GREAT EXPECTATIONS AND DODGY EXPLANATIONS

by

ALAN J. KRAUSE

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Student: Alan J. Krause

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This dissertation has been accepted and approved in partial fulfillment of the requirements for the Doctor of Philosophy degree in the Department of Management by:

Anne Parmigiani	Co-Chair & Advisor
Alan D. Meyer	Co-Chair
William H. Starbuck	Member
Angela K. Davis	Member
Sara D. Hodges	Outside Member

and

Kimberly Andrews Espy	Vice President for Research & Innovation/Dean of the Graduate School

Original approval signatures are on file with the University of Oregon Graduate School.

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DISSERTATION ABSTRACT

Alan J. Krause

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How do organizations assess and explain their performance? Prior studies have attempted to demonstrate that, like individuals, organizations take credit for good performance and blame poor performance on influences in their environment. However, these studies have found only a weak relationship between performance and attribution at the level of the firm. This dissertation seeks to elucidate this relationship by conceptualizing firms as social agents and by combining aspiration and attribution theory for the first time at the level of the firm. Analysis of performance explanations by large, public manufacturing firms in 2004 and 2005 revealed that firms' performance explanations correlated with their cognitive experiences of success and failure. These findings further understanding of organizational cognition, attribution, and image management.

CURRICULUM VITAE

NAME OF AUTHOR: Alan J. Krause

GRADUATE AND UNDERGRADUATE SCHOOLS ATTENDED

University of Oregon, Eugene
Portland State University, Portland, OR
Middlebury College, Middlebury, VT
Williams College, Williamstown, MA
Columbia University, New York, NY

DEGREES AWARDED

Doctor of Philosophy, Management, 2012, University of Oregon
Master of Business, Finance, 2002, Portland State University
Bachelor of Arts, Philosophy & French, 1989, Williams College

AREAS OF SPECIAL INTEREST

Organizational Theory
Sustainable Management

PROFESSIONAL EXPERIENCE

Instructor in Finance, Portland State University, Portland, OR 2002 to 2006

Kayak Instructor, Portland State University, Portland OR, 2003 to 2006

Principal, Krause Research & Consulting, Portland, OR, 2000 to 2006

Senior Asset Manager, Columbia Housing, Portland, OR, 1997 to 2000

Asset Manager, Enterprise Social Investment Corporation, Portland, OR, 1996

Interim Director, Innovative Housing, Portland, OR, 1995-1996

Principle, Independent Consultant, Minneapolis, MN, 1992-1995

Teacher, Suffield Academy, Suffield, CT, 1989-1992

GRANTS, AWARDS, AND HONORS

Graduate Teaching Fellowship, Department of Management, University of Oregon, 2006 to 2011

West Coast Research Symposium on Technology Entrepreneurship, Doctoral Consortium 2010

Academy of Management Business Policy and Strategy Division, Doctoral Consortium 2010

Summer Research Fellowship. University of Oregon, Lundquist College of Business, 2010

Doctoral Student Teacher of the Year, Lundquist College of Business, 2009

Outstanding Pedagogy Workshop, *Active Learning in Entrepreneurship: Applying the Jigsaw Method to Entrepreneurship Instruction*. USASBE conference, San Antonio, Texas, 2008

Outstanding Reviewer, USASBE conference, San Antonio, Texas, 2008

USASBE/Coleman Foundation General Scholarship, 2008

Western Academy of Management, Doctoral Consortium, 2008

Western Academy of Management, Scholarship Recipient, 2008

Summer Research Fellowship. University of Oregon, Lundquist College of Business, 2008

West Coast Research Symposium on Technology Entrepreneurship, Doctoral Consortium, 2006

Summer Research Fellowship. University of Oregon, Lundquist College of Business, 2007

Inducted to Phi Kappa Phi, Portland State University, June 2001

PUBLICATIONS

Alan Meyer, Kathryn Aten, Samuel S. Holloway, Alan Krause, and Matt Metzger (2010). "Creating a University Technology Commercialization Program: Confronting Conflicts Between Learning, Discovery, and Commercialization Goals." *International Journal of Entrepreneurship and Innovation Management* (forthcoming)

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For my parents who taught me the value of knowledge and the utility of asking questions and seeking answers.

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CHAPTER I

PROBLEM STATEMENT

In August 2005, UTStarcom, one of the worlds' largest electronics manufacturers, conducted a standard conference call with major investment firms to discuss UTStarcom's second quarter financial performance. The company had narrowly missed recording a profit, and its executive team commented positively on the firm's performance. This may have been enough to satisfy the analysts on the call. However, unbeknownst to UTStarcom, one of the investment banks on the call had patched the call through to a consultant, Business Intelligence Advisors (BIA). Former Central Intelligence Agency (CIA) employees formed BIA in 2001 to "systematically analyze and measure the quality of information in corporate disclosure" (Business Intelligence Advisors, 2009). When Credit Suisse First Boston's analyst suggested that a backlog in UTStarcom's recording could indicate a problem with revenue recognition, UTStarcom's explanation raised BIA's suspicions. These suspicions pertained not to the numbers UTStarcom reported, but to the reasons its management team gave to explain those numbers. After the call, BIA alerted its client that UTStarcom likely knew of problems with revenue recognition and that it did not disclose those problems to investors (Javers, 2010).

Rationale for the Study

The opening vignette illustrates the value that both firms and investors place on their public explanations of performance. Public corporations value investors' approval (D. J.

Baum & Stiles, 1965; Pfeffer & Salancik, 1978) and carefully craft the image that they

project publicly regarding their performance (Johns, 1999). Academic research confirms

that both firms and investors take firms' performance explanations very seriously (Arnold

& Moizer, 1984; Bartlett & Chandler, 1997). Furthermore, accounting scholars have

shown that only a small fraction of changes in share price can be explained in relation to

a firm's quantitative reporting (Cenesizoglu & Timmermann, 2008), suggesting that

investors gather valuable information on firm performance from other sources, such as

corporative narratives (Merkl-Davies & Brennan, 2007).

Firms regularly communicate with investors in the form of quarterly earnings

announcements and corporate annual reports. Federal laws, such as the 1964 Securities

Act and the Sarbanes-Oxley Act of 2002, both require and regulate such communication.

Firms must provide financial statements, prepared in accordance with these accounting

rules and regulations. In addition, firms must furnish qualitative information that

provides context for their financial statement (Greenstone, Oyer, & Vissing-JÃ¸rgensen,

2005). However, accounting regulations say little about the qualitative information that

firms must provide (Bettman & Weitz, 1983). Furthermore, with the exception of

specialized consultants such as BIA, external auditors do not check firms' qualitative

explanations of performance for accuracy, giving firms a great deal of choice in how they

describe their performance (M. Clatworthy & Jones, 2003).

After decades of study it is unclear whether the causal explanations of performance

that firms include in these descriptions reflect their reported financial performance.

While it is conceivable that firms use their performance explanations to educate investors

and to help investors understand the firm's quantitative financial reports (Bettman &

Weitz, 1983), it is also conceivable that firms use performance explanations for other

purposes. Consider the following examples. To maximize information asymmetries,

firms might provide as little information as possible in their explanations to investors

(Chandler, 1962; Merkl-Davies & Brennan, 2007). To communicate stability, firms

might provide "boilerplate" descriptions that present uniform explanations of

performance year-after-year (W. Aerts, 2001). To communicate strong leadership and

the ability to direct future performance, firms might claim responsibility for key drivers

of firm performance regardless of whether performance is positive or negative (Salancik

& Meindl, 1984). Finally, to create a positive image of the firm, firms might choose to

discuss only those activities in which the firm had been successful (Staw, McKechnie, &

Puffer, 1983).

Research Question

To elucidate firms' communications with investors, firms' motivations in preparing

these explanations, and the potential value of firms' performance explanations to

investors and other stakeholders, this dissertation studies the causal explanations that

firms publicly provide of their performance. Its research question asks when and to what

extent firms' causal explanations of performance reflect a firm's quantitative measures of

performance. Unlike most studies of firm performance that cast performance as the

dependent variable and investigate its antecedents, this study casts performance in the

role of the independent variable and studies its consequences. In the end, this dissertation

asks whether the data in firms' regulated financial reports influence the causal attributions presented in firms' unregulated performance explanations. In other words, does a firm's actual performance influence the explanations it gives for its performance?

This dissertation examines firms' assessment of their own performance rather than an external analysts' assessment of a firm's performance. Although at the level of the individual, scholars have researched attributions both by actors and by observers, these studies have demonstrated more predictable tendencies for attribution made by actors than for attributions made by observers. (Johns, 1999; Malle, Knobe, & Nelson, 2007; Mezulis, Abramson, Hyde, & Hankin, 2004; Weary, Stanley, & Harvey, 1989). Thus, the study of organizations' assessment of their own performance appears to be a more promising research setting.

To conceptualize firms' explanations of performance, this dissertation borrows theories of individual performance explanations developed by attribution scholars (Bernard Weiner, 1990). From these studies, this dissertation develops a typology to categorize firms' causal explanations of performance. To conceptualize how firms assess their performance, this dissertation also borrows from aspiration theory, the study of how agents' aspirations shape their performance assessments (Frank, 1935; Schneider, 1992). Both attribution and aspiration theories were originally developed at the level of the individual (Bernard Weiner, 1990). This dissertation carefully conceptualizes these theories at the level of the firm (Whetten, Felin, & King, 2009) to reveal that, explanations of firms' performance reflect their actual performance.

Scholars have previously applied attribution theory at the level of the firm in an attempt to demonstrate a relationship between firm performance and firm attribution (e.g. W. Aerts, 2001; Bettman & Weitz, 1983; Bowman, 1976; Clapham & Schwenk, 1991; M. Clatworthy & Jones, 2003; Salancik & Meindl, 1984; Staw et al., 1983). However these studies developed little detail in their conceptualization of the focal variables of performance and attribution. This lack of conceptual development may be the reason that they found only weak and inconsistent evidence for the hypothesized relationship between performance and attribution (Clapham & Schwenk, 1991).

Analysis at the Level of the Organization

This dissertation uses the organization as its unit of analysis and studies how organizations assess and explain their performance. The study of behavior at the level of the organization has an august history, reaching back to Cyert and March's "The Behavioral Theory of the Firm". Early organization scholars argued that organizational design counters the limitations of bounded rationality (Cyert & March, 1963) and allows organizations to produce more efficiently than individuals (Alchian & Kessel, 1960). However, in the wake of these seminal studies, scholars have conducted few studies of organizations as social agents that collect and process information (see Whetten and Mackey 2002 and Gavetti, Levinthal et al. 2007 for a full discussion of this topic). Instead, most scholars have studied the behavior of individuals in and around organizations, in many cases reducing organizations to the sum of the activities of the individuals that comprise them (Heath & Sitkin, 2001; Hedberg, Nystrom, & Starbuck,

1976). As a result, organizations' role in gathering, processing, and responding to information has gone largely unexplored (Gavetti, Levinthal, & Ocasio, 2007).

This dissertation joins work by a minority of scholars who advocate that organizations can be studied as social actors (Whetten et al., 2009). Although the study of organizations as social actors can result in poetic license (Andersen, 2008) that can mythologize (V. J. Friedman, Lipshitz, & Popper, 2005), anthropomorphize (Andersen, 2008), and obfuscate them (Whetten et al., 2009), studies of repeated decisions dictated by standardized operating procedures provide an opportunity to understand how organizations process information and generate their own behavior (Gavetti et al., 2007). Furthermore, these scholars argue that organizations can be understood by applying behavioral theories developed at the level of the individual to the level of the firm. Such analysis requires careful investigation and modeling of the context in which scholars observe and measure organizational constructs (Whetten et al., 2009).

