaki 2001).

¹⁰ Kahneman and Tversky (1982) define confidence as a measure of an individual's uncertainty.

¹¹ Kile et al. (1998) document that managers report earnings forecasts in various forms: point estimates (e.g., earnings will be \$0.75); ranges (e.g., earnings will be \$0.50 - \$1.00 per share),

suggest that uncertainty for new ventures should be viewed as a measure of the distribution of possible outcomes. Thus, the more uncertainty there is about a new venture, the wider the distribution of possible outcomes. Perceptions of management's uncertainty are important during investment screening because they affect VCs' confidence in the success of a new venture (Gompers and Lerner 2004).

Unless managers explicitly provide the probabilities associated with forecasted outcomes, users are left to draw their own conclusions about management's confidence in future outcomes from the forecast disclosure (Frischoff 1994). Psychology research finds a general preference for more certain estimates during judgment and decision making (Kunreuther et al. 1995; Kuhn and Budescu 1996). For instance, Kunreuther et al. (1995) find that experienced insurance underwriters assess significantly higher premiums when there is greater uncertainty about the occurrence of a loss. In terms of forecasting, research finds that range forecasts signal greater uncertainty than point forecasts (Rapaport et al. 1990; Highhouse 1994). Yaniv and Foster (1995) suggest there is an accuracy–informativeness tradeoff when reporting information about future events such that range forecasts are less informative than point forecasts, although more likely to be accurate. Some managers may, however, choose to provide range forecasts because they allow more opportunity to have variation in future earnings while at the same time remain consistent with predictions.

Clearly managers do not know the true future earnings of their venture, but they can assess the level of confidence in their estimates and then, on the basis of that assessment, strategically choose the form of their forecasts. Hirst et al.

minimums (e.g., earnings will be at least \$0.50), and maximums (e.g., earnings will not exceed \$1.00). Point and range forecasts were chosen in this study to unambiguously test the differences in uncertainty associated with different forms of forecast disclosure (Hirst et al. 1999)

(1999) find that investors who receive point forecasts perceive management to be more certain about the future and, in turn, are more confident in their earnings predictions than investors who receive range forecasts. However, Hirst et al. do not find that forecast form affects investors' earnings estimates. Libby et al. (2006) find the same result for financial analysts' initial earnings judgments. These results are consistent with investors using the midpoint of a range of possible outcomes when generating initial earnings estimates (Kennedy et al. 1998).¹² That is, investors' initial earnings predictions appear not to be affected by differences in uncertainty associated with forecast form. However, the nature of the screening judgment, coupled with riskiness of new ventures, makes management's uncertainty a more salient heuristic during investment screening than in other investment-related judgment tasks (e.g., estimating next period earnings).

2.4 Hypotheses

The purpose of management's forecast disclosure during the screening process is to persuade VCs to further consider their new venture for investment. VCs' screening judgments depend in part upon initial perceptions of management based on limited information that is voluntarily disclosed. Therefore, VCs presumably search for and use information cues in forecast disclosures to help them ascertain relevant management attributes. The HSM suggests that the way in which VCs process these information cues likely affects the judgments they make about new ventures.

Research in psychology and accounting discussed in the prior section documents the considerable influence source credibility has on judgment. The

¹² Forecast form does not affect perceptions of management's credibility. Kennedy et al. (1998) find that investors judge managers who provide point and range forecasts for environmental liabilities to be equally credible.

HSM suggests that use of source credibility cues contained in forecast disclosure will exert a direct positive influence on VCs' screening judgments (Chen and Chaiken 1999). Consequently, the completeness of management's forecast disclosures likely affects investment screening judgments because management's credibility is a judgment-relevant heuristic for new venture success. Thus, consistent with the HSM, I predict that VCs are motivated to heuristically process credibility cues in forecast disclosure resulting in a positive relationship between the completeness of management's forecast disclosure and VCs' investment screening judgments. This leads to the following hypothesis:

H1: More complete disclosure of the components of earnings in forecast disclosures will lead to more favorable investment screening judgments.

The HSM's bias hypothesis suggests that the use of source credibility cues when forming judgments also influences the effect of other information cues in ways congruous with perceptions of source credibility. Research in psychology and accounting find support for the bias hypothesis. Chaiken and Maheswaran (1994) find that peoples' attitudes toward a new product are more positive when they receive an advertisement with arguments made by a high-credibility source. Alexander (2003) finds that professional tax accountants' who receive a research memorandum from a high-credibility source make more favorable judgments about the judicial outcome of a proposed tax treatment. Consistent with the HSM, these effects presumably occur because more credible sources engender more favorable expectancies about other reported information.

In my study, the HSM suggests that VCs' perceptions of management's credibility will alter their expectations of management's certainty about a new venture's future, resulting in more favorable screening judgments when they

receive forecast disclosure that is consistent with these expectations. With this principle in mind, I predict that (1) less complete disclosure combined with a point forecast will result in *less* favorable screening judgments than less complete disclosure coupled with a range forecast, and (2) more complete disclosure combined with a point forecast will result in *more* favorable screening judgments than more complete disclosure coupled with a range forecast. This leads to the following hypotheses:

H2a: Less complete disclosure of point forecasts will lead to less favorable investment screening judgments than less complete disclosure of range forecasts.

H2b: More complete disclosure of point forecasts will lead to more favorable investment screening judgments than more complete disclosure of range forecasts.

Figure 2 provides a graphical summary of my theoretical predictions regarding the effects of management's forecast strategy on VCs' investment screening judgments.

CHAPTER 3

RESEARCH METHOD

In an experimental setting, participants reviewed excerpts from the business plan of a new venture in search of venture capital financing and determine whether they would recommend investing the time and effort to conduct due diligence on the venture. The completeness and form of management's forecast disclosure are varied in a 2 X 2 between-subjects design.

3.1 Participants

Practicing VCs were selected as study participants because the goal of this research is to “peer into the minds” of experienced decision makers to determine what they have learned in the field about management's financial reporting decisions (Libby et al. 2002). Using the VC Pro Database 2006, I mailed experimental materials to 160 individuals at venture capital firms located in California and the Mid Atlantic region of the United States, where my professional experience and university affiliation were likely to engender some goodwill. Of the 153 valid mailings, 53 completed instruments were returned, yielding an overall response rate of 35%. This rate is consistent with my

expectations given the considerable demand on VCs' time and the nature and length of the experimental materials.¹³ Table 2 presents the sample attrition.

On average, participants had 10.8 years (s.d. = 7.5) of venture capital experience, 15.0 years (s.d. = 11.0) of accounting/finance related experience, and 14.4 years (s.d. = 10.1) of general business experience. Participants also reported that, on average, they were actively involved with 5.1 portfolio investments (s.d. = 2.1) and managed approximately \$384.5 million of investment capital (s.d. = 430.6). Table 3 presents demographic data for the sample.

To assess the potential for non-response bias, I compared the amount of investment capital managed by study participants and all firms from the California and Mid-Atlantic region listed in the VC Pro Database. Results indicate no significant difference between the two groups ($t = 0.95$, $p = 0.34$). I also performed three tests to assess the potential for non-random assignment of the experimental materials. First, I tested whether the frequency of responses from the California and Mid-Atlantic regions differed across the experimental conditions. Chi-square results indicate no significant difference across treatment conditions (Mantel-Haenszel $\chi^2 = 0.02$, $p = 0.90$). Second, ANOVAs were performed to test for differences on the continuous demographic measures (Table 3, Panel A) across treatment conditions. Results indicate no significant differences across the treatment conditions on any of these measures (all p -values > 0.30). Lastly, Chi-square tests were performed to test for differences on the discrete demographic measures (Table 3, Panel B) across treatment conditions.

¹³ Several recent studies report similar response rates for mailed instruments to experienced, difficult-to-reach participants: managers/directors of manufacturing (16%; Van der Stede et al. 2006), retail store managers (31%; Gosh 2005), audit committee members (28%; DeZoort et al. 2003).

There are no significant differences across treatment conditions on any of these measures (all p-values > 0.40).

Random assignment is necessary to ensure that extraneous factors (e.g., geography; experience) are not correlated with the manipulated factors and, therefore, do not provide alternative explanations for the observed effects. The above tests demonstrate that potentially important extraneous factors are not correlated with the manipulated factors and, therefore, confirm that the procedures used to ensure random assignment were successful.

3.2 Procedure and Task

Participants were initially contacted by a personalized email describing the research project. Personalized cover letters on university letterhead with handwritten signatures were then sent out with the study materials explaining the objective of the research and the importance of participation. Although I was unable to meaningfully compensate participants, I included a pen from my university as a token incentive for participation. A preaddressed and postage-paid return envelope was included to make it as easy as possible for participants to return the study materials.