Theoretical Model

This dissertation follows the above prescription from scholars of organizations as social actors. It borrows theories developed at the level of the individual (aspiration and attribution) and uses them to carefully contextualize key variables (performance) at the level of the firm. This dissertation's use of firm performance as an independent variable is unusual; its use of aspiration theory to conceptualize the cognitive mechanism underlying organizations' causal explanations of their performance is unique. With this

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theoretical foundation, this dissertation investigates the relationship between firm performance relative to aspirations and firms' causal explanations of performance.   It predicts that firms that achieve their performance aspirations take credit for their performance and that firms that fail to achieve their performance aspirations blame their performance on influences beyond the firm's control. Figure 1, entitled Theoretical Model, illustrates this predicted relationship.

Figure 1: Theoretical Model

Performance Relative to Aspiration Firm achieves (fails to achieve) its performance aspirations	→	Attribution Firm takes credit for good performance (blames poor performance on influences beyond its control).
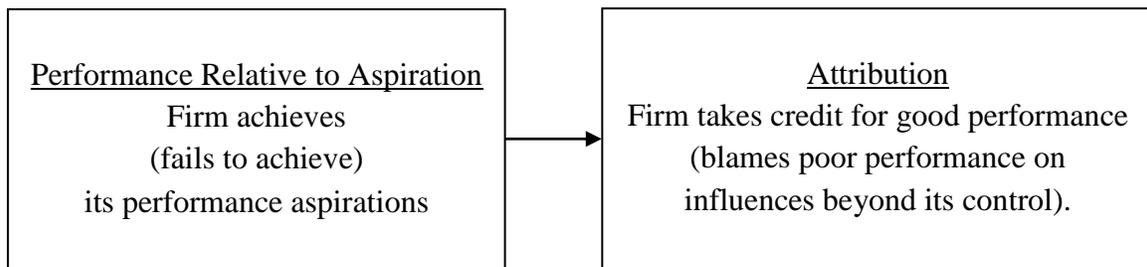
Research Setting and Preview of Findings

To investigate this model, this dissertation collects performance explanations from CEO letters to shareholders of public manufacturing companies in North America in 2004 and 2005. Public corporations are not required to prepare letters to shareholders, but many do so and distribute these letters in their corporate annual reports along with year-end financial statements. "The function of the presidents' letter is to tell what happened to explain why it occurred and what may be its significance, to outline such

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future plans as it may be appropriate to reveal, and to present management's estimate of prospects for the year ahead." (Beveridge, 1963; Hettinger, 1954). As the name "Letter to Shareholders" implies, firms direct their letters to current shareholders to maintain their investment and to prospective investors to attract their investment. Firms may also use letters to shareholders to communicate with other external stakeholders (e.g. analysts) and internal stakeholders (e.g. employees).

Although the terms used to refer to these letters attribute their content to the CEO, prior studies have revealed not only that many individuals contribute to letters to shareholders but also that codified routines direct the preparation of these letters (Bettman & Weitz, 1983). As such, the causal explanations in these letters to shareholders represent an organizational response to firm performance and contribute to the image that the firm creates of itself and presents to investors.

This dissertation samples letters from diverse public manufacturing companies to insure that the peculiarities of a specific industry do not determine its findings. This dissertation limits the number of industries it studies in order to control for differences in the competitive context between industries. Limiting the sample to North American companies focuses the sample on a single culture of communication: people in different cultures show different attributional patterns and firms in different cultures have been found to explain their performance differently (Tsang, 2002) . Finally, sampling firm attribution in two consecutive years allows longitudinal analysis. In its longitudinal analysis, this dissertation investigates whether changes in performance explanations from one year to the next correspond with changes in performance relative to aspirations. The

resulting sample of over 1,400 letters to shareholders and almost 6,000 individual

attributions represents the largest dataset ever assembled to study firms' causal

explanations of performance.

This dissertation finds that firm attribution reflects firms' achievement of performance

aspirations. Firms that achieve their aspirations take credit for their good performance.

Firms that fail to achieve their aspirations blame their performance on influences beyond

their control. These findings establish a parallel between individual's descriptions of

performance and firms' descriptions of performance.

Overview and Outline of the Study

This dissertation proceeds as follows. Chapter II, Theoretical Review, examines three

literature streams. It reviews studies of firm attribution to create a typology of firms'

performance explanations; it reviews studies of firm aspiration to model how firms assess

performance; and it reviews studies of organizations as social actors for guidance on

transferring both of these theories from the level of the individual to the level of the firm.

Through these three literatures, Chapter II creates a new model of firm's causal

explanations of performance. Chapter III, Hypothesis Development, creates hypotheses

to test multiple aspects of the relationship between attribution and performance relative to

aspiration. Chapter IV, Research Methodology, describes the research method, empirical

setting, sample design, and data collection that this dissertation employs to test its

hypotheses. Chapter IV also details the operationalization of variables and the

framework for statistical analysis. Chapter V, Results, presents the findings of two

empirical analyses, a between-firm analysis and a within-firm analysis. The results of

these analyses provide support for this dissertation's hypotheses and reveal nuances of

how firms assess their performance. Chapter VI, Discussion and Conclusion, discusses

how this dissertation advances aspiration theory, attribution theory, the study of image

management, and the study of organizations as social agents. Chapter VI also presents

this dissertation's limitations, and its implications for scholars and practitioners.

CHAPTER II

THEORETICAL REVIEW & MODEL DEVELOPMENT

Chapter II reviews the work of three groups of scholars and builds upon their findings to create a theoretical model of firm attribution. Chapter II first reviews studies of attribution and the difficulties that organizational scholars experienced as they applied theories of attribution developed at the level of the individual to the level of the firm. Second, Chapter II reviews studies of organizations as social actors and their claims that cross level theorizing requires great care in conceptualizing variables at a new level of analysis. Prior studies of firm attribution did not provide such care in conceptualizing performance. Third, Chapter II reviews aspiration theory and its detailed conceptualization of performance at the level of the firm. Finally, Chapter II combines the findings of scholars of attribution and aspiration at the level of the firm. It develops a theoretical model of the relationship between firm attribution and firm performance relative to aspiration.

Attribution Theory

Overview

Academic scholars distinguish themselves by the process with which they examine causal relations. Scholars devote a great deal of time, care, and precision to studying theories advanced by other scholars, collecting, categorizing and analyzing data, and crafting explanations of their results. However, academics are not the only individuals

who create causal explanations. All humans create causal explanations to understand, navigate, and to a certain extent, control the world in which they live (Weary et al., 1989).

Attribution theory studies individuals' creation of causal explanations (Bernard Weiner, 1990). Boiled down to its essentials, attribution theory involves an observer, an event, and the observer's explanation of the event. It endeavors not to assess the veracity of an observer's causal statements, but to understand the antecedents that influence the observer's choice of causal explanation and the consequences that result from a given causal explanation (Harold H. Kelley & Michela, 1980). Antecedents to attribution fall into three groups: the observer's objective knowledge, personal beliefs, and individual motivations (Jones & Davis, 1965). Consequences of attribution also fall into three groups: the observer's social behavior, affect, and expectations for future events (Harold H. Kelley & Michela, 1980).

Many scholars have commented that, in the strict sense of the term, attribution theory is not a theory. Due in large part to its practical nature and the diverse phenomena to which it has been applied, attribution can more appropriately be called a conceptual framework, a set of loosely structured propositions, or a collection of mini-theories whose logical interrelation is not immediately obvious (John H. Harvey, Ickles, & Kidd, 1976; John H. Harvey & Weary, 1985; Hewstone, 1983; Harold H. Kelley, 1973; Weary et al., 1989; Bernard Weiner, 1990). Nevertheless, scholars regularly refer to this conceptual perspective as attribution theory. In keeping with this tradition, this dissertation also uses the term attribution theory.

This dissertation focuses on the application of attribution theory in performance contexts, one of many areas in which scholars have studied attribution. Even within this arena, however, attribution scholars demonstrate great diversity, borrowing theories from different paradigms that are often incompatible with each other. To provide a thorough review of attribution theory, the following section begins by tracing the origin of the study of attribution in Kurt Lewin's studies of expectancy theory and in the work of two of his students, Fritz Heider and Julian Rotter (Bernard Weiner, 1990). Next, this section reviews attribution in performance settings, examining the key variables, findings, and mechanisms developed by subsequent scholars. Finally, this section reviews organizational scholars' application of theories of individual attribution at the level of the firm. It notes the challenges that organizational scholars faced in cross-level theorizing and concludes by delineating gaps in the study of firm attribution.

Individual Attribution

Origins

Attribution theory originated with Kurt Lewin and two of his students, Fritz Heider and Julien Rotter (Bernard Weiner, 1990). Heider studied how individuals describe the behavior of others and Rotter studied how individuals describe their own behavior. Both scholars draw from Lewin's work on expectancy and his emphasis on the importance of applied theory (Bernard Weiner, 1990).

Fritz Heider

Fritz Heider, one of Kurt Lewin's students, pioneered the study of attribution (Weary et al., 1989; Bernard Weiner, 1990). Heider (1958) found that an observer's interpretation of another's actions relies not only on the observer's objective information about the actions, but also on the observer's subjective beliefs about the actor, the observer's personal beliefs about himself, and the observer's expectations about causality. Heider studied the causal explanations that observers generate to explain an actor's attempts to accomplish a task and found that observers commonly imputed results either to the actor or to the actor's environment. The two most common causes imputed to the actor were ability and effort. The two most common causes imputed to the environment were task difficulty and luck. Furthermore, Heider observed that agents matched specific explanations with achievement and failure. Heider combined these elements into a formula to explain an observer's causal explanations for performance (Heider, 1958):

Performance = f (ability, effort, task difficulty, and luck)

This formula states that observers explain performance as a function of ability, effort, task difficulty, and luck. Furthermore, Heider's empirical studies revealed that observers consistently use the same type of attributions to explain good and bad performance. Observers consistently attribute poor performance to low ability, weak effort, high task difficulty, bad luck, or some combination of the four. Similarly, observers consistently attribute good performance to high ability, strong effort, low task difficulty, good luck, or some combination of the four (Heider, 1958). Subsequent research drew heavily on Heider's four types of attribution.

Julian Rotter

Julian Rotter, another of Lewin's students, pioneered the study of how individuals describe their own performance (Bernard Weiner, 1990). Rotter researched social learning theory, the idea that personality results not from unconscious drives but from an interaction between the individual and the environment. He studied how individuals interact with the environment, with an emphasis on the expectations they bring to a situation and the reinforcement that they receive for a given behavior. Rotter defined thee key concepts in this study: 1) expectancy -- the probability that a given behavior would lead to a desired outcome; 2) reinforcement value -- the desirability of a behavior's expected outcome; and 3) behavior potential -- the likelihood that an individual will engage in a specific behavior. Rotter combined these three concepts in a single formula that predicts behavior potential (BP) as a function of expectancy (E) and reinforcement value (RV) (Rotter, 1954):

$$BP = f(E \ \& \ RV)$$

Rotter provided valuable insights on both the antecedents and the consequences of attribution through his study of expectancy in the above formula. In a series of experiments, Rotter examined subjects' expectations for success at tasks based on chance and skill (James & Rotter, 1958). Rotter discovered that some subjects had a much stronger expectation that they could succeed at a task, regardless of whether the task itself depended on luck or skill. From these results, Rotter developed the concept of locus of control: some individuals believe that their skill or internal capacity determines whether they achieve their intended outcomes, while others believe that chance or external circumstances determines the outcomes of their efforts. From this contrast, Rotter

developed the I-E scale that distinguishes internals, individuals who attribute their

behavior to factors within the individual's control, from externals, individuals who

attribute their behavior to factors outside of the individual's control (Rotter, Chance, &

Phares, 1972; Bernard Weiner, 1990). Later scholars adopted Rotter's I-E scale as an

important antecedent to attribution at the level of the individual.

Individual Attribution in Performance Settings

Scholars have applied Heider and Rotter's findings in numerous settings. This

dissertation examines only the use of attribution in performance settings.

Although Heider (1958) provided attribution theory with a strong theoretical

foundation, his empirical studies were limited, resulting in an underdeveloped framework

for empirical analysis (Weary et al., 1989). Over the next two decades, scholars studied

performance in numerous performance settings, including academic evaluations, athletic

events, occupational performance, and games (Harold H. Kelley & Michela, 1980).

These studies identified multiple characteristics and variables to further empirical study

of attribution. For example, in addition to Heider's distinctions between internal vs.

external and positive vs. negative causes, these scholars investigated whether attributions

were made to causes that were stable, controllable, backward or forward looking, and

implicit or explicit (Weary et al., 1989).

These studies of performance attribution also furthered Rotter's I-E scale. For

example, these studies further defined the antecedents that lead subjects to ascribe

performance to internal vs. external causes. These studies also found that an actor's

feelings of pride following success were heightened when the actor ascribed her results to

the internal factors of ability or effort. Similarly, an observer's praise for an actor's

success was more pronounced when observers ascribed an actors' performance to the

internal factors of ability or effort (Reimer, 1975; Barnard Weiner, Russell, & Lerman,

1978).

Studies of performance attribution utilized numerous variables to measure

performance. In each case, the context largely determined the study's performance

variable. In academic settings, test grades were used to measure performance (Bernard

Weiner, 1986; Bernard Weiner, Heckhausen, Meyer, & Cook, 1972); in athletic settings,

the scores of games and contests were used to measure performance (McAuley &

Duncan, 1990; Spink & Roberts, 1980); in various games, such as anagrams, subjects

scored points on a predetermined scale (Zuckerman & Allison, 1976); in work settings,

scholars measured an employee's performance at defined work tasks (Ilgen & Knowlton

Jr, 1980; Mitchell & Wood, 1980).

Key Finding of Attribution in Performance Settings: Self-Serving Bias

Studies of attributions at the level of the individual consistently revealed that

attributions contain self-serving bias (Johns, 1999; Malle et al., 2007; Mezulis et al.,

2004; Weary et al., 1989). Self-serving bias occurs when agents take inordinate credit for

good performance or inordinately little blame for poor performance. It consists of

attributing success to internal and stable causes and failure to external and unstable

causes (Mezulis et al., 2004). The term 'inordinate' in this definition indicates that an

agent's performance attributions include some distortion of reality. Agents may or may

not realize that they are distorting reality. Although a large conceptual difference exists

between biased attributions that agents make but believe to be unbiased and attributions that agents make and know to be biased, empirical studies have struggled to distinguish between the two (Johns, 1999). Consequently this dissertation uses the term self-serving attribution to refer both to attributions that contain a bias of which the agent is aware and to those that contain a bias of which the agent is unaware. It is also worth noting that accurate attributions, no matter how positive, internal and stable, do not fall within this definition of self-serving. However, in empirical analysis it is difficult to assess the accuracy of attributions, so biased attributions and attributions that simply appear to be biased cannot be readily distinguished (Johns, 1999).

Mechanisms

Scholars disagree on the mechanism behind self-serving attribution. Most scholars argue for one of two types of mechanism: rational sense-making or emotional drives. Although some scholars conclude that both types of mechanism could contribute to self-serving attribution, most argue that one type has a much larger influence than the other (e.g. Clapham & Schwenk, 1991; Staw et al., 1983; Zuckerman, 1979). In subsequent studies of firm attribution, organizational scholars applied these mechanisms directly to organizations. Defining each mechanism at the level of the individual facilitates this dissertation's subsequent review of studies of firm attribution.

Rational Mechanisms of Self-Serving Bias

Advocates of rational sensemaking emphasize the role of information as an antecedent to attribution. Scholars have developed two models of how rational sensemaking could produce self-serving attribution.

Some advocates of rational sensemaking conclude that the degree of challenge an agent faces in completing a task influences attribution. Typically, the greater the challenge, the more likely credit will be attributed to the individual for succeeding. For example, if an individual sets out to walk a mile and succeeds (an easy task), observers would likely attribute the actor's success to the ease of the task. In contrast, if an individual sets out to run a mile in less than four minutes and succeeds (a difficult task), observers would likely attribute the actor's success to internal factors, such as natural ability, training, or drive: "When there are known to be constraints, costs, sacrifices, or risks involved in taking an action, the action once taken is attributed more to the actor than it would be otherwise" (Harold H. Kelley, 1973, p. 114). Scholars (Bettman & Weitz, 1983; H. H. Kelley, 1971; Harold H. Kelley, 1973) have applied this logic to competitive environments, equating success in a competitive environment with success at a difficult task. Scholars (Bettman & Weitz, 1983; H. H. Kelley, 1971; Harold H. Kelley, 1973) argue that competitive environments offer few explanations for success, so when agents succeed they attribute success to their own efforts. These scholars also argue that competitive environments offer many explanations for failure, so when agents fail, they attribute their failure to environmental influences (Bettman & Weitz, 1983; H. H. Kelley, 1971; Harold H. Kelley, 1973). Scholars have studied the influence of the degree of challenge on attribution by studying agents in more and less competitive environments

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and measuring the influence on attribution (Bettman & Weitz, 1983; H. H. Kelley, 1971; Harold H. Kelley, 1973). Such studies have produced inconclusive results (Bettman & Weitz, 1983). Explaining self-serving attribution via the explanations available in the competitive environment is known as augmentation theory (Weary et al., 1989).

Other advocates of rational sensemaking argue that self-serving attribution results not from information in the environment, but from agents' faulty logic. They posit two types of faulty logic that could produce self-serving attribution: 1) agents expect success and take responsibility for expected outcomes (Clapham & Schwenk, 1991; Huff & Schwenk, 1990); 2) agents misinterpret contingency and take responsibility for co-occurrences of their behavior with success and ignore co-occurrences of their behavior with failure (Bettman & Weitz, 1983; D. T. Miller & Ross, 1975). Scholars have studied the influence of faulty logic on self-serving attribution by trying to isolate logical errors that lead agents to take credit for success from logical errors that lead agents to claim no responsibility for failure. These studies have produced mixed results (D. T. Miller & Ross, 1975).   Explaining self-serving attribution via these faulty logical processes is known as expectancy theory (Clapham & Schwenk, 1991; Huff & Schwenk, 1990); .

Motivated Mechanisms of Self-Serving Bias

Other scholars advocate that emotional drives cause self-serving attributions. Scholars have developed two models of how emotional drives could cause self-serving attribution.

Some advocates of emotional drives conclude that subconscious drives cause agents to develop self-serving attribution. This focus on affective antecedents builds on Heider's

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(1958) reference to balance theory: observers align attributions about an actor's behavior with their affective disposition toward that actor. This alignment plays a role whether the attribution is made about the self or about others. These scholars emphasize the importance of an agent's positive self-concept and how self-serving attribution supports this positive self-concept (Mezulis et al., 2004; Zuckerman, 1979). Unlike the rational mechanisms presented above, this model asserts that the agent is capable of gathering and processing the information to make an accurate attribution, but subconsciously chooses not to: "the individual has somehow biased or reconstructed events so as to enhance or protect his or her own self-concept" (Staw et al., 1983). In this model, agents subconsciously justify their actions, are not consciously aware of their culpability, and genuinely believe that they deserve credit for their successes but not for their failures. Psychologists have empirically demonstrated this internal justification and its role in creating self-serving attribution by manipulating subjects' self-esteem (Harold H. Kelley & Michela, 1980; McAuley & Duncan, 1990; Bernard Weiner, 1990). Explaining self-serving attribution via subconscious drives is known as retrospective justification.

   Other advocates of emotional drives argue that conscious drives cause agents to develop self-serving attribution. These scholars argue that contrary to agents' claims, agents consciously know that they are not always responsible for success and free of blame for failure. However, agents present themselves as if they can do no wrong in order to present a positive image of themselves to others. "When the individual presents himself before others, his performance will tend to incorporate and exemplify the officially accredited values of the society, more so, in fact, than does his behavior as a whole" (Goffman, 1959, p. 45); (note that Goffman's metaphor with the word

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'performance' references a theatrical presentation, not the measured result of an activity).

In this model, agents consciously advocate biased images of themselves to improve how others perceive them. Explaining self-serving attribution as a conscious effort to curry favor with others is known as image management. (Please note: economists might resist labeling such intentional image-management as "emotional". Economists would likely deem such use of self-serving attribution as a rational choice that agents make to maximize their utility. Although the psychologists who created this label would likely accept that a cold-hearted rational analysis could lead an agent to choose to employ self-serving attribution, these psychologists would assert that the goal of public acceptance stems from an emotional drive. Thus, psychologists class self-serving attribution as an emotional motivation.)

Empirical studies of retrospective justification and studies of image management have often struggled to tease these two concepts apart. However, social scientists have successfully separated retrospective justification from image management by analyzing situations in which the agent was expected to take blame for failure. Bradley (1978) reviewed numerous examples of this in prior research: teachers claiming that their poor instruction contributed to their students' poor performance (Shopler & Layton, 1972), therapists claiming that their poor treatment contributed to their patients' worsening condition (Arkin, Gleason, & Johnston, 1976; Federoff & Harvey, 1976; J. H. Harvey, Arkin, Gleason, & Johnston, 1974), agents taking responsibility for poor performance on a task that they did not care to complete well (Luginbugh, Crowe, & Kahan, 1975), and partners in a learning process sharing credit both for their success and for their partner's failure (Bradley, 1978; Feather & Harvey, 1971). These studies suggest that image

management plays a greater role than retrospective justification in the motivation of self-serving attribution (Bradley, 1978).

<u>Synthesis</u>

Table 1 summarizes these four theories of attribution in a 2x2 diagram. It categorizes each theory on two axes: 1) whether the cognitive process involves rational sensemaking or emotional motivation, and 2) whether bias emerges in an agent's internal processes or through an agent's interaction with the external environment. Table 1 provides summaries and references for each theory. As mentioned above, these theories of individual attribution have informed scholars' subsequent study of firm attribution. As also mentioned above, prior studies have found some support for each of these theories. However, empirical studies of image-management have produced the most convincing explanations of self-serving attribution. Consequently, this dissertation will focus on the role of image management in its investigation of firm attribution.

Table 1: Four Theories of Self-Serving Attribution

		Domain of Bias Generation	
		Internal Processes	**Interaction with Environment**
Cognitive Process	**Rational Sensemaking**	Cognitive Expectations: Individuals create cognitive expectations that include causal relations, to organize and control the world around them. These cognitive expectations influence how individuals understand and explain things in their world. (Clapham & Schwenk, 1991; Huff & Schwenk, 1990; D. T. Miller & Ross, 1975)	Augmentation Theory: Individuals collect information from their environment. Certain environments lead agents to make specific performance attributions. Individuals develop different causal relationships depending on the environment in which they collect information. (Bettman & Weitz, 1983; H. H. Kelley, 1971)
	Affective or Emotional Motivation	Retrospective Justification: Individuals have strong sub-conscious needs, including cognitive balance, hedonism, and ego-defense. These needs influence how individuals understand their environment. Individuals subconsciously develop causal explanations that meet these emotional needs. (Heider, 1958; Mezulis et al., 2004; Staw, 1980; Staw et al., 1983; Weary et al., 1989; Zuckerman, 1979)	Image Management: Individuals consciously promote a positive image of themselves to others. Individuals choose causal explanations that improve their public image. (Bradley, 1978; Goffman, 1959; Salancik & Meindl, 1984; Weary et al., 1989)

Firm Attribution

Overview

Most studies of firm attribution build directly on the theories, concepts, and mechanisms of individual attribution described above. However, despite the plethora of theoretical models that scholars have developed to explain individual attribution, the study of firm attribution began with no theoretical foundation. Accounting scholars comparing the corporate annual reports of firms with good and bad performance in the food processing industry revealed evidence consistent with self-serving attribution at the level of the firm (Bowman, 1976).