The case materials instructed participants to evaluate NavCo, Inc. (NavCo), a company in the navigation and guidance industry that is seeking \$6 million in venture capital financing.¹⁴ Participants first read specific instructions about completing the task. Next, participants read excerpts from NavCo's business plan that provided background information about NavCo, the management team, business operations, and selected historical financial data. This information was identical across experimental conditions.

¹⁴ I chose \$6 million as the funding request because the median amount financing received by early-stage new ventures (per round) in 2005 was \$6.8 million (VentureOne 2005).

Participants then reviewed management's outlook for the next three years, which consisted of a narrative discussion about NavCo's future and financial forecasts. The experimental manipulations of forecast completeness and forecast form were imbedded in this material. After reviewing the case materials, participants indicated whether they would recommend investing the time and effort to conduct due diligence on NavCo. Finally, participants responded to manipulation and other checks as well as questions about the case and their professional experience. The debriefing questions were identical across experimental conditions.

3.3 Independent and Dependent Variables

The completeness of the forecast disclosure was manipulated between-subjects by providing participants with an earnings forecast that either included or omitted quantitative supplemental data about the components of earnings. All participants received numerical forecasts for both net income and earnings per share. Participants in the *low completeness* conditions received qualitative supplemental statements about future revenue, gross margins, SG&A, and R&D. Alternatively, participants in the *high completeness* conditions received the same qualitative statements, but were also provided quantitative estimates for revenue, gross margin, SG&A, and R&D.

The form of the forecast disclosure was manipulated between-subjects by providing participants with either point or range forecast estimates. Participants in the *point* conditions received single estimates for the disclosed forecast items (see above), whereas participants in the *range* conditions received closed-end ranges. The mid-points for the range forecasts were equal to the point forecasts to isolate the effect of uncertainty on VCs' screening judgments. Additionally, the low end of the range forecasts for year_t exceeded the high end of the range

forecasts for year_{t-1} to ensure the range forecast conditions only communicated good news.

The dependent variable in this study is participants' investment screening judgments (SCREEN). SCREEN was assessed by asking participants if they would recommend investing the time and resources necessary to conduct complete due diligence on NavCo. Responses were indicated on a 9-point scale with end points labeled "definitely no" and "definitely yes." Higher scores on this variable indicate more favorable investment screening judgments. A continuous scale was chosen for this variable because discussions with practicing VCs revealed that the final screening decision is a combination of numerous factors (e.g., available funding; comparison with other current proposals; discussion with other members of the firm) that are outside the scope of this study, which make it unrealistic to force the participants into a categorical yes or no answer.¹⁵

¹⁵ Two VCs reviewed the experimental materials to ensure there were no apparent problems with the information provided in the case (e.g., size of funding request, firm performance, etc.), length of the case, or other potential issues that may affect participant responses. In addition, DeZoort et al. (2003) use a similar scale to assess audit committee members' recommendations for an audit adjustment (0 = "definitely do not adjust" to 100 = "definitely adjust").

CHAPTER 4

RESULTS

4.1 Manipulation Checks

Recall that forecast completeness is an aspect of management's forthrightness and, consequently, is expected to affect participants' perceptions of management's credibility. To ensure the forecast completeness manipulation operated as intended, I asked participants to indicate their perceptions about management's competence and trustworthiness in reporting financial forecasts. Responses were indicated on 9-point scales where higher scores indicate greater competence and trustworthiness. A composite measure of management's credibility was computed by averaging participants' responses to these two questions (Cronbach's $\alpha = 0.87$). Results from an independent samples t-test show that participants in the High Completeness condition (mean = 5.46) viewed management as more credible than participants in the Low Completeness condition (mean = 3.88; $t = 3.97$, one-tailed $p < 0.01$).¹⁶ Further, one sample t-tests show that the mean credibility score of the High Completeness condition is significantly greater than the midpoint (5.00) of the scale ($t = 1.87$, one-tailed $p < 0.04$) and that the mean credibility score of the Low Completeness condition is significantly less than the midpoint ($t = -3.49$, one-tailed $p < 0.01$).

To ensure participants experienced the forecast form manipulation as intended, I asked how certain they believe management to be about NavCo's future financial performance. Responses to this question were indicated on a 9-point scale where higher scores indicate greater management certainty. Results

¹⁶ All p-values are reported for two-tailed tests, unless noted as one-tailed.

from an independent samples t-test show that participants in the Point condition (mean = 5.68) viewed management as more certain about the future than participants in the Range condition (mean = 4.24; $t = 3.00$, one-tailed $p < 0.01$). One sample t-tests show that the mean of the Point condition is significantly greater than the midpoint (5.00) of the scale ($t = 1.85$, one-tailed $p < 0.04$) and that the mean of the Range condition is significantly lower than the midpoint ($t = -2.57$, one-tailed $p < 0.01$). The above analyses indicate that participants interpreted the experimental manipulations as intended.

4.2 Preliminary Analyses

Means and standard deviations for VCs' screening judgments are presented in Table 4. Panel A of Table 4 presents VCs' raw screening judgments. Preliminary analyses on the raw data indicated slight non-normality of the residuals, unequal variances across conditions, and a few outlying observations.¹⁷ Therefore, VCs' screening judgments were ranked following the approach of Conover and Iman (1981).¹⁸ This rank-transformation approach corrects for the violations of the statistical assumptions and, in turn, allows for the application of parametric statistical methods to the transformed data (see Kachelmeier and Messier 1990).¹⁹ Panel B of Table 4 presents VCs' mean ranked screening judgments for the 2 X 2 factorial design.

4.3 Hypotheses Tests

I offered three hypotheses regarding the effects of management's forecast strategy on VCs' investment screening judgments. H1 predicts that more complete forecast disclosures will result in more favorable screening judgments

¹⁷ See Appendix A for a complete discussion of the tests of the statistical assumptions.

¹⁸ The entire set of observations was ranked from smallest to largest, with average ranks being assigned in the case of ties (Conover and Iman 1981).

¹⁹ Recent examples of the use of rank transformed data in the accounting literature include Asare et al. (2006), Krsche (2005), and Trotman et al. (2005).

than less complete forecasts disclosures. H2a predicts that less complete disclosure of point forecasts will result in *less* favorable screening judgments than less complete disclosure of range forecasts, whereas H2b predicts that more complete disclosure of point forecasts will result in *more* favorable screening judgments than more complete disclosure of range forecasts.

To test these predictions, I conducted a two-way ranked ANOVA with *Completeness* and *Form* as independent variables and participants' ranked screening judgments as the dependent variable. Table 4, Panel C, provides the ranked ANOVA. The ANOVA shows a significant main effect for *Completeness* ($F = 13.33, p < 0.01$), a nonsignificant main effect for *Form* ($F = 0.12, p = 0.74$), and a significant *Completeness X Form* interaction ($F = 4.48, p < 0.04$).²⁰ These results indicate that inferences made about management based on the completeness of forecast disclosures influence VCs' investment screening judgments and that this effect differs for point and range forecasts. Figure 3 provides a graphical summary of VC's ranked screening judgments.

If more complete disclosure increases the favorability of VCs' screening judgments as predicted in H1, then there should be a positive difference between the two treatment conditions. In support of H1, VCs' ranked screening judgments in the High Completeness conditions (mean = 33.74) are significantly greater than in the Low Completeness conditions (mean = 20.00, $t = 3.67$, one-tailed $p < 0.01$). This relation is generally consistent across both Point and Range forecasts. That is, ranked screening judgments in the Point/High Completeness condition (mean = 36.63) are greater than in the Point/Low Completeness condition (mean = 15.50, $t = 4.20$, one-tailed $p < 0.01$), and ranked screening judgments in the Range/High

²⁰ Analyses performed using the raw data produce essentially the same results. Traditional nonparametric analyses also yield inferentially similar results.

Completeness condition (mean = 30.13) are also greater than in the Range/Low Completeness condition (mean = 24.50, $t = 1.06$, one-tailed $p = 0.13$).