Organizational scholars latched on to this finding to apply theories of attribution developed at the level of the individual at the level of the firm. In these studies of firm attribution, scholars sought not only to explain firm attribution, but to gain insights that they could use to further elucidate attribution at the level of the individual (Bettman & Weitz, 1983; Staw et al., 1983). Unfortunately, studying self-serving bias at the level of the firm did not offer new insights. Instead, at the level of the firm, organizational scholars failed to demonstrate the empirical relationships that their colleagues had found at the level of the individual.

This section reviews studies of firm attribution with an eye toward the causes of organizational scholars' failure to demonstrate hypothesized relationships. It first examines the variables that scholars use in the study of firm attribution: attribution and performance. Next, it reviews key studies of firm attribution and analyzes how organizational scholars applied theory developed at the level of the individual at the level

of the firm. Third, it identifies gaps in the study of firm attribution and opportunities to study this phenomenon more effectively.

Variables Used to Study Firm Attribution

Studies of firm attribution use a common set of measures of attribution but a variety of measures of performance. This sub-section first reviews measures of firm attribution and then measures of firm performance. It defines these measures and investigates whether prior studies may have inadequately conceptualized performance at the level of the firm.

Dependent Variable: Firm Attribution

As discussed above, scholars have investigated attribution in a wide variety of contexts. Studies of attribution across all contexts investigate many characteristics of attribution: locus of control (internal or external), valence (positive or negative), stability, controllability, implicit or explicit, and past oriented or future oriented. Early studies of firm attribution in performance contexts measured many of these characteristics (Bettman & Weitz, 1983; Staw et al., 1983).   For example, scholars coded an attribution as "'internal' if it referred to causal factors internal to the organization (e.g. strategy, R&D effort, workforce skill) and 'external' if it referred to something outside the company (e.g. market prices, inflation, the weather, competition)" (Bettman & Weitz, 1983). They (1983) coded an attribution as "'stable' if the cause could be expected to persist over time and thus predict the same outcome for the future." (Bettman & Weitz, 1983). They assigned an attribution a "past orientation" if it related to past performance

and "future orientation" if it related to expected future performance (Staw et al., 1983). And scholars coded an attribution as "explicit" when a relationship between a cause and performance was "spelled out" and implicit when the relationship was "not spelled out" (Staw et al., 1983).

However, these early studies revealed strong correlations between many of these independent variables, eliminating their value in empirical study of firm attribution. For example, empirical studies of firm attribution in performance contexts found all internal causes to be changeable and controllable and all external causes to be unchangeable and uncontrollable (Bettman & Weitz, 1983; Salancik & Meindl, 1984). Furthermore, empirical studies of firm attribution found no relationships of interest between attributions with a past vs. a future orientation, implicit vs. explicit attributions, and other study variables (Staw et al., 1983). These empirical results led scholars to focus on a smaller set of characteristics in the study of firm attribution.

Scholars of firm attribution have identified two salient characteristics: valence and locus of causality. Valence measures whether the imputed cause of performance is said to increase or decrease the firm's performance. Locus of causality measures whether the imputed cause relates to the firm or to the firm's environment. When combined, these two binary characteristics result in four types of attribution: 1) enhancement: taking credit for success; 2) good-fortune: ascribing success to influences outside the firm's control; 3) self-criticism: taking responsibility for failure; 4) blame: ascribing failure to influences outside the firm's control (W. Aerts, 2001; Clapham & Schwenk, 1991; M. Clatworthy & Jones, 2003; Salancik & Meindl, 1984; Staw et al., 1983). Table 2 presents

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these four types of attribution and provides examples of each from firms' 2004 letters to shareholders.

In sum, clear theoretical concepts combined with a series of empirical studies that built on each other led scholars of firm attribution to the typology presented in Table 2.

Table 2: Four Types of Firm Attribution

		Locus of Causality	
		Internal	**External**
Direction of Influence	**Positive**	Enhancement: "Our unique operating model contributed greatly to our overall performance. Our integrated and balanced operation enabled us to capture value at numerous points on the food production chain." *Bungee Foods Corporation*	Good Fortune: "Our success was fueled by strong markets worldwide, notably high prices and demand for pork in both the domestic and export sales channels, and a strong ocean freight market." *Seaboard Corporation*
	Negative	Self-Criticism: "The Coca-Cola Company did not perform up to expectations in 2004. A detailed analysis confirmed that the Company's execution was not as effective as it must be, and that a course correction is required to achieve sustainable, long-term growth and value for our shareowners." *Coca-Cola Company*	Blame: "We [faced] a challenging industry landscape. 2004 was a volatile year. A short crop in the United States caused big price swings for soybeans. Ocean freight rates moved dramatically." *Bungee Foods Corporation*

Independent Variable: Firm Performance

Countless academic studies have examined firm performance and have defined it in many different ways, including financial results, survival, efficiency, and effectiveness

(James G. March & Sutton, 1997; Steers, 1977). Studies of firm attribution in letters to shareholders consistently define organizational performance as financial performance and carefully articulate their performance measures. However, despite scholars' warnings that in the study of firm attribution "one must bear in mind the difficulties inherent in the development of the measure of performance relative to expectations" (Bettman & Weitz, 1983, p. 182), prior studies of firm attribution pay little attention to performance expectations, to performance assessment, or to the conceptualization of performance in general.

Unfortunately, prior studies of firm attribution don't articulate how they conceptualize firm performance: they do not address how they approached the difficulties of conceptualizing firm performance. However, some aspects of prior scholars' conceptualization of performance in the study of firm attribution can be deduced from their empirical methods. The following analysis references six of the most highly cited articles on firm attribution published in major journals from 1976 to 2001. Table 3 summarizes the operationalization of performance in these six articles. It lists the performance measures, sample, and comparison method in each study. Text below Table 3 discusses the different conceptualizations of performance in these articles. Text below Table 3 also provides additional summary of each article.

These studies use a variety of methods, suggesting a variety of different conceptualizations of firm performance. These differences relate to performance expectations and performance assessment. Some scholars suggest that firms assess their performance in relation to the performance of their peers, as evidenced by the studies that draw performance comparisons between firms

Table 3: Operationalization of Performance in Prior Studies of Firm Attribution

Study	Performance Measure	Sample	Comparison Method
Bowman (1976)	Five year average ROE	82 food processing firms in one year	First quartile vs. last quartile
Bettman & Weitz (1983)	Annual Sales	81 firms in four industries over two years: one good year and one bad year	Above or below average by industry and year
Staw et al. (1984)	Annual Earnings per Share	81 firms: performance either increased or declined by 50% in 1977	Firms above and below sample mean
Salancik & Meindl (1984)	Sums of Annual Profit Margin, Sales, and Earnings Per Share	18 firms over 18 years	Increase or decrease in performance
Clapham & Schwenk (1991)	5 year average Earnings per Share	20 utilities (gas and electric firms) over 5 years	Firms above and below sample mean
Aerts (2001)	Annual ROE, ROA, or Profit Margin	22 firms in 22 industries over 8 years	Significant correlation

ROE stands for Return on Equity and equals a firm's net income divided by its equity
ROA stands for Return on Assets and equals a firm's net income divided by its assets

(Bettman & Weitz, 1983; Bowman, 1976; Clapham & Schwenk, 1991; Salancik & Meindl, 1984; Staw et al., 1983). Other scholars suggest that firms assess performance in relation to their past performance, as evidenced by one study that assesses changes in firm performance over time (W. Aerts, 2001). Some scholars suggest that firm performance and performance assessment vary by industry, as evidenced by their comparisons between firms within a single industry (Bettman & Weitz, 1983; Bowman, 1976; Clapham & Schwenk, 1991). Other scholars imply that firm performance and

performance assessment are uniform across industries, as evidenced by their cross-industry comparisons of performance (Salancik & Meindl, 1984; Staw et al., 1983). Some scholars suggest that firms with extremely strong performance will assess their performance differently from those with extremely weak performance, as evidenced by their segmentation of sample firms into quartiles (Bettman & Weitz, 1983; Bowman, 1976), or by their purposeful selection of firms with extremely high or extremely low performance (Staw et al., 1983). Other studies suggest that firms with minor differences in performance will assess their performance differently, as evidenced by the contrasts that they draw between firms above and below averages (W. Aerts, 2001; Clapham & Schwenk, 1991; Salancik & Meindl, 1984; Staw et al., 1983).

In these prior studies, a lack of a clear theoretical foundation for the concept of firm performance, combined with empirical studies that fail to build on one another, result in any number of different conceptualizations of firm performance. Furthermore, results from these studies are inconclusive, giving give no indication of which conceptualization of firm performance provides the insight necessary to effectively study firm attribution.

Studies of Firm Attribution

With the above review of variable constructs for performance and attribution, the next sub-section outlines the six articles introduced above in Table 3. This analysis focuses on the mechanisms used in these studies and makes clear how readily scholars of firm attribution borrowed mechanisms of attribution developed at the level of the individual. Table 4 below summarizes these articles' mechanisms, research questions, and findings.

Table 4: Prominent Articles on Firm Attribution in Letters to Shareholders

Study	Mechanism	Research Question	Findings
Bowman (1976)	None - exploratory	In the food industry, how do the corporate annual reports of the best and worst performing firms differ?	The best performing firms discuss their assets and strategy; the worst performing firms discuss government regulation and the weather.
Bettman & Weitz (1983)	Augmentation Theory	Does firm attribution correlate with inputs (the availability of information) or with outputs (presenting the firm positively)?	Mixed results: in good years, firm attribution can be explained by availability of information; in bad years, it can be explained by presenting the firm positively.
Staw et al. (1983)	Retrospective Justification	Is firm attribution driven by retrospective justification or by image management?	No correlation found between firm performance and firm attribution. The lack of correlation suggests that image management drives firm attribution.
Salancik & Meindl (1984)	Impression Management	Is firm attribution driven by symbolic management?	Yes, executives with less control over their firms take more responsibility for firm performance.
Clapham & Schwenk (1991)	Cognitive Expectations & Cognitive Maps	Is symbolic management less pronounced in highly regulated industries?	No, firms demonstrate the same patterns of firm attribution in highly regulated industries. This suggests that image management does not drive firm attribution.
Aerts (2001)	Impression Management	Do firms use the same patterns of attribution from one year to the next to conform to norms of stability in financial reporting?	Yes, a firm's use of attribution can largely be predicted by the firms' attributions in the prior year. However, declining performance changes firm attribution.

How did the study of firm attribution begin? The first study of attribution at the level of the firm (Bowman 1976) derived from empirical exploration, devoid of theory. Bowman's 1976 study was inspired by his prior work on corporate social responsibility (CSR), Bowman and Haire (1975). This predecessor to the study of firm attribution did not intend to study firm's causal explanations or even firm performance. Rather, Bowman and Haire (1975) set out to identify the extent to which firms that received high ratings for CSR discussed CSR in their corporate annual reports. The authors analyzed the annual statements of 82 food processing firms. In the course of this analysis, they found not only the relationship that they had hypothesized between CSR ratings and discussion of CSR in firms' corporate annual reports, but also a relationship with performance. Firms that devoted more text to discussing CSR produced financial results that were 50% better than those of other firms (Bowman & Haire, 1975).

Subsequently, Bowman (1976) grouped the firms in this sample by financial performance to identify other differences between the best and worst performing firms in the industry. This study also did not intend to study attribution. Bowman (1976) identified multiple contrasts in the texts of the firms' corporate annual reports, including discussion of the weather, price controls, a firm's product portfolio, planning for firm changes, crisis mitigation, and future market trends. Bowman (1976) concluded that firms with lower performance complain more about the weather and price controls, comment less about their product portfolio and future trends, and made fewer plans for firm changes or crisis mitigation. Post hoc, Bowman (1976) argued that firm alignment (Miles, Snow, & Meyer, 1978) explains these results. When executives align a firm with

its environment, they anticipate and take advantage of opportunities and mitigate challenges in the firm's environment, creating superior performance. Conversely, when executives fail to align the firm with its environment, they miss opportunities and fail to address challenges, resulting in inferior firm performance (Bowman, 1976). Bowman's explanation is notable in two respects. First, it assumes that the causal explanations in firms' annual reports represent firms' actual causal expectations and firms' prior actions. Second, it assumes that these causal expectations drove firm performance. In effect, Bowman (1976) posits that attribution drives performance (Clapham & Schwenk, 1991).