If the effect of the form of management's forecast depends on inferences made about management from the completeness of the forecast disclosure as predicted in H2a (H2b), then there should be a negative (positive) difference between the Point and Range forecasts in the Low (High) Completeness conditions. Figure 3 reveals that the data are generally consistent with H2a and H2b. To provide a more specific test of these hypotheses, I conducted a series of planned comparisons (Buckless and Ravenscroft 1990). Consistent with H2a, I find that participants' ranked screening judgments are significantly lower in the Point/Low Completeness condition (mean = 15.50) than in the Range/Low Completeness condition (mean = 24.50; $t = -1.73$, one-tailed $p < 0.05$). Consistent with H2b, I also find that participants' ranked screening judgments are higher in the Point/High Completeness condition (mean = 36.63) than in the Range/High Completeness condition (mean = 30.13), though this difference is not significant at conventional levels ($t = 1.26$, one-tailed $p < 0.11$).²¹

In summary, I find that management's strategic decisions about forecast disclosures affect VCs' investment screening judgments. More (less) complete forecast disclosure leads to more (less) favorable investment screening judgments. Moreover, I find that the effect of forecast form depends on the level of completeness. When managers provide less complete disclosures, the use of point rather than range forecasts appears to lead to particularly unfavorable screening

²¹ Figure 3 shows that the difference between the point and range forecasts in the high forthrightness condition is consistent with H2b. However, the relatively low statistical power of the planned comparison test decreases the likelihood of rejecting the null. Ex post power analysis suggests that, ceteris paribus, it would require more than doubling the current sample size to achieve a moderate level (0.5) of statistical power for this test. Thus, replication of this effect is needed before definitive conclusions are drawn.

judgments. In contrast, when managers provide more complete disclosures, the use of point rather than range forecasts appears to lead to particularly favorable screening judgments.

4.4 Supplemental Analyses

4.4.1 Continuous Variable Tests

An alternative to the ANOVA presented above is to conduct a regression analysis using the continuous measures of management's credibility and uncertainty in place of the manipulated categorical variables. Following the analysis approach prescribed by Cronbach (1987), I find that Credibility has a significant effect on VCs' screening judgments ($t = 3.04, p < 0.01$), but that the Credibility X Uncertainty interaction is not significant at conventional levels ($t = 0.98, p = 0.33$). These continuous measures, however, likely contain more statistical noise than the categorical variables due to measurement error caused potential idiosyncratic interpretations of the scales. Thus, the effects of management's forecast strategy on screening judgments may be obfuscated by the use of these continuous variables. Nevertheless, these results, taken together with the analyses reported earlier, generally support my theoretical model by showing that management's forecast disclosure decisions affect screening judgments through VCs' use of judgmental heuristics.

4.4.2 Test of Alternative Hypothesis

One might contend that perceptions of the reasonableness of financial forecasts are affected by the completeness of management's forecasts, and in turn, may mediate the relationship between management's forecast strategy and VCs' investment screening judgments. That is, perceived reasonableness may be a correlated omitted variable through which forecast completeness affects screening judgments. Barron and Kenny (1986) suggest that the following conditions must hold to establish causal mediation: (1) the independent variable (i.e., forecast

completeness) must affect the dependent variable (i.e., screening judgment), (2) the independent variable must affect the mediator variable (i.e., forecast reasonableness), and (3) the mediator must affect the dependent variable after controlling for the independent variable and the effect of the independent variable on the dependent variable must be less than in condition (1).

Results reported in Table 4 indicate that forecast completeness influenced VCs' screening judgments, satisfying condition (1). Results (not tabulated) indicate that forecast completeness does not affect VCs' judgments of forecast reasonableness ($t = 0.78$, $p = 0.44$), failing to satisfy condition (2). Given that condition (2) does not hold, it is not necessary to test condition (3).²² Taken together, this analysis demonstrates that perceived reasonableness is unlikely to mediate the relationship between management's forecast strategy and VCs' screening judgments.

²² Mediation analysis was not conducted for the effect of forecast form on screening judgments. Table 4 indicates that the form of management's forecast does not directly affect screening judgment, failing to satisfy condition (1). Additionally, forecast form does not significantly affect the perceived reasonableness of the financial forecasts ($t = 0.732$, $p = 0.47$).

CHAPTER 5

DISCUSSION

In an experiment involving 53 experienced VCs, I examine the extent to which heuristic cues about management contained in forecast disclosure affect VCs' investment screening judgments. I find that when earnings forecasts contain quantitative data (qualitative statements) about the components of earnings, study participants made more (less) favorable screening judgments. I also find that when managers provide less complete disclosures, the use of point rather than range forecasts leads to particularly unfavorable screening judgments, whereas when managers provide more complete disclosures, the use of point rather than range forecasts leads to particularly favorable screening judgments. These findings are consistent with VCs using the completeness and form of management's forecasts as judgment-relevant information cues about management's credibility and uncertainty during investment screening. These results suggest that management's strategic forecast disclosure decisions impact the way in which new ventures are perceived by VCs during the screening process.

My study has implications for both academic research and practice. First, I offer direct casual evidence regarding the inclination of VCs to use characteristics of management's forecast disclosure as judgment-relevant information during investment screening. Second, I provide systematic evidence on how the effects of management's forecast strategy differ across judgment tasks. I find that the completeness and form of management's forecasts interactively affect investment screening judgments, a previously unexamined and important accounting-related task. In contrast, prior studies find no effect of forecast form on investor (e.g., Hirst et al. 1999) or analyst (e.g., Libby et al. 2006) initial earnings judgments. Third, my study extends existing archival (e.g., Hutton et al. 2003) and experimental (e.g., Mercer 2005; Hirst et al. 2006) research by offering direct causal evidence that supplementing earnings forecasts with quantitative data about the components of earnings augments perceptions of management's credibility. Finally, the psychological forces underlying this study's predictions make it likely that the results will generalize to management disclosures other than earnings forecasts. For example, more (less) complete disclosure about the release of a new product or agreement with a strategic partner may yield similar judgmental effects.

At an applied level, my study sheds light on how VCs judge the prospects of a new venture during investment screening. Better understanding of this process is critical because field research suggests that 90 percent of new ventures seeking capital are rejected at this stage in the venture capital process (Proimos & Wright 2005). New venture managers may also find these results useful in shaping effective forecast strategies that could ultimately impact their cost of capital and/or ability to acquire funding. Factors that affect funding decisions will, in turn, ultimately impact the success of many new ventures. Further, even though VCs are sophisticated decision makers, research indicates that they lack insight into their own decision processes (Zackarakias & Meyer 1998; Shepherd

1999). Thus, VCs may use the results of my study to better understand their own decision making processes, which, in turn, provides an opportunity to increase their effectiveness during the investment screening process.

I used experimentation to test my hypotheses for three reasons. First, experimentation allowed me to investigate VCs' investment screening judgments for which archival data does not exist. As a result, I am able to examine an important judgment task that is not well suited for archival-empirical research (Libby et al. 2002). Second, through experimentation, I am able to hold constant firm performance and other environmental factors, allowing me to focus my attention on the relation between management's forecast strategy and VCs' investment screening judgments. Third, experimentation enabled me to manipulate key aspects of forecast disclosures in order to test theory-based explanations for why management's strategic disclosure decisions affect VCs' investment screening judgments.

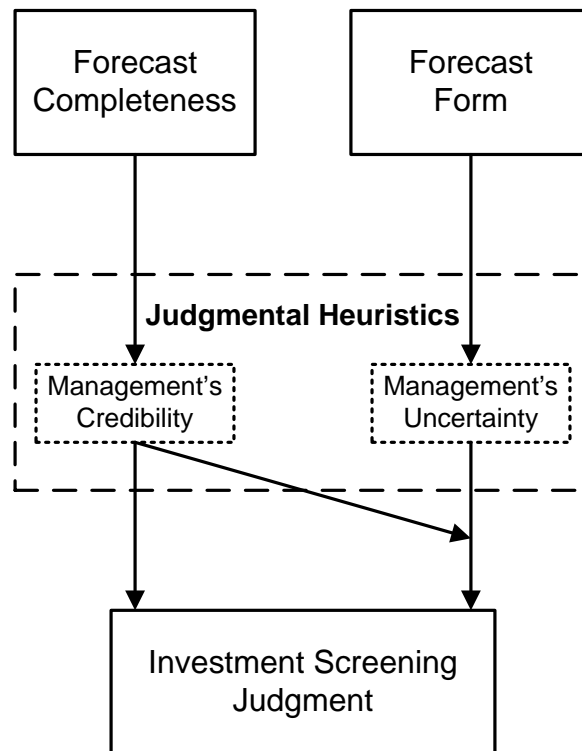
The use of experimentation for this study, while advantageous, is not without some typical limitations. First, my choice of the levels for the point and range forecast values (e.g., net income) in the stimulus materials may have influenced the magnitude of the observed effects. However, the focus of my study (and my hypotheses) is on the relative order or direction of VCs' reactions as a function of management's forecast strategy, so variations in these values should only affect the magnitude of any results, not their direction. Second, the desirability of the new venture described in the case materials may have affected the screening judgments. Thus, the effects documented in this paper may not generalize to all new ventures. Future research could examine the effects of forecast strategy on new ventures with different characteristics (e.g., product; performance) that make them are more or less desirable.

Third, because my study focuses on investment screening, I cannot provide evidence about whether the hypothesized effects in this study generalize to other stages of the venture capital investment decision process. For instance, future research could investigate whether management's forecast strategy affects the due diligence or valuation phases of this process. Lastly, because my experiment examines VCs' reactions to management's forecast strategy in a single period setting, I am unable to address the question of how VCs react to changes in forecast strategy over time.²³ Archival research suggests that firms do not adopt consistent policies for forecast disclosures (Hutton et al. 2003; see also King et al. 1990). Future research could explore how VCs who have previously received one type of forecast from management react when they subsequently receive a different type of forecast. Given that VCs often dictate elements of the post-investment financial reporting by their investees (Wright & Robbie 1996), future research might address whether it would be beneficial for VCs to control the completeness and form of management forecasts over the investment term.

²³ In the post-investment environment, VC's typically receive multiple forecasts per year from their investees and they use these disclosures to monitor new ventures between rounds of financing—primarily to manage information gaps that naturally develop in the course of business and can threaten the success of a new venture (Gompers & Lerner 2001).

FIGURES

FIGURE 1
Theoretical Model of the Relation Between Management's Forecast Decisions and VC Investment Screening Judgment



Forecast completeness refers to management's decision about whether to include or omit quantitative supplemental data about the components of earnings in forecast disclosure. Forecast form refers to management's decision about whether to report point or range values in forecast disclosure. Management's credibility refers to VCs' perceptions about management's competence and trustworthiness in financial reporting. Management's uncertainty refers to VCs' perceptions of how certain management is about a new venture's future financial performance. Investment screening judgment refers to VCs' recommendation of whether to invest the time and resources necessary to conduct due diligence on a new venture.

FIGURE 2
Theoretical Predictions Regarding the Effects of Management's Forecast Strategy

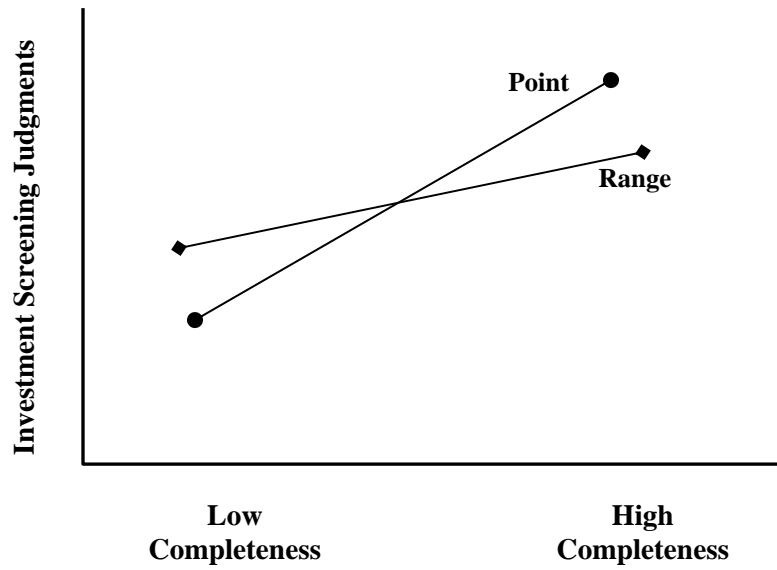
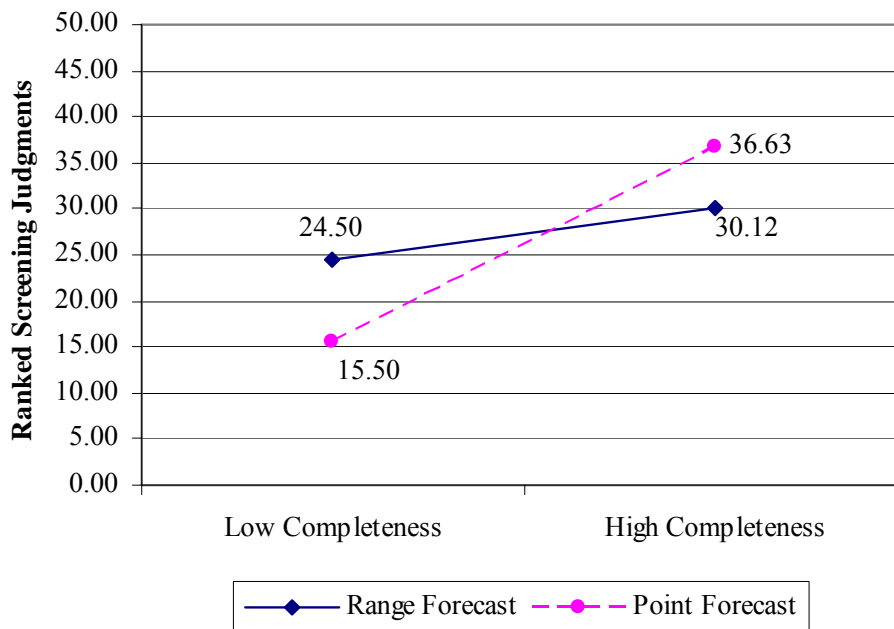


FIGURE 3
VCs' Ranked Investment Screening Judgments as a Function of the
Completeness and Form of Management's Forecast

Panel A: VC's Ranked Screening Judgments



More complete forecast disclosure results in more favorable screening judgments than less complete disclosure because management's credibility is a positive signal of new venture success. Additionally, the effect of forecast form on screening judgments depends on the completeness of the disclosure. Perceptions of management credibility create expectancies about management's certainty, and screening judgments are more favorable when the form of the forecast is congruous with the judgmental implications of management's credibility. Thus, when managers provide less complete disclosures, the use of point rather than range forecasts leads to particularly unfavorable screening judgments, whereas when managers provide more complete disclosures, the use of point rather than range forecasts appear to lead to particularly favorable screening judgments.

TABLES

TABLE 1
Summary of the Venture Capital Investment Process

Origination

- The majority of new venture proposals are unsolicited (Fried and Hisrich 1994)
- VCs often build reputations within geographic regions and industry sectors

Screening

- Broad investment criteria include investment amount, industry, and stage of financing
- Initial consideration of key evaluation and due diligence criteria (Fried and Hisrich 1994)
 - Management team—integrity, expertise, etc.
 - Financial—historical and proforma returns
 - Product or service—likelihood of success
 - Exit—viable exit strategy and timing of exit

Evaluation / Due Diligence

- A thorough process of research and analysis conducted prior to making an investment
- A “deeper” and more focused analysis than bank loan review (Rosman and O’Neill 1993)
- Key areas of due diligence (Harvey and Lusch 1995; Wright and Robbie 1996)
 - Management—verify references, gaps in management team
 - Financial—historical and proforma
 - Macro environment—industry trends
 - Legal—intellectual property rights, litigation, contracts
 - Marketing—target market, efficacy of current efforts
 - Production—equipment, systems assessment
- Information provided in business plan is compared to additional (updated) information gathered (Fried and Hisrich 1994)
- Level of due diligence is affected by time restrictions, cost constraints, and other situational factors (Harvey and Lusch 1995)

Negotiation and Closing

- New venture valuation
- Structure of investment—type of investment (e.g., convertible preferred equity)
- Oversight—appointment of VC(s) to board of directors
- Performance measurement—set benchmarks and milestones

Post-investment Activity

- Emphasis on growth of new venture
 - Monitoring based on investment terms
 - Intervention when necessary—counsel management (Sapienza and Gupta 1994)
-

TABLE 2
Sample Attrition

Panel A: Sample Composition and Attrition

	<u>Count</u>	<u>Percent</u>
Total packets sent	160	
Less: addressee no longer with firm	(7)	
Valid packets sent	153	100%
Less: nonresponses	(97)	
Total responses received	56	37%
Less: incomplete responses	(3)	
Total valid responses	53	35%

TABLE 3
Demographic Data

Panel A: Continuous Measures

<u>Attribute</u>	<u>n</u>	<u>Scale</u>	<u>Mean^a</u>	<u>S.D.</u>
Business expertise	53	1 – 9	7.0	1.7
Financial expertise	53	1 – 9	6.9	1.7
Task familiarity	53	1 – 9	8.3	1.1
Venture capital experience	53	Years	10.8	7.5
Business experience ^b	53	Years	14.4	10.1
Accounting/finance experience	53	Years	15.0	11.0
Active investee participation	53	Count	5.1	2.1
Capital under management ^c	51	\$ mil	384.5	430.6

Panel B: Discrete Measures

<u>Attribute</u>	<u>Count^d</u>	<u>Percent</u>
Position		
Director	8	15.1
Partner	35	66.0
VP	3	5.7
Analyst	5	9.4
Other	2	3.8
Primary Financing Stage		
Seed	4	7.5
Early	31	58.5
Mezzanine	13	24.5
Late	4	7.5
None	1	1.9
Primary Industry		
Life Sciences	11	20.8
High Tech	12	22.6
Business services	6	11.3
Software	5	9.4
Manufacturing	1	1.9
None	18	34.0

^a Based on ANOVA testing, response means are not significantly different across treatment conditions (all p-values >0.30).