Mechanisms Developed at the Level of the Individual Applied at the Level of the Firm

Although Bowman's (1976) paper did not use the term self-serving to describe the attributions he found in corporate annual reports, organizational scholars noticed the similarity. Firms that performed poorly blamed failure on external circumstances, specifically weather and price controls (Bowman, 1976). Firms that performed well took credit for success, specifically noting the firm's products, strategy, and crisis mitigation plans (Bowman, 1976). These attributions of firm performance demonstrated self-serving bias: firms took credit for good performance and blamed poor performance on external circumstances (Bettman & Weitz, 1983). In addition, the lack of a priori theoretical foundation in Bowman's (1976) analysis inspired organizational scholars to test mechanisms of individual attribution in their study of firm performance. The following sub-section details the six studies presented above in Table 4, focusing on how each study tested a different mechanism for self-serving attribution. This sub-section reviews the key article for each of the four mechanisms of individual attribution

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presented above in Table 1: augmentation theory, retrospective justification, image management, and cognitive maps.

Augmentation Theory

Bettman and Weitz (1983) conducted the first formal study of firm attribution to test 1) whether attribution demonstrates self-serving patterns at the level of the firm and 2) whether augmentation theory can explain it. As discussed above, the augmentation effect posits that attributional bias results from the type and quantity of information available in an agent's environment. Bettman and Weitz (1983) hypothesized that firms operating in positive economic environments would cite more positive environmental circumstances (attributions of good fortune). Similarly, they hypothesized that firms operating in negative economic environments would cite more negative environmental circumstances (blaming attributions).

To gather data in contrasting environments, Bettman and Weitz (1983) analyzed letters to shareholders from 82 firms in a very good year (1972) and the same 82 firms in a very bad year (1974). Bettman and Weitz (1983) found self-serving attributions in both time periods and they found significant differences between the attributions made in each period. However, they only found partial support for their hypotheses. In line with predictions, their results showed that in a bad year executives used more blaming attributions, citing negative environmental factors. This result supports the augmentation effect. In contrast with predictions, however, in a good year their results showed that executives did not attribute performance to good fortune. Instead, in a good year, executives used enhancement, attributing performance to positive influences within the

firm. This second result supports the emotional mechanism of retrospective justification (Bettman & Weitz, 1983). In sum, Bettman and Weitz were unable to confirm whether augmentation is the mechanism that drives firm attribution.

Retrospective Justification

In the second article on firm attribution published in a major journal, Staw, McKechnie, and Puffer (1983) tested whether retrospective justification explains attribution at the level of the firm. As discussed above, in retrospective justification agents subconsciously filter causal explanations to protect self-esteem, to maintain cognitive balance, or to increase hedonism, thereby maintaining a positive self-image. To investigate the influence of retrospective justification, Staw et al. hypothesized that executives in high performing firms would use enhancing attribution, taking credit for success, and that executives in low performing firms would use blaming attribution, shirking responsibility for failure. To create contrast in their data, Staw et al. (1983) sampled letters to shareholders from 49 firms whose financial performance increased by 50% in one year and from 32 firms whose financial performance fell by 50% in the same year. Attributions by executives in their sample of firms demonstrated self-serving attribution bias. However, all executives described performance in the same way: attributions by high performing firms displayed no significant differences from those made by low-performing firms. This failure to demonstrate a relationship between performance and attribution failed to support their hypothesis that ego-defense mechanisms drive firm attribution.

However, Staw et al. (1983) did demonstrate that when executives convey negative events, they attribute these events to external causes. Similarly, they demonstrated that when executives convey positive events, they attribute these events to internal causes. Staw et al. (1983) were surprised that firms' communication of positive and negative events did not correlate with performance. Post hoc, Staw et al. (1983) argue that firms' consistent attribution of negative news to external causes and positive news to internal causes constitutes image-management. They conclude that self-serving bias in firm attribution results not from retrospective justification but from image-management.

Image Management

In contrast with Bettman and Weitz (1983) and Staw et al.'s (1983) attempts to demonstrate that unconscious rational or emotional processes drive firm attribution, Salancik and Meindl (1984) set out to demonstrate that managements consciously present biased attributions to investors to improve the firm's image. In a previous study, Salancik (Pfeffer & Salancik, 1978) had argued that external forces largely determine firm performance and that management plays a primary symbolic role (Pfeffer, 1981). Firm attribution provided an opportunity to empirically demonstrate this symbolic leadership. Salancik and Meindl (1984) conceptualize firm attribution in letters to shareholders as a medium through which management exerts symbolic leadership by creating the impression that they are in charge of the firm: "presentation biases, moreover, could represent... strategic efforts to present management as being sufficiently in control of organizational outcomes as to encourage people to participate in the organizational coalition" (Salancik & Meindl, 1984, p. 251).

Salancik and Meindl (1984) argued that managements who don't control their firms' performance have the greatest need for symbolic management. These managements would exert symbolic management by using significantly more internal attribution (enhancement and self-criticism) than do managements that actually control their firms. This use of internal attribution would symbolically demonstrate that management was in control of the firm's outcomes. In contrast, managements who control their firms' performance need less symbolic management. These managements would exert less symbolic management and would attribute performance more often to environmental influences (blame and good fortune).

Salancik and Meindl's (1984) results confirmed their expectations. Management of firms with high need for symbolic management attributed firm performance more often to the firm, even when this results in management taking credit for poor performance (Salancik & Meindl, 1984). In sum, although Salancik and Meindl did not demonstrate a relationship between performance and attribution, the relationship that they revealed between firm stability and attribution allowed them to argue that image management drives firm attribution.

To further their argument that firm attribution serves as a tool of image management, Salancik and Meindl (1984) investigated the relationship between attribution and the firm's future performance. They hypothesized that the more managements exerted symbolic management by taking credit for their firms' performance, the better their firms would perform in the future. Conversely, they hypothesized that the more managements attributed performance to environmental circumstances, the worse their firms would perform in the future. Salancik and Meindl's (1984) results supported both hypotheses.

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They conclude that managements intentionally manipulate symbols that communicate to observers inside and outside the firm that management controls firm performance. By conveying control of the firm, managements inspire confidence in stakeholders and gain access to resources essential to firm success. These results support Salancik and Meindl's (1984) claim that managements use firm attribution for impression management.

Cognitive Maps

Despite Salancik and Meindl's success in demonstrating that image management influences firm attribution, a subsequent study by Clapham and Schwenk (1991) challenged their results. Clapham and Schwenk (1991) cited differences in the methodologies and the findings of Salancik and Meindl (1983) and Staw et al. (1983) to justify their doubts about the findings of both studies and the need to further investigate mechanisms of self-serving bias in firm attribution.

Clapham and Schwenk (1991) conceptualized agents' preconceived expectations in the form of a cognitive map and argued that this map drives firm attribution. As discussed above in the review of attribution at the level of the individual, an agent's expectations connect the individual's behavior to success. Similarly, Clapham and Schwenk argued that executives make a priori cognitive maps that connect a firm's intended actions with success. During ex post analysis, executives refer back to their original cognitive maps. If the firm succeeds, these a priori cognitive maps indicate that firm activity leads to that success, so executives attribute success to the firm. If the firm fails, executives' a priori cognitive maps do not connect the firm's actions with failure, so

executives attribute failure to the firm's environment (Clapham & Schwenk, 1991; Huff & Schwenk, 1990).

Clapham and Schwenk (1991) posited that regulated firms, such as electric and gas utilities that receive a great deal of scrutiny from external regulators, face reduced opportunities for image-management. Any deception by firms in regulated industries would quickly be discovered, resulting in harm to the firm's image. If image management drives firm attribution, as Salancik and Meindl (1984) claimed, then attribution in firms in regulated industries should manifest less image-management and demonstrate a weaker self-serving bias. In contrast, if an unconscious mechanism like mental maps drives executives' choice of attributions, then industry regulation should not influence the amount of self-serving bias in executives' attributions (Clapham & Schwenk, 1991).

Clapham and Schwenk (1991) hypothesize that attribution by firms in regulated industries will demonstrate the same self-serving bias as attribution by firms in non-regulated industries. In addition, in contrast with Salancik and Meindl, (1984) who found that internal attribution correlated with improved future performance, Clapham and Schwenk (1991) hypothesized that the more internal attribution, the worse a firm will perform in the future.

To test these hypotheses, Clapham and Schwenk (1991) gathered data on 20 electric and gas utility companies over 5 years. Their results showed that attribution in firms in regulated industries demonstrated the same self-serving bias as the attribution in firms in unregulated industries. Furthermore, their results demonstrated a negative relationship between internal attribution and future performance. These results support Clapham and

Schwenk's (1991) hypotheses. They conclude that image management does not explain

firm attribution and that self-serving bias could result from executives' cognitive maps

(Huff & Schwenk, 1990; D. T. Miller & Ross, 1975), retrospective justification (Staw et

al., 1983; Zuckerman, 1979), or firm alignment (Bowman, 1976; Miles et al., 1978).

Image Management - Round 2

In light of the lack of demonstrated relationship between firm performance and firm

attribution in prior research, Aerts (2001) argued that the absence of a relationship

between attribution and performance results from image management. Aerts (2001)

argued that in their financial reporting, firms follow legal requirements and socialized

norms regarding financial reports. Furthermore, investors and other external stakeholders

value stability and predictability in a firms' financial reporting. Firms that provide

consistent data in their financial reports, including uniform numbers of enhancing and

blaming attributions, in the letter to shareholders, meet these expectations. Aerts argued

that firms intentionally use uniform proportions of enhancement and blame from one year

to the next in their public descriptions of performance, regardless of actual performance,

to achieve firm legitimacy: firm attribution follows "uncritical and passive adherence to

prescribed disclosure norms" (W. Aerts, 2001, p. 5). Based on the mechanism of image

management and the expectation that investors prefer that firms project a consistent

image, Aerts (2001) argued that attribution in a firm's letter to shareholders remains

constant from year to year. Furthermore, he predicts that the number and type of

attributions a firm uses in its letter to shareholders in one year predicts the number and

type of attributions a firm uses in the following year.

Aerts (2001) tested this by analyzing the relationship between firm attribution and the financial community to which the company reports. If different financial communities have different reporting expectations, these different expectations would manifest themselves in consistent but different patterns in each community. Prior studies had demonstrated that listed companies provide more detailed financial reports than unlisted companies (Cooke, 1992; Firth, 1980). Extrapolating from these findings, Aerts (2001) theorized that different reporting norms exist for listed and unlisted companies. He hypothesized that attributions in letters to shareholders from listed firms differ from attributions in letters to shareholders from unlisted firms.

To test his hypotheses regarding the role of social reporting norms in firm attribution, Aerts (2001) gathered panel data on 22 Dutch firms over eight years. To create variation in the data, he sampled both publicly listed and unlisted firms. He first analyzed the extent to which the number and type of attributions in the letter to shareholders in one year predict the number and type of attributions in the same firm's letter to shareholders in the following year. Aerts (2001) found partial support for this first hypothesis. Over time, firms' letters to shareholders demonstrated great consistency in the total number of attributions, the number of positive attributions, and the length of the attributions. However, the number of negative attributions varied significantly. When firm performance fell, firms used more negative attributions. This change in the use of negative attributions failed to support Aerts (2001) hypotheses.

In conclusion, Aerts (2001) found partial support for his argument that the mechanism of image management causes firms to use consistent numbers and types of attributions year after year, regardless of performance.