^b Business experiences does not include the experience reported for the accounting/financing experience measure. Thus, respondents may be high on one measure and low on the other.

^c Two respondents opted not to provide this information.

^d Based on Chi-square testing, there are no significant differences across treatment conditions for position, primary financing stage, or primary industry (all p-values > 0.40).

TABLE 4
VCs' Screening Judgments

Panel A: Mean Screening Judgments (Standard Deviation)^a

	Low Completeness	High Completeness
Range	2.77 (1.09)	3.50 (1.78)
Point	1.92 (1.12)	4.53 (2.03)

Panel B: Mean Ranked Screening Judgments (Standard Deviation)^b

Range	24.50 (11.27)	30.12 (14.87)
Point	15.50 (12.28)	36.63 (14.39)

Panel C: Ranked ANOVA

	df	MSE	F-statistic	p-value^c
Form	1	20.433	0.116	0.735
Completeness	1	2356.483	13.33	0.001
Form x Completeness	1	791.547	4.48	0.039
Error	49	176.771		

Panel D: Planned Contrasts

	Directional Hypothesis	t	p-value^d
Low Completeness (Point vs. Range)	Point < Range	-1.73	0.045
High Completeness (Point vs. Range)	Point > Range	1.26	0.106

^a Screening judgments were assessed by asking participants if they would recommend their firm to invest the time and resources necessary to conduct complete due diligence on NavCo. Responses were indicated on a 9-point scale with end points labeled “definitely no” and “definitely yes.”

^b The entire set of observations was ranked from smallest to largest, with average ranks being assigned in the case of ties (Conover and Iman 1981). With 53 observations, ranked screening judgments range from 1 to 53.

^c Two-tailed p-values.

^d One-tailed p-values are reported given the directional hypotheses.

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APPENDIX A:
Supplemental Statistical Analyses

Tests of Statistical Assumptions

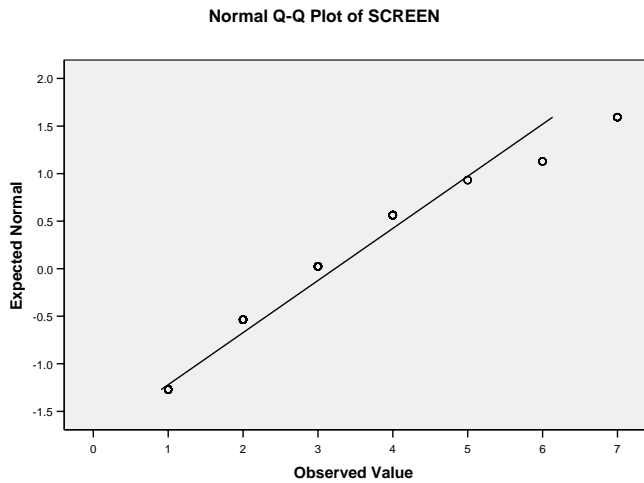
The analysis of variance (ANOVA) model assumes that data are independent, normally distributed, and have equal variance across experimental groups (Keppel and Wickens 2004). *Independence* assumes the data observations are independent of each other. The experimental materials were randomly assigned to the participants to protect against violations of the independence assumption.²⁴ As a test of this procedure, I performed three sets of analyses to assess the potential for non-random assignment of the experimental materials. First, I tested whether the frequency of responses from the California and Mid-Atlantic regions differed across the experimental conditions. Chi-square results indicate no significant difference across treatment conditions (Mantel-Haenszel $\chi^2 = 0.02$, $p = 0.90$). Second, ANOVAs were performed to test for differences on the continuous demographic measures across treatment conditions. Results indicate no significant differences across the treatment conditions on any of these measures (all p -values > 0.30). Lastly, Chi-square tests were performed to test for differences on the discrete demographic measures across treatment conditions. There are no significant differences across treatment conditions on any of these measures (all p -values > 0.40).

Normality assumes that the data are normally distributed around the mean. Graphical representations shown in Figure A-1 were initially used to assess this assumption. Visual inspections of the data indicate slight non-normality of the residuals and several outlying observations. The Shapiro-Wilks W test was performed to formally test the normality assumption. When $W=1$, the data are perfectly normal in distribution. Results of this test indicate that the assumption of normality is not supported ($W = 0.893$, $p < 0.001$).

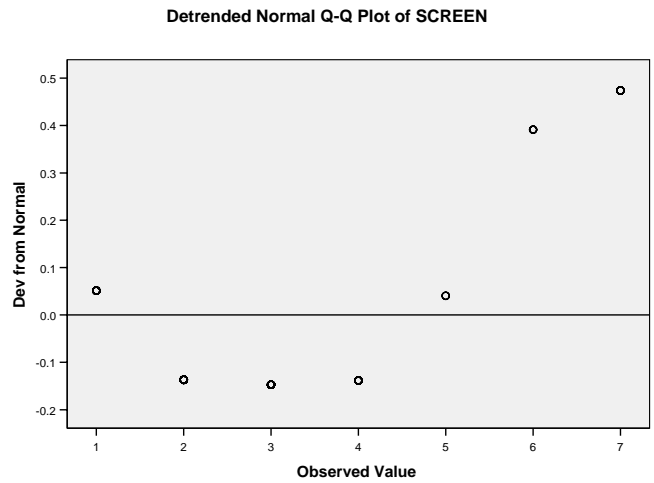
²⁴ Participants were also instructed not to discuss the project materials with anyone or consult external references while completing the study. Additionally, all data are between-subjects so there is no influence of time or learning on the data.

FIGURE A-1
Normality Plots

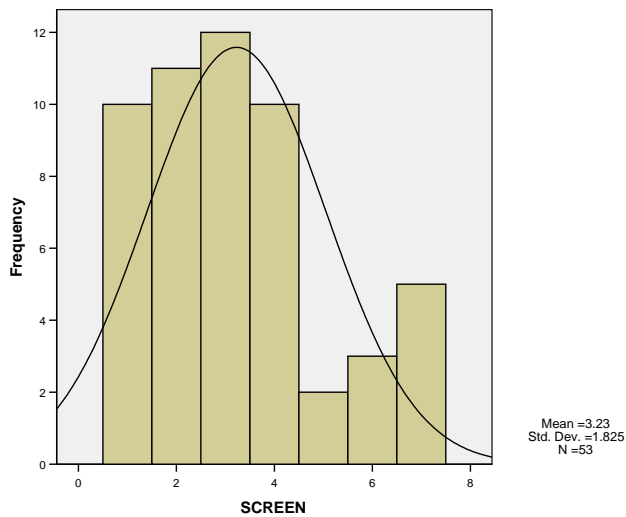
Panel A: Q-Q Plot of Residual Weights^a



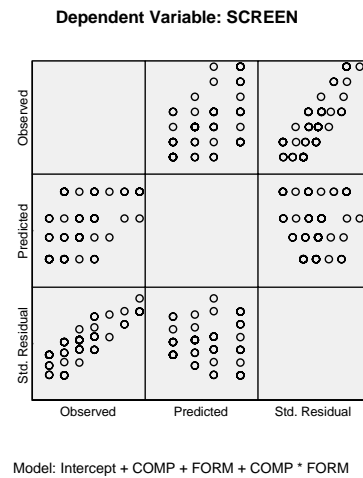
Panel B: Detrended Normal Q-Q Plot^b



Panel C: Histogram of VC's Screening Judgments^c



Panel D: Matrix Scatterplot of Residuals



^a Each observed weight differences is plotted against the expected weight difference if the data were from a normal distribution. The more the points cluster around the line, the more normal the data are.

^b This plot depicts the differences between the observed and predicted values. If the data are normal, the values would fall randomly about the zero line.

^c The theoretical normal distribution is superimposed on the histogram of the data. If the data are normal, the bars of the histogram would follow the normal curve.

Homogeneity of variance assumes that each group of the 2 X 2 design has the same variance on the dependent variable. Levene's test for homogeneity of variance was performed to formally test the equal variance assumption. For this test, the null hypothesis of homogeneity of variance is rejected if a significant result is obtained at the 0.05 level. Levene's test was chosen over other homogeneity tests (e.g., Bartlett or F_{\max}) because it is robust to departures from normality (Sheskin 2004). Results of this test indicate that the homogeneity of variance assumption is not supported ($F_{\text{Levene}} = 4.012, p = 0.012$).

Because the normality and homogeneity of variance assumptions are violated, the parametric F-statistic may be biased. Consequently, testing the hypotheses using the raw data may result in incorrect inferences. Given this potential problem, I performed two sets of analyses to test my hypotheses: (1) an ANOVA on the raw data and (2) an ANOVA on ranked data. Data were ranked from smallest to largest with ties being assigned the mean rank of the tied values (Conover and Iman 1981). This rank-transformation approach corrects for the violations of the statistical assumptions and, in turn, allows for the application of parametric statistical methods to the transformed data (see Kachelmeier and Messier 1990).²⁵ If qualitatively similar results are found for both the parametric and nonparametric tests then more confidence can be placed on the findings. Table A-1 presents descriptive statistics for VCs' mean (Panel A) and mean ranked (Panel B) screening judgments.

²⁵ Recent examples of the use of ranked transformed data in the accounting literature include Asare et al. (2006), Krische (2005), and Trotman et al. (2005).

TABLE A-1
VCs' Screening Judgments

Panel A: Means and Standard Deviations for VCs' Screening Judgments^a

		<u>n</u>	<u>Mean</u>	<u>Std. Dev</u>
Range	Low Completeness	13	2.77	1.09
	High Completeness	12	3.50	1.78
Point	Low Completeness	13	1.92	1.12
	High Completeness	15	4.53	2.03

Panel B: Mean Ranks and Standard Deviations for VCs' Screening Judgments^b

		<u>n</u>	<u>Mean</u>	<u>Std. Dev</u>
Range	Low Completeness	13	24.50	11.27
	High Completeness	12	30.13	14.87
Point	Low Completeness	13	15.50	12.26
	High Completeness	15	36.63	14.39

Panel C: ANOVA Results

	<u>df</u>	<u>MSE</u>	<u>F-statistic</u>	<u>p-value</u>
Form	1	0.115	0.046	0.830
Completeness	1	36.737	14.76	<0.001
Form x Completeness	1	11.626	4.67	0.036

Panel D: Ranked ANOVA Results

	<u>df</u>	<u>MSE</u>	<u>F-statistic</u>	<u>p-value</u>
Form	1	20.433	0.116	0.735
Completeness	1	2356.483	13.33	0.001
Form x Completeness	1	791.547	4.48	0.039

^a VCs' Investment screening judgments were indicated on a 9-point scale with endpoints labeled "definitely no" and "definitely yes."

^b The entire set of observations was ranked from smallest to largest, with average ranks being assigned in the case of ties (Conover and Iman 1981). With one screening judgment from 53 observations, ranked screening judgments range from 1 to 53.

Parametric ANOVA

I applied a 2 X 2 analysis of variance (ANOVA) to test for an overall effect of the completeness and form of management's forecasts on VCs' screening judgments. Consistent with H1, I find a significant main effect of completeness on VC's screening judgments ($F = 14.76, p < 0.001$). Specifically, the mean of VCs' screening judgments is significantly higher when management provides more complete (mean = 4.07) rather than less complete (mean = 2.35) forecast disclosure. Consistent with H2, I find a significant two-way interaction of the completeness and form of the forecast disclosure ($F = 4.67, p = 0.036$). Table A-1, Panel C, provides the ANOVA for VCs' raw screening judgments.

To further explore H2, I conducted a series of planned comparisons (Buckless and Ravenscroft 1990). These comparisons provide support for H2a and H2b. Participants' screening judgments are lower in the Point/Low Completeness condition (mean = 1.92) than in the Range/Low Completeness condition (mean = 2.77; $t = -1.95$, one-tailed $p = 0.031$). Further, participants' screening judgments are higher in the Point/High Completeness condition (mean = 4.53) than in the Range/High Completeness condition (mean = 3.50), though this difference is only marginally significant ($t = 1.41$, one-tailed $p = 0.086$).

Ranked ANOVA

I also applied the same 2 X 2 ANOVA on VCs' ranked screening judgments. Consistent with H1, I find a significant main effect of completeness on VC's screening judgments ($F = 13.33, p = 0.001$). Specifically, the mean of VCs' screening judgments is significantly higher when management provides more complete (mean = 33.74) rather than less complete (mean = 20.00) forecast disclosure. Consistent with H2, I find a significant two-way interaction of the completeness and form of the forecast disclosure ($F = 4.48, p = 0.039$). Table A-1, Panel D, provides the ANOVA for VCs' mean ranked screening judgments.

To further explore H2, I conducted the same series of planned comparisons. These comparisons provide only partial support for H2a and H2b. Participants' screening judgments are lower in the Point/Low Completeness condition (mean = 15.50) than in the Range/Low Completeness condition (mean = 24.50; $t = -1.73$, one-tailed $p = 0.045$). Further, participants' screening judgments are higher in the Point/High Completeness condition (mean = 36.63) than in the Range/High Completeness condition (mean = 30.13), though this difference is not significant at conventional levels ($t = 1.26$, one-tailed $p = 0.106$).

Power Analysis

In this section I analyze the statistical power of my study and compare the results to retrospective power analyses of other behavioral accounting research. When using statistical significance as the standard of proof in research, power is important because it is a probabilistic estimate of the capability of the study to detect a significant effect for the predicted results.

The power of a statistical test is a function of the level of significance chosen, sample size, and observed effect size. The significance level (α) for the tests in this study is conventionally set at 0.05 and the total sample size is 53. Other things being equal, the greater the effect size, the more powerful the test. Partial omega squared (ω^2) is a measure of effect size that expresses the proportion of variability that a contrast captures relative to itself and the error. This measure was chosen because it is robust to sampling variability, which can lead to overestimation of the treatment effects (Keppel and Wickens 2004). To

determine the power of a test, the noncentrality parameter (θ) is calculated and power is estimated by using the appropriate power chart.²⁶

Power analysis of the main effect of completeness on screening judgments ($\omega^2 = 0.21$) indicates the test has adequate power ($\theta_{3,48} = 1.88$; power ≈ 0.90).²⁷ Analysis of the interaction of form and completeness on screening judgments ($\omega^2 = 0.084$) suggests this test has only moderate amount of statistical power ($\theta_{3,48} = 1.09$; power ≈ 0.45). Decomposing this interaction into the specific planned contrasts reduces the statistical power. Power analysis of the contrast between Point and Range forecasts in the Low Completeness condition ($\omega^2 = 0.07$) reveals that this test has relatively low statistical power ($\theta_{1,24} = 0.99$; power ≈ 0.30). Further, the power of test comparing the difference between Point and Range forecasts in the High Completeness condition ($\omega^2 = 0.02$) also has low power ($\theta_{1,24} = 0.53$; power ≈ 0.15). Using the ω^2 and θ for these tests, I estimated the sample size necessary for the planned comparisons to achieve a power of 0.50—it would require more than doubling the current sample size to achieve this moderate level of statistical power.

Researchers in both accounting and psychology suggest that attention to statistical power and effect size can improve the reporting of experimental research (Cohen 1992; Schmidt 1992, 1996; Borkowski et al. 2001). While the

²⁶ The noncentrality parameter (θ) measures the extent to which the test gives evidence for differences among the population means (Keppel and Wickens 2004). The noncentrality parameter is estimated using the following equation: $\phi = \sqrt{\frac{n\omega^2}{1-\omega^2}}$.

The relationship between power and θ depends on the degrees of freedom in the analysis. Power charts translate θ into an estimate of power based on the $df_{num} = a - 1$ and $df_{denom} = a(n - 1)$, where a is the number of groups and n is the cell size. For the purpose of this analysis, I assumed equal cell sizes across groups ($n = 13$).

²⁷ Cohen (1992) suggests a power of 0.80 is “adequate.”

power of the individual tests in my study varies, it is generally consistent with extant behavioral accounting research. Borkowski et al. (2001) examined the statistical power of behavioral accounting research published in three major accounting journals (BRJA, JMAR, IAE) from 1993 through 1997. Using Cohen's (1992) levels of effect size, Borkowski et al. estimate the power of studies using both students and professional subjects.²⁸ The mean power of studies with large effect sizes (i.e., $\omega^2 \approx 0.37$) is 0.90, medium effect sizes (i.e., $\omega^2 \approx 0.24$) is 0.67, and small effect sizes (i.e., $\omega^2 \approx 0.09$) is 0.20. The power estimates for my tests are generally consistent with the values reported by Borkowski et al. for the respective effect size levels.