Summary of the Study of Firm Attribution

The study of firm attribution demonstrates both similarities and differences with the study of individual attribution. At both levels of analysis, scholars study antecedents and consequences of attribution to determine what influences an agent's choice of attribution. At both levels of analysis, scholars find widespread presence of self-serving bias. At both levels of analysis, scholars have proposed multiple mechanisms to explain self-serving bias: the informational mechanisms of augmentation (Bettman & Weitz, 1983; Harold H. Kelley, 1973) and cognitive expectations (Clapham & Schwenk, 1991; Huff & Schwenk, 1990; D. T. Miller & Ross, 1975) and the emotional motivation mechanisms of retrospective justification (Staw et al., 1983; Zuckerman, 1979) and self-presentation (Bradley, 1978; Goffman, 1959; Salancik & Meindl, 1984; Weary et al., 1989). And at both levels of analysis, scholars find the most consistent support for image management. Nevertheless, at both levels of analysis, scholars find only partial support for any one mechanism and continue to debate which mechanism best explains the prevalence of self-serving bias in attribution.

However, studies of firm attribution also contrast with studies of individual attribution. At the level of the individual, scholars consistently find a strong relationship between performance and attribution. In contrast, at the level of the firm, scholars find no consistent empirical relationship between performance and attribution. This lack of correlation at the level of the firm provides no support for the mechanisms of cognitive maps, retrospective justification, or augmentation theory, or image management. Consequently, scholars have proposed alternative variable relationships: Salancik and

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Meindl (1984) propose that symbolic management creates a relationship between stability and attribution that supports the mechanism of image management; and Aerts (2001) has proposed that institutional norms in the reporting of financial information create a relationship between a firms' attributions from one year to the next that supports the mechanism of image management.

Gaps in the Study of Firm Attribution

Although prior studies provide valuable insight on firm attribution, the prevalence of self-serving bias in firm attribution remains unexplained. Those mechanisms that explain self-serving bias at the level of the individual have found no empirical support at the level of the firm. Furthermore, those mechanisms of firm attribution for which scholars have found at least partial empirical support - image management in relation to symbolic leadership and image management in relation to social norms of financial reporting - do not explain the overwhelming presence of self-serving bias.

In the presence of firms' pervasive use of self-serving attribution, scholars' claims that image management drives firm attribution independent of firm performance is problematic. Separate studies of image-management have found that self-serving attribution decreases an observer's impression of a firm. In an experimental setting, Schwenk (1990) found that subjects were more positively disposed to firms that presented financial results with no performance explanations than they were to firms that presented financial results with self-serving explanations. Similarly, in her studies of actual interaction between firms and external stakeholders, Elsbach (1994) found that following a negative event, external stakeholders prefer that firms explain performance

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issues with acknowledgements, clarity, and minimal use of enhancing and blaming attributions. Consequently, the mechanisms of symbolic leadership and social norms do not lend themselves to explaining why firms use so many enhancing and blaming attributions. The results of these studies do not identify a tangible benefit for firms that use enhancing and blaming attributions. Thus, despite Salancik and Meindl's (1984) and Aerts' (2001) contributions to the understanding of firm attribution, these studies have not explained the most common types of firm attribution, enhancement and blame.

This lack of explanation of firms' extensive use of enhancement and blame, also known as self-serving attribution, has ramifications beyond academic research. It also has practical ramifications. Some scholars have interpreted this lack of correlation between firm performance and firm attribution, along with researchers' inability to explain self-serving attribution, as evidence of deception by firms. They conclude that additional regulations should be enacted to prevent firms from providing misleading attributions. These scholars argue that the "disparity between the financial performance recorded in the financial statements and the language used in the accounting narratives" presents "a clear need to consider a more rigorous and intensive independent review than currently occurs" (M. Clatworthy & Jones, 2003, pp. 183-184).

In sum, the study of firm attribution leaves three distinct gaps to be filled. First, it presents an opportunity to identify how firms use attribution to manage their image. As discussed above, although prior studies have found the greatest support for image management as the mechanism that drives attribution, these studies have not explained how self-serving attribution independent of performance provides any benefits to firms' image. Second, the study of firm attribution presents an opportunity to reexamine

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conceptualizations of firm performance. As discussed above, although all prior studies of firm attribution investigate the relationship between firm performance and firm attribution, these studies under theorize the role of performance at the level of the firm. Third, the study of firm attribution presents an opportunity to reveal a relationship between firm performance and firm attribution. Although empirical studies have repeatedly demonstrated a relationship between performance and attribution at the level of the individual, repeated attempts by organizational scholars to reveal a similar relationship at the level of the firm have failed.

Despite their contributions, prior studies of firm attribution leave unanswered the question of what mechanism drives this phenomenon. These studies do not reveal a relationship between firm performance and firm attribution. In addition, these studies provide few conceptual underpinnings to their focal independent variable, firm performance. Finally, these studies have demonstrated little to no success importing attribution theory from the level of the individual to the level of the firm. A study that could take the next step and explain the dominance of self-serving attribution, "a robust and amply demonstrated phenomenon in human cognition" (Mezulis et al., 2004, p. 711), at the level of the firm would significantly advance our understanding of firm attribution. The remainder of Chapter II investigates scholars' insights on effective cross-level theorizing with an eye toward identifying more effective ways to apply attribution theory developed at the level of the individual at the level of the firm.

Importing Theory across Levels of Analysis

Overview

The above review of attribution at the level of the individual and at the level of the firm clearly demonstrates that the former provides explanations for self-serving attribution and the latter does not. If a mechanism of individual attribution could effectively be transferred to the level of the firm, it would provide an opportunity to explain self-serving attribution at the level of the firm.

Such a transfer from the level of the individual to the level of the firm is necessary due to the process by which organizations generate attributions. Numerous departments and individuals contribute to and vet these attributions in the preparation of the letter to shareholders. In addition, in the preparation of letters to shareholders, individuals follow specified roles that largely determine their individual contributions: different individuals could be placed in the same role with little to no effect on the attributions the attributions in a firm's letter to shareholders. Consequently, this dissertation addresses attribution at the level of the firm.

Such a transfer from one level of analysis to another presents significant challenges. Scholars often avoid importing theories from the level of the individual to the level of the organization. In addition, scholars have largely avoided theorizing about organizations as social actors (Heath & Sitkin, 2001). However, scholars have recently argued that many theories developed at the level of the individual can be transferred to the level of the firm (Gavetti et al., 2007; King, Felin, & Whetten, 2009). This subsection of the Chapter II discusses the challenges of importing theory from one level of analysis to another and how scholars can overcome these challenges.

Challenges to Developing Theories of Organizations

During the last half century, the role of the organization has shrunk dramatically within the field of organizational studies (Gavetti et al., 2007). Heath and Sitkin (2001) articulate the difference between the study of the behavior of individuals in organizations, the study of behavior in an organizational context, and the study of the behavior and influence of organizations themselves. These scholars report that the first two categories, the study of behavior in and around organizations, have come to dominate organization studies and that studies of the third type, the study of organizations themselves, have become extremely rare (Heath & Sitkin, 2001). In most cases, scholars have chosen to study individuals in organizations (e.g. prospect theory), environments around organizations (e.g. network theory), and resources in organizations (e.g. resource based theory), rather than to study the behavior of the organization itself. Scholars have demonstrated a great willingness to shift attention away from what makes organizations distinct, focusing instead on the sum of the actions taken by individuals operating within them: "We in effect talk 'around' the organization.... our theories do not lend themselves to disciplinary introspection on the subject of the organization itself, specifically with regard to the subject of the organization as an actor" (King et al., 2009, p. 290).

Scholars' preference for studies of individuals in organizations and the environment around organizations has manifested itself as a discipline-wide shift away from studying organizations as social actors (King et al., 2009, p. 290). Scholars have cited good reasons for abandoning studies of organizations as distinct, active entities that influence data collection, interpretation of information, and decision making. First, scholars have prioritized learning and change management (Gavetti et al., 2007) and marginalized

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theories of organizations as nouns. Theories that cast organizations as nouns have proven

ineffective in conceptualizing radical or continual change (Weick & Quinn, 1999).

Second, and even more problematic, the study of organizations as social agents has

resulted in overstatement that has ascribed human qualities to organizations (Andersen,

2008). Although some of this overstatement could be allowed on the grounds of poetic

license, it has failed to increase scholarly understanding of organizations. Instead of

making organizations more understandable, metaphorical and theoretical comparisons

between organizations and human beings have mythologized organizations (V. J.

Friedman et al., 2005), anthropomorphized them (Andersen, 2008), and increased our

misunderstanding (Whetten et al., 2009). These arguments make clear the challenges

scholars face in creating theories about organizations as social actors.

Opportunities in Developing Theories of Organizations

However, a study of organizations themselves, in contrast with a study of the

activities and behaviors that occur in and around organizations, could identify how

organizations affect individuals. Scholars have argued that organizations influence

individuals' identities (Whetten, 2006), change their expectations (Greve, 2003), and alter

their understanding of the organization and its environment (Walsh & Ungson, 1991).

Such a study could elucidate organizations as a noun: "the core of an organization is the

relatively stable pattern of individuals' behavior interwoven with those of other people"

and it can be understood through its "goals (purposes), people, structure, activity,

resources, and norms," (Andersen, 2008, pp. 184-185). This dissertation's goal is to

conduct such a study and to elucidate firm attribution.

The question remains, however, of how to undertake such a study: how could a study elucidate the organization as a noun, rather than anthropomorphize, mythologize, and misunderstand it? First, Gavetti et al. (2007) argue that scholars can study the organization by focusing on decision making rather than learning and on fixed operating procedures rather than evolving routines. Focusing on processes that organizations repeat time after time, rather than on processes that organizations must change in order for to survive, provides an opportunity to understand how organizations behave in predictable ways. Second, Whetten et al. (2009) argue that when studying organizations as social actors, scholars cannot blindly transfer theories from other levels of analysis to another; rather scholars must carefully contextualize theories at the new level of analysis. Whetten et al. (2009) undertake such a careful contextualization of identity at the level of the organization. A similar study could be undertaken regarding attribution. Firm attribution represents a process undertaken by numerous participants (executives, the finance department, investor relations, and public relations), that follows standardized operating procedures, is repeated over time, and shows no direct evidence of change in procedures over time.

In summary, based on the insight of scholars of organizations as social actors, importing the mechanisms of individual attribution to the level of the firm should provide insight on firm attribution. However, to assure that these theories clarify rather than mythologize the firm, scholars must carefully contextualize them at the new level of analysis. In light of the finding in the above review of prior studies of attribution at the level of the firm, that these prior studies under-theorized the key variable of performance at the level of the firm, the remainder of Chapter II examines the opportunity to provide a

strong conceptual foundation for performance at the level of the firm. This conceptual

foundation can be found in the concept of organizational aspiration.

Aspiration Theory

Overview

The word "aspiration" derives from the Latin word "aspirationem", the action of

breathing on or into (Harper, 2010). In the thirteenth century, it was used to refer to

divine inspiration (Oxford English Dictionary, 1989), a calling to a higher purpose that

directs and motivates an agent to action. Scholars currently take more modern

perspectives on aspirations, but continues to address goals that inspire action. Aspiration

theory analyzes "the level of future performance in a familiar task which an individual ...

explicitly undertakes to reach" (Frank, 1935); "...performance which exceeds the level of

aspiration is success, and performance which falls short of the level of aspiration is

failure" (Starbuck, 1963: 51); "the aspiration level is the borderline between perceived

success and perceived failure" (Greve, 2003, p. 39).

Aspiration theory studies the antecedents that influence agents' choice of aspired

performance levels and the consequences of achieving or failing to achieve an aspired

performance level. Studies of aspired performance typically identify two reference points

that serve as antecedents: an agent's past performance and the performance of an agent's

peers. Scholars have studied aspiration theory at the level of the individual and at the

level of the firm and have found strikingly similar results at both levels. Aspiration

theory is an example of effective cross level theorizing (Johns, 1999). At the level of the

firm, aspiration theory plays a key role in theories of organizational behavior (Cyert &

March, 1963): management scholars consistently find changes in organizational behavior that relate to aspiration, such as to problemistic search (Greve, 2003). Problemistic search is the search for new processes when a performance feedback indicates that the current process produces unsatisfactory results. For example, many studies have found that agents that achieve their aspired performance level reduce problemistic search and agents that fail to achieve their aspired performance level increase problemistic search (Greve, 2003).

This section first reviews the development of aspiration theory at the level of the individual. Second, it describes how scholars of firm aspiration apply these theories at the level of the firm. Aspiration theory serves as an example of effective cross-level theorizing. More importantly, aspiration theory provides an opportunity to contextualized performance at the level of the firm. This attention to how firms assess their performance creates an opportunity to study attribution theory more effectively at the level of the firm.

Individual Aspiration

Like attribution theory, aspiration theory originated with Kurt Lewin and his students in social psychology during the early and middle parts of the 20th century (Bernard Weiner, 1990). Through the study of goal achievement in the release of tension, Lewin began investigating how agents set goals. Tamara Dembo originated the concept of "level of aspiration" to refer to defined performance goals in a specific activity (Dembo, 1931; Lewin, Dembo, Festinger, & Sears, 1944). For example, she and her colleagues measured the number of times individuals claimed that they would succeed in

throwing a ring on a post. These scientists measured changes in subjects' aspiration levels through repeated trials at the same task, recording how achieving or failing to achieve an aspired performance level influenced the agent's choice of the next aspired performance level (Lewin et al., 1944). Dembo found that subjects choose aspiration levels in reference to past performance: achieving an aspired performance level led the subjects to raise their aspiration and failing to achieve an aspired performance level led subjects to decrease their aspiration. For example, subjects who aspired to land 6 out of 10 rings on a post and succeeded might increase their aspired performance on the next try to 7 rings out of 10. Conversely, subjects who failed to land the aspired 6 out of 10 rings on a post might decrease their aspiration to 5 out of 10 rings on the next try.

Early studies of individual attribution also demonstrated that agents choose aspiration levels in reference to that of their social group. These studies demonstrated that individuals reference not only past performance, but also the performance of their peers. For example, students asked to estimate the score that they would receive on a test (Anderson & Brandt, 1939) or on a group project (Hilgard, Sait, & Margaret, 1940) consistently estimated that they would perform close to the announced mean for the class. This result held even for subjects who regularly earned scores above or below the class average, suggesting that subjects form aspirations in relation to the performance level of their peers (Lewin et al., 1944).

Scholars have combined aspiration and attribution theory at the level of the individual. Early scholars of attribution theory built directly off of aspiration theory. For example, Julian Rotter asked subjects to guess whether a card would be an 'x' or an 'o'. He invoked attribution theory by giving subjects explanations for their performance: he

told one group of subjects that some individuals demonstrate an ability to guess the next card; he informed another group of subjects that guessing correctly depended only on chance. Rotter then tracked changes in subjects' aspiration levels and found that subjects who were told that some people could perform this task consistently generated higher aspirations than those who were told that guessing was purely chance (James & Rotter, 1958). Scholars have used aspiration theory and attribution theory together at the level of the individual since their inception by Kurt Lewin and his students (Bernard Weiner, 1990).

Firm Aspiration

This section identifies key aspects of aspiration theory at the level of the firm, reviewing its origins, mechanisms, antecedents, consequences, and challenges.

Origin

Cyert and March formally introduced aspiration theory to the study of organizations in *The Behavioral Theory of the Firm*: "Satisfactory profits represent a level of aspiration that the firm uses to evaluate alternative policies.... it defines a utility function with essentially only two values - good enough and not good enough" (Cyert & March, 1963: 9). Cyert and March (1963) argue that in contrast with economists' concept of rationally maximizing agents, managers operate rationally but within limits on information, expense, and attention. Executives manage complex firms in complex environments and have limited cognitive capacity to do so (Simon, 1947). To make decisions expeditiously, organizations harness routines (Nelson & Winter, 1982), heuristics, and

belief structures (Cyert & March, 1963). Aspirations represent one type of heuristic that guides managerial decision making: aspirations help executives interpret performance information and facilitate their decision making process.

Cyert and March (1963) directly acknowledge the challenge of applying a cognitive process identified in individuals to the study of firms: "People (i.e. individuals) have goals; collectivities of people do not.... Individual goals are perceived as lodged in the individual human mind, the problem is to specify organizational goals without postulating an 'organizational mind' " (Cyert & March, 1963, p. 26). Cyert and March (1963) address this challenge by conceptualizing the organization as a coalition. Within this coalition, individuals not only hold goals for themselves, but also for the organization. Through a socio-political process of negotiation, individuals advocate for their goals, form sub-coalitions with like-minded individuals, and eventually agree on firm level aspirations. Quarterly earnings predictions, budgets, and market share goals all represent examples of aspired levels of firm performance.

Mechanism

Once a coalition creates firm level aspirations, a firm generates plans to achieve these aspirations and to monitor performance in relation to these aspirations (Cyert & March, 1963). When a firm achieves its performance aspirations, this achievement confirms a coalition's expectations, and encourages it to continue with the same perspective and decision making rules that it used previously. When successful, a firm typically makes few or no modifications to standard operating procedures. In contrast, when a firm fails to achieve aspired performance levels, executives engage in problemistic search,

collecting data from new sources, reevaluating their perspective, modifying decision rules, and reconsidering goals. This problemistic search can lead to organizational learning and the development of new strategies, new tactics, and new aspired levels of performance (Cyert & March, 1963; Greve, 2003).

Although aspiration theory translates easily to empirical study, methodological difficulties related to collecting and processing panel data delayed the first study of aspiration theory at the level of the firm until 1978 (Argote & Greve, 2007). Articles on aspiration theory began to appear regularly in management journals in the 1990's (i.e. Bromiley, 1991; T. K. Lant, 1992). During the past two decades, aspiration theory has been an active area of research (Argote & Greve, 2007).

Antecedents

Firms create aspirations from two reference points: a firm's past performance and the performance of a firm's peers (Cyert & March, 1963; Greve, 2003). Past performance provides an example of the level of performance that a firm can achieve. It encapsulates a great deal of information about the firm itself. Firms generally have excellent access to their own performance data, allowing for precise benchmarking against prior performance. However, comparisons with a firm's past performance often fail to take into account changes in a firm's environment. Independent of changes in the firm's environment, firms typically expect to perform as well, or slightly better, than they did in the past (Bromiley, 1991). Performance expectations that reference past experience are known as historical aspirations (Cyert & March, 1963; Greve, 2003).

Firms also create aspirations in relation to the performance of their peers (Cyert & March, 1963). Comparisons against peers can be made in the same time period, incorporating information on the business environment and its impact on the focal firm and its peers. Comparisons with peers often fail, however, to take account of differences between firms. Furthermore, firms often have less information about their competitors' performance than they do about their own performance, making comparisons with peers subject to errors in data collection. Firms typically expect to perform as well, or slightly better, than their peers. Performance expectations that reference the experience of peers are known as social aspirations (Bromiley, 1991; Cyert & March, 1963; Greve, 2003).

Consequences

The formation of an aspiration itself has few, if any, direct consequences on behavior. However, a firm's achievement or failure to achieve aspired performance levels does, as does a firm's expectation that it will achieve or fail to achieve an aspired performance level. As described above, achievement of aspired performance levels confirms firms' existing goals, plans, and decision making processes. In contrast, failure to achieve aspired performance levels prompts firms to engage in problemistic search and to develop new goals, new plans, and new decision making processes. Prior studies of firm aspiration have investigated numerous specific changes that executives make when their firms fail to achieve aspired performance levels, including changes in aspirations (Glynn, Lant, & Mezias, 1991; Greve, 2002; T. Lant & Shapira, 2008; Mezias, Chen, & Murphy, 2002), overall strategy (Audia, Locke, & Smith, 2000; T. K. Lant, 1992; D. Miller & Chen, 1994), increased risk taking (Bromiley, 1991; Fiegenbaum & Thomas, 1988),

increased innovation (Greve, 1998, 2003; Levinthal & March, 1981), increased

commitment to research and development (Bolton, 1993), increased partnering with

distant firms (J. A. C. Baum, Rowley, Shipilov, & You-Ta, 2005), and increased learning

from other firms (J. A. C. Baum & Dahlin, 2007).

Challenges in the Study of Aspiration

Although scholars agree on the main concepts of aspiration theory presented above,

they continue to debate finer points of how to operationalize them. For example,

regarding aspired performance determined by historic performance, scholars agree that

recent performance (i.e. last year) heavily influences historical aspiration while more

distant performance (i.e. two to five years ago) has less influence (Bromiley, 1991;

Greve, 2003). However, scholars continue to debate the relative importance of each

historical year. Similarly, regarding social performance level, scholars agree that the

more similarities between two firms, the more one will influence the other's social

aspiration (Greve, 1998; Porac, Thomas, & Baden-Fuller, 1989; Reger & Huff, 1993).

However, scholars continue to debate which firm characteristics hold the most salience

and how many characteristics firms must hold in common to consider themselves peers.

To facilitate the operationalization of social aspiration at the level of the firm, this

dissertation references work on relative performance evaluation. Recent studies on

relative performance evaluation conclude that executives compare their firms'

performances to that of other firms of a similar size in the same industry (Albuquerque,

2009). The methodology section in Chapter IV presents a more in-depth discussion of

the operationalization of variables.

In addition, scholars debate whether a firm's historical aspiration and social aspiration levels should be combined to create a single composite aspired performance level, or whether executives consider social and historical aspiration levels as distinct firm goals (Greve, 2003). Cyert and March (1963) originally argued for averaging aspiration levels to create one combined level of aspiration. Subsequent studies have proposed other options. Some scholars argue that executives hold two distinct levels of aspiration, but shift from one to the other depending on the context and only refer to one at any given time (James G. March & Shapira, 1992; Wiseman & Bromiley, 1996). Other scholars argue that executives hold two different levels of aspiration and reference both types simultaneously (Greve, 1998).

In addition, scholars debate whether firm behavior changes suddenly or gradually when firm performance passes a firm's aspired performance level. Cyert and March (1963) conceptualized a distinct change from localized search to problemistic search when a firm failed to achieve its aspired performance level. In contrast, empirical studies have found gradual changes in firm behavior when firms reach their aspired performance levels (Audia et al., 2000; J. A. C. Baum et al., 2005; Bolton, 1993; Fiegenbaum & Thomas, 1988; Greve, 1998, 2003; T. K. Lant, 1992; D. Miller & Chen, 1994).

Summary of Aspiration Theory

In sum, aspiration and attribution theory share a common origin in the work of Kurt Lewin and his students. Cyert and March (1963) introduced aspiration theory at the level of the firm as a heuristic for performance evaluation in boundedly rational decision making. Antecedents to aspiration formation include a firms' historical performance and

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the performance of the firm's peers. Consequences of achieving an aspiration include whether a firm maintains or changes its perspective and routines: firms that fail to achieve their aspired performance search for new perspectives and routines.

Despite agreeing on these key aspects of firm aspiration, scholars continue to debate its finer points. This continued debate on the conceptualization of firm aspirations suggests that additional study of aspiration theory could yield benefits. By combining aspiration theory with attribution theory at the level of the firm, this dissertation has the opportunity to address two gaps in the study of firm aspiration. First, this dissertation has the opportunity to test whether social and historical aspirations exert a separate and independent influence on firm attribution. Second, by virtue of the behaviors that it studies, this dissertation can investigate whether firms change behavior in a discrete or gradual manner when firm performance crosses the threshold of aspiration. As discussed above, prior empirical studies have found that firms change their aspiration gradually when they achieve aspirations. However, this gradual change may result from two sources: a gradual change in firms' assessment of their performance, or a sudden change in firms' assessment of their performance that manifested itself in gradual change in behavior due to investments in fixed assets, long planning horizons, or other factors contributing to firm inertia. In contrast with these other firm behaviors, firm attribution can be changed very quickly at little to no cost. As it studies a firm behavior that can change quickly and easily, this dissertation provides an opportunity to identify nuances in firms' cognitive response to aspirations.

<u>Model Creation: Aspiration Theory and Attribution Theory</u>

The above discussion of studies of firm attribution, cross-level theorizing, and firm aspiration makes clear the opportunity to further knowledge by combining aspiration and attribution theories at the level of the firm. Prior studies of firm attribution have under-conceptualized the concept of performance. This lack of conceptualization of firm performance could be responsible for scholars' inability to identify an empirical relationship between performance and attribution at the level of the firm. In contrast, aspiration theory provides a solid conceptual foundation for firm performance. Scholars have previously combined attribution and aspiration theory at the level of the individual, suggesting that such a combination at the level of the firm could also yield insights on firm behavior.

This dissertation seeks to address these gaps in prior literature. First, gaps in prior studies of organizational cognition create an opportunity to conceptualize performance in the study of firm attribution. This dissertation achieves such a reconceptualization by applying aspiration theory in the study of firm attribution. Second, inconclusive findings from prior empirical studies of aspiration provide the opportunity to better understand how firms use aspirations to assess their performance. For example, do firms favor performance assessment in relation to their past performance or in relation to their peers? This dissertation undertakes the challenge of furthering our understanding of aspiration. Third, limited findings in prior studies of attribution provide little insight on how firms use attribution to manage their image. This dissertation undertakes the challenge of furthering our understanding of how firms use attribution to manage their image. Finally, prior studies have failed to demonstrate a robust relationship between firm performance

and firm's explanations of performance, limiting our understanding of how firms generate these performance explanations. This dissertation hypothesizes that there is a relationship between firm performance and firm's performance explanations.

Combining attribution and aspiration theories at the level of the firm provides a model of how firms process information related to performance and generates performance explanations. Figure 1 in the introduction presents this model.

Combining aspiration and attribution theory at the level of the firm provides an opportunity for new insights about attribution theory. Conceptualizing firm performance and firm performance assessment in relation to aspirations creates a new theoretical model with a much richer context at the level of the firm. This new model creates new opportunities for empirical study that could reveal an empirical relationship between firm performance and firm attribution.

In this new, combined model, firm attribution changes in relation to firms' assessment of performance relative to aspirations. This relationship has the potential to reveal a relationship between self-serving attribution and firm performance. Firms that achieve their aspirations are expected to use more enhancement. Firms that fail to achieve their aspirations are expected to use more blame. Chapter III develops hypotheses to test this model.

CHAPTER III

HYPOTHESIS DEVELOPMENT

Introduction

In Chapter III, this dissertation creates hypotheses to test the theoretical model created in Chapter II. Chapter III tests the two basis relationships in this model: 1) do firms that perform well relative to aspirations use enhancement to explain their performance and 2) Do firms that perform poorly relative to aspirations use blame to explain their performance? Chapter III also tests two different ways of assessing performance. Do firms assess their performance like high jumpers clearing the bar: a dichotomous assessment of achieving or not achieving aspirations? Or do firms assess their performance like golfers counting strokes against par, with an incremental measure of the difference between their actual and aspired performance? Chapter III presents theoretical justification and hypotheses that formalize these questions.

Motivation for Firms' Use of Self-Serving Attributions

As detailed in Chapter II and as illustrated in the opening vignette, firms describe their performance to investors and others stakeholders (Arnold & Moizer, 1984; Bartlett & Chandler, 1997; Greenstone et al., 2005). Multiple individuals and departments contribute to these performance descriptions, following established practices and guidelines (Bettman & Weitz, 1983; Beveridge, 1963; Hettinger, 1954). The image that a firm projects of itself in these performance descriptions can be crucial to its success.

Management scholars have argued that firms depend on access to external resources, including labor, financing, raw materials, and distribution networks (Pfeffer & Salancik, 1978). The image that shareholders and other external stakeholders have of a firm can influence its ability to access these resources (Salancik & Meindl, 1984). Furthermore, firms may manipulate verbal communications and other symbols presented to stakeholders to influence the firm's image in stakeholders' eyes (Pfeffer, 1981). Firms explain performance "because they need to communicate to constituents that they are capable of producing results" (Salancik & Meindl, 1984, p. 239); "taking credit for positive events and eschewing blame for negative events is ... one means of positive self-presentation" (Salancik & Meindl, 1984, p. 596).

Prior studies have demonstrated that the greater the decline in firm performance, the more negative events a firm discloses (Abrahamson & Park, 1994). As performance declines, negative events become more salient and require more attention and more explanation in communication with stakeholders (Bettman & Weitz, 1983). Performance has a direct influence on the number of negative influences that firms report (W. Aerts, 2001). As firms have been shown to attribute negative events to external influences beyond the firm's control, this logically leads to an expectation that firms with declining performance use more blaming attribution (Staw et al., 1983). Prior research has paid less attention to firms' discussion of positive events. However, it is possible that firms' discussion of positive events also varies in relation to performance. As firms have been shown to attribute positive events to the firm, if firms do vary discussion of positive events in relation to performance, this would logically lead firms with improving performance to use more enhancing attribution. Thus, this dissertation expects that

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"reasons internal to the organization will be cited for favorable performance outcomes and external factors will be noted for unfavorable outcomes" (Bettman & Weitz, 1983, p. 167).

In sum, to improve their external image, to assure access to resources, and to maximize their performance, firms use enhancement to explain good performance and blame to explain poor performance.

Types of Attribution: Enhancement and Blame

As detailed in the literature review, prior studies demonstrate that firms most commonly use two types of attribution: enhancement and blame (Walter Aerts, 2005; Johns, 1999; Salancik & Meindl, 1984). Each of these types of attribution gives firms an opportunity to improve their image. When they perform well, firms can enhance their image by taking credit for their good performance. When they perform poorly, firms can defend their image by blaming poor performance on factors beyond the firms' control (Staw et al., 1983). Empirical studies have demonstrated similar relationships at the level of the individual: when individuals perform well relative to aspirations, they use more enhancement; when individuals perform poorly relative to aspirations, they use more blame (Mezulis et al., 2004). Agents' use of enhancing and blaming attributions to

improve their image is so common that scholars have developed a label for it: self-serving attribution (Johns, 1999). [1]

This dissertation creates separate hypotheses for enhancement and blame. As firms use enhancement to explain performance above aspiration and blame to explain performance below aspiration, it is possible that enhancement and blame mirror each other: as enhancement increases, blame decreases, and vice-versa. However, it is also possible that enhancement and blame demonstrate different relationships with performance relative to aspiration. Some prior scholars have argued that independent mechanisms drive firms' use of enhancement and blame: a firm's drive to improve its image through the use of enhancement could operate separately from a drive to defend its image through blame (Bettman & Weitz, 1983; Staw et al., 1983). For example, firms may change their use of blame in relation to firm performance, but not change their use of enhancement in relation to firm performance (W. Aerts, 2001). Consequently this dissertation tests enhancement and blame separately by preparing two sets of hypotheses, one set for enhancement (hypotheses 1, 3, & 5) and the other set for blame (hypotheses 2, 4, & 6).

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[1] Prior empirical studies have not examined the other two types of attribution: self-criticism and good fortune. Due to limitations in project scope, this dissertation also concentrates its empirical study on enhancement and blame.

Performance Assessment

This dissertation examines two different cognitive models with which firms might evaluate achievement of aspired performance. In the first model, firms evaluate performance in a dichotomous fashion: all performance that achieves or surpasses aspirations is considered equally successful and all performance that falls short of aspirations is considered equally unsuccessful. In the second model, firms evaluate performance in a more nuanced fashion that takes into account the extent by which performance surpasses or falls short of aspirations: firms that surpass aspirations by a large margin would assess their performance differently from those that just barely achieve their aspirations.

Two sports exemplify these different cognitive models for performance evaluation: high-jumping and golf. High jumpers assess their performance on a dichotomous scale. High-jumpers literally set a bar at a specified height and aspire to clear the bar. If the jumper clears the bar, the jump in successful; if the jumper fails to clear the bar, the jump is a failure. For example, if a high-jumper sets a bar at 6' and clears the bar, the jumper receives credit for jumping 6'. Whether the jumper actually jumps 6' and barley clears the bar or jumps 10' and clears the bar by an enormous margin is not scored. Similarly, if the jumper fails to clear the bar, the jumper receives no credit. It makes no difference whether the jumper fails by the width of a human hair or if the jumper falls a full body length short of the bar. The jumper sets an aspired performance level and records whether she attains or fails to attain that performance level, with no consideration for the

extent by which she surpassed or fell short of the bar. This recording of only two values, success or failure, represents a dichotomous assessment of performance.

In contrast, golfers assess their performance on a continuous scale and note the difference between their actual and aspired performance. Golfers score by counting the number of shots necessary to put a golf ball in a hole. The fewer shots, the better the score. In addition, each golf course and each golf hole is assigned a par, or aspired score. A golfer assess her score in relation to par: she records the exact number of strokes taken on a hole and the exact number of strokes by which she beats par or is over par. For example, on a par five hole, if a golfer takes five shots, then the golfer scores "par". If on the same hole, a second golfer takes 4 shots, then the second golfer scores "1 under par". If on the same hole, a third golfer takes six shots, then the third golfer scores "1 over par". And, if on the same hole, a fourth golfer takes 8 shots, then the fourth golfer scores "3 over par". In golf, players are judged by the number of strokes by which they beat or exceed par. For example, in the example above, the second golfer with a score of "1 under par" would beat the golfer who scored "par". This recording of many different levels of performance represents a continuous assessment of performance.

Dichotomous Performance Assessment

Achievement of a Single Aspiration

As described in Chapter II, seminal studies of organizational behavior assert that firms evaluate their performance in a dichotomous fashion, as a simple judgment of success or failure (Cyert & March, 1963; J. G. March & Simon, 1958). These seminal

works invoke aspirations to explain how choices are made within the limits of bounded rationality. They depict organizational goals as aspirations: "most organizational objectives take the form of an aspiration level rather than as an imperative to 'maximize' or 'minimize' " (Cyert & March, 1963, p. 28). In relation to this aspired performance level, performance is judged to be either acceptable or unacceptable (J. G. March & Simon, 1958). The limits of bounded rationality prevent firms from conducting a more nuanced performance assessment. For example, bounded rationality prevents firms from distinguishing between 'highly acceptable' and 'marginally acceptable' performance. This conceptualization of firm aspiration matches how high jumpers score their accomplishments, simply noting whether or not they clear a bar and ignoring the extent by which they surpass their aspiration.

Furthermore, achieving or failing to achieve aspired performance levels leads firms to choose different behaviors. For example, firms that achieve their aspirations engage in local search that reinforces prior beliefs, while firms that fail to achieve aspirations engage in problemistic search to develop new opportunities to improve performance (Cyert & March, 1963; Levitt & March, 1996; James G. March & Shapira, 1992). These scholars argue that firms commit themselves to one behavior or the other, not to half-measures that combine equal parts of reinforcing and replacing prior beliefs. Using this dichotomous scale of firm performance assessment, a graph of the relationship between firm performance and firm behavior reveals a step function. Figure 2 illustrates the relationship between firm performance and the use of enhancement that would result from a dichotomous model of the assessment of firm performance in relation to aspiration.

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The vertical axis in Figure 2 depicts the attributions in a letter to shareholders that are enhancing. If all attributions in a letter to shareholders are enhancing, then that letter would be considered 100% enhancing. If none of the attributions in a letter to shareholders are enhancing, then the letter would be considered 0% enhancing.

Figure 2: Dichotomous Influence of Aspiration on Use of Enhancement

Aspired
Performance
Level

100% Enhancement