The overall low level of statistical power in social science research is well documented (e.g., Cohen 1988) and is an important consideration in behavioral accounting research. Some may argue the low level of power in much of the behavioral research is problematic and that the solution is simply to obtain larger sample sizes. However, this position would make it impossible for many studies – like this one – to ever be conducted because the necessary number of subjects is extremely difficult, if not impossible, to obtain. Schmidt (1992, 1996) argues that this position actually “systematically retards the growth of cumulative knowledge” in research. Schmidt suggests that the results of individual studies, even those with low statistical power, should be reported so they can be combined in future meta-analyses to yield very precise estimates of the effects under examination. Schmidt's position is based on the presumption that any single study is rarely adequate by itself to answer a scientific question. Thus, each study should be considered a data point to be contributed to a later meta-analysis. This position may be particularly appropriate for behavioral accounting research

²⁸ Much of Cohen's writing (e.g., Cohen 1992) uses a related quantity ($f = \sigma_A / \sigma_{\text{error}}$) as a measure of effect size when setting effect size levels. This quantity is easily translated into ω^2 using the following equation (Keppel and Wickens 2004): $\omega^2 = f^2 / (f^2 + 1)$

because researchers often examine complex institutional environments and access to large groups of professionals for any one study is severely limited.

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APPENDIX B:
Research Instrument

INTRODUCTION LETTER

[Date]

Re: Research Project

Dear [First Name]:

I am conducting my dissertation research on the venture capital screening process. A critical part of my research is obtaining judgments from venture capitalists. This is the last “big” step in my Ph.D. program and your participation is critical to the success of my research. This project will only require about 15 minutes of your time.

You will be asked to evaluate NavCo Inc., a firm that is seeking venture capital funding. The information you will receive about NavCo is not intended to fully represent what would be available to you during a detailed investment evaluation. Nevertheless, please do not consult any additional information or other individuals while completing the project materials.

Your individual responses to questions in the project materials will remain strictly confidential and will be analyzed only after being combined with the responses of other participants. There are no “correct” answers—just professional opinions. Please carefully read the “Project Instructions” prior to starting the project.

I understand that your schedule is very full and I truly appreciate your taking the time to help me complete my dissertation research project. Although I cannot compensate you for your time, I have enclosed a pen from Virginia Tech as a small token of my thanks. Also, if you would like to receive a summary of the results from this project, please email me at the address below.

If possible, please complete and return the project materials within one week of receiving them. A preaddressed, stamped envelope is enclosed for your convenience.

Thank you again for your participation.

Sincerely,

Damon M. Fleming
Virginia Tech
dmfleming@vt.edu

ALL CONDITIONS

PROJECT INSTRUCTIONS

Please evaluate NavCo, Inc. as a potential investment using only the excerpts from NavCo's business plan presented on the next three pages.

Assume the following when completing your evaluation of NavCo:

1. NavCo's *industry* and the *amount of financing* requested are *suitable* for your firm.
2. Your firm continually receives new investment proposals and *cannot* perform due diligence on each new venture.
3. NavCo was *neither solicited nor referred*.

Complete the all the materials in one sitting.

Following your evaluation, you will be asked to provide various judgments related to NavCo as well as answer questions about your analysis and professional experience. Please answer these questions in the order presented.

Once you have read and understand the above instructions, please proceed with completing the study materials.

NavCo, Inc.

NavCo, Inc. (hereafter “NavCo”) manufactures and markets navigation and guidance products serving industrial and governmental customers worldwide. Leveraging the unique balance of commercial and governmental products across both markets enables NavCo to reduce costs, extend product viability, and enhance the capabilities of its products.

NavCo’s strategic vision is to create high quality electronic navigation and guidance solutions through teamwork, creative innovation, customer focus, and leadership.

Management Team

NavCo was founded in 2001 by Mr. Christopher Gall, Dr. Travis Massae, and Mr. John Kerr. Mr. Gall, President and CEO, is a seasoned executive. Prior to co-founding NavCo, he was senior vice president of operations for an electronics and communications manufacturer. Dr. Massae, Vice President of Research and Design, is an experienced electrical engineer who specializes in the development and testing of precision navigation and guidance instruments. Mr. Kerr, Vice President of Product Development, is a systems design engineer from the navigation and guidance industry. In 2002, Mr. Steve Hormuth joined the management team as the chief financial officer. Prior to becoming CFO, Mr. Hormuth was a vice president and controller for a manufacturing and distribution company. NavCo is seeking an experienced executive to direct its marketing and sales efforts.

Business and Market

NavCo’s products serve three major markets: military guidance, aviation, and commercial shipping. NavCo’s products include military guidance components, military and commercial aircraft flight instruments, and nautical navigation instruments. NavCo holds patents or patents are pending for each of its current products.

NavCo’s seven current products are sold through a variety of arrangements including direct sales and independent sales representatives.

There is a moderate level of competition in each of NavCo’s markets. The principal competitive factors affecting NavCo’s business are product performance, price, and support. NavCo faces competition from divisions of larger organizations in the electronics industry as well as other smaller specialized navigation and guidance companies. However, management believes that NavCo currently provides the leading technology in several types of high precision navigation and guidance instruments.

There is no single-source dependency for the materials used in NavCo’s products.

ALL CONDITIONS

2005 Financial Summary

Sales revenue for the year ended December 31, 2005 was \$1.03 million, 40% higher than the prior year. Net loss for 2005 was \$(338,640), or \$(0.04) per share, which was better than the 2004 reported net loss of \$(438,325), or \$(0.06) per share.

The increase in sales was primarily the result of higher sales volumes due to increased penetration into the aviation and shipping markets. Overall, selling, general, and administrative (SG&A) expenses continued to decrease as a percentage of sales, whereas, the actual SG&A spending continued to increase. These increases in SG&A expenses reflect the increased spending in sales and marketing activities. Continued investments in research and development were made during year, particularly for the aviation product line.

Below are selected financial data for the previous three years.

SELECTED FINANCIAL DATA

THREE YEAR FINANCIAL SUMMARY

FISCAL YEAR	2005	2004	2003
RESULTS OF OPERATIONS			
Sales	\$ 1,032,400	\$ 736,300	\$ 515,315
Cost of sales	642,600	506,400	379,964
Research and development	98,600	96,100	94,875
Selling, general, and administrative	468,640	430,625	411,135
Net income (loss)	\$ (338,640)	\$ (438,325)	\$ (506,499)
Earnings per share	\$ (0.04)	\$ (0.06)	\$ (0.09)
Weighted average common shares	7,750,000	6,800,000	5,500,000
FINANCIAL POSITION			
Working capital	\$ 143,150	\$ 132,400	\$ 127,725
Total current assets	540,700	432,500	\$ 373,025
Total assets	1,714,160	1,490,500	\$ 1,393,525
Long-term debt	1,160,750	970,900	890,400
Contributed capital	1,675,000	1,400,000	1,000,000
Total stock-holders equity	\$ 155,860	\$ 219,500	\$ 257,825

RANGE/LOW COMPLETENESS CONDITION

Management Outlook

We are pleased to announce that demand in each of NavCo's three major markets is forecasted to *increase steadily over the next three years*. As demand increases, NavCo is growing and becoming more efficient. We estimate this combination will significantly increase NavCo's sales and net income over the next three years.

Last year we set into action a plan to renovate our manufacturing, assembly, and distribution facility in northern Virginia. We completed the building renovation and are ready to install the new equipment, which is budgeted to cost \$1.8 million. The new facility and completely computerized equipment are projected to significantly lower production costs. When completed, this renovation will significantly increase NavCo's manufacturing and distribution capacity and efficiency allowing NavCo to more effectively meet the increasing market demand for its products.

During 2005, NavCo introduced two new navigation products and an Enhanced Ground Proximity Warning System (EGPWS). The EGPWS was hailed by industry experts and featured in two trade publications during 2005. The EGPWS utilizes satellite positioning technology along with a database of the earth's surface to provide pilots with a superior visual display of the terrain and more than a minute of warning before a potential crash – four times more warning than any other system on the market. The EGPWS and other products are expected to realize increasing sales over the next three years.

NavCo's marketing and sales efforts will continue to focus on the use of independent sales representatives and attending key industry tradeshows. This approach is projected to maximize sales and continue to lower selling, general, and administrative costs as a percentage of sales.

In 2006 and beyond, NavCo will continue to increase research and development spending to stay on the cutting edge of technological advances.

With significant forecasted growth and improved efficiencies just around the corner, the value of NavCo is poised to significantly increase. The following pre-money forecasts provide a measure of this expected future growth:

	<u>2006</u>	<u>2007</u>	<u>2008</u>
<i>Net Income (Loss)</i>	(\$268,000) – (\$178,000)	\$99,000 – \$149,000	\$535,000 – \$803,000
<i>Earnings Per Share</i>	(\$0.03) – (\$0.02)	\$0.01 – \$0.02	\$0.07 – \$0.10

Funding Request

NavCo is seeking \$6 million in equity funding over the next three years to minimize debt financing and provide capital for product development, marketing, and increasing its sales force. To date, all investment capital has been provided by management. Management's goal is to be acquired or become publicly-traded within the next three to five years.

RANGE/HIGH COMPLETENESS CONDITION

Management Outlook

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With significant forecasted growth and improved efficiencies just around the corner, the value of NavCo is poised to significantly increase. The following forecasts provide a measure of this expected future growth:

	<u>2006</u>	<u>2007</u>	<u>2008</u>
<i>Sales</i>	\$1,307,000 – \$1,769,000	\$1,966,000 – \$2,772,000	\$3,069,000 – \$4,417,000
<i>Gross Margin</i>	49% – 56%	57% – 64%	60% – 66%
<i>Research and Development</i>	\$139,000 – \$169,000	\$277,000 – \$339,000	\$533,000 – \$589,000
<i>S,G&A</i>	\$520,000 – \$636,000	\$590,000 – \$722,000	\$714,000 – \$790,000
<i>Net Income (Loss)</i>	(\$268,000) – (\$178,000)	\$99,000 – \$149,000	\$535,000 – \$803,000
<i>Earnings Per Share</i>	(\$0.03) – (\$0.02)	\$0.01 – \$0.02	\$0.07 – \$0.10

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POINT/LOW COMPLETENESS CONDITION

Management Outlook

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In 2006 and beyond, NavCo will continue to increase research and development spending to stay on the cutting edge of technological advances.

With significant forecasted growth and improved efficiencies just around the corner, the value of NavCo is poised to significantly increase. The following pre-money forecasts provide a measure of this expected future growth:

	<u>2006</u>	<u>2007</u>	<u>2008</u>
<i>Net Income (Loss)</i>	\$ (223,000)	\$ 124,000	\$ 669,000
<i>Earnings Per Share</i>	(\$0.03)	\$0.02	\$0.08

Funding Request

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POINT/HIGH COMPLETENESS CONDITION

Management Outlook

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With significant forecasted growth and improved efficiencies just around the corner, the value of NavCo is poised to significantly increase. The following pre-money forecasts provide a measure of this expected future growth:

	<u>2006</u>	<u>2007</u>	<u>2008</u>
<i>Sales</i>	\$1,538,000	\$2,369,000	\$3,743,000
<i>Gross Margin</i>	53%	60%	63%
<i>Research and Development</i>	\$ 154,000	\$ 308,000	\$ 561,000
<i>S,G&A</i>	\$ 578,000	\$ 656,000	\$ 752,000
<i>Net Income(Loss)</i>	\$ (223,000)	\$ 124,000	\$ 669,000
<i>Earnings Per Share</i>	\$ (0.03)	\$ 0.02	\$ 0.08

Funding Request

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ALL CONDITIONS

QUESTION SET INSTRUCTIONS

Under normal circumstances it is likely that you would require more information than is provided in the case to make confident judgments about a new venture. Assume that the additional information is forthcoming, but that in the meantime you have been asked to provide the following preliminary assessments using only the information in the case.

- Answer the following questions in the order presented by circling the number on the scale indicating your judgment.
• After you answer a question, you may refer to it when answering later questions; however, please DO NOT go back and change your original response.

1. Would you recommend that your firm invest the time and resources necessary to conduct complete due diligence on NavCo?

Definitely No 1 2 3 4 5 6 7 8 9 Definitely Yes

2. Please indicate NavCo's ability to sustain earnings growth over the next seven years.

Not At All Able 1 2 3 4 5 6 7 8 9 Very Able

3. Please indicate the likelihood NavCo will continue to participate in the navigation and guidance industry over the next seven years.

Very Unlikely 1 2 3 4 5 6 7 8 9 Very Likely

4. Please explain the factors you considered when answering the preceding questions. Be as complete as possible in your explanation.

Five horizontal lines for providing an explanation.

ALL CONDITIONS

Based on the information provided, please indicate your beliefs about NavCo's **management**.

5. I believe that NavCo management is very competent at reporting financial forecasts.

Strongly Disagree	1	2	3	4	5	6	7	8	9	Strongly Agree
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6. I believe that NavCo management is very trustworthy in reporting financial forecasts.

Strongly Disagree	1	2	3	4	5	6	7	8	9	Strongly Agree
-------------------	---	---	---	---	---	---	---	---	---	----------------

7. I believe that NavCo management is very certain about NavCo's future financial performance.

Strongly Disagree	1	2	3	4	5	6	7	8	9	Strongly Agree
-------------------	---	---	---	---	---	---	---	---	---	----------------

8. I believe that NavCo management has the ability to effectively market NavCo's products.

Strongly Disagree	1	2	3	4	5	6	7	8	9	Strongly Agree
-------------------	---	---	---	---	---	---	---	---	---	----------------

9. I believe that NavCo management is very experienced in the navigation and guidance industry (or related industry).

Strongly Disagree	1	2	3	4	5	6	7	8	9	Strongly Agree
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Based on the information provided, please indicate your beliefs about the following:

10. Please indicate the reasonableness of NavCo's earnings forecasts.

Not At All Reasonable	1	2	3	4	5	6	7	8	9	Very Reasonable
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ALL CONDITIONS

11. Please indicate the extent of due diligence that would be required to fully evaluate NavCo prior to making an investment.

Very Minimal	1	2	3	4	5	6	7	8	9	Very Extensive
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12. Please indicate the extent to which you would rely on NavCo management's future financial disclosures if asked to provide a valuation for NavCo.

Not At All	1	2	3	4	5	6	7	8	9	Very Heavily
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Please complete the following statements about **yourself**.

13. I consider myself a business expert.

Strongly Disagree	1	2	3	4	5	6	7	8	9	Strongly Agree
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14. I consider myself a financial expert.

Strongly Disagree	1	2	3	4	5	6	7	8	9	Strongly Agree
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15. I am very familiar with evaluating new ventures for potential investment.

Strongly Disagree	1	2	3	4	5	6	7	8	9	Strongly Agree
----------------------	---	---	---	---	---	---	---	---	---	-------------------

16. I consider myself an expert in the navigation and guidance industry.

Strongly Disagree	1	2	3	4	5	6	7	8	9	Strongly Agree
----------------------	---	---	---	---	---	---	---	---	---	-------------------

17. How many years of full-time *accounting-related or finance-related experience* do you have? (include management experience if it entailed working with or evaluating financial information) _____ (years)

18. How many years of full-time *general business experience* do you have (i.e., other business experience not listed in the prior response)? _____ (years)

ALL CONDITIONS

19. How long have you been involved in venture capital/private equity investing? ___ (years)
20. What is your position in your firm (e.g., director, partner, senior manager, analyst)?

21. How long have you held this position? _____ (years)
22. Do you specialize in a particular industry or industries?
(Please circle one) Yes No
- If YES, please indicate? _____
23. Does your firm specialize in a particular stage of financing (e.g., seed, first round, etc.)?
(Please circle one) Yes No
- If YES, which one(s)? _____
24. Approximate amount of investment capital under management? _____ (\$ US)
25. Number of current portfolio investments under management? _____
26. Number of new portfolio investments per year (assume a steady flow of capital at current rate; exclude follow-on investments)? _____
27. Number of current portfolio investments in which you are actively involved? _____
28. Indicate whether you have any professional certifications.

Certification	Yes	No	If Yes, for how long? (years)
Certified Public Accountant (CPA)			
Chartered Financial Analyst (CFA)			
Certified Management Accountant (CMA)			
Other _____			

YOU ARE DONE! THANK YOU FOR YOUR PARTICIPATION.

Please return your completed study materials in the preaddressed, stamped envelope.

VITA

Damon M. Fleming was born in San Diego, California on August 1, 1977, the son of John and Marjorie Fleming. He graduated from Point Loma High School in San Diego, California, in May 1994. He worked as a shipyard welder in Oahu, Hawaii prior to beginning college in January 1997. In May 2001, he graduated with distinction, with a Bachelor of Science in Accounting from San Diego State University. Damon entered the Graduate School of Business at San Diego State University in January 2002 and earned his Master of Accountancy in May 2003.

While perusing his bachelor and master degrees, Damon worked for a private venture capital firm based in Southern California. Damon entered the doctoral program at Virginia Tech in August 2003. Upon completion of his Ph.D., he will join the faculty of San Diego State University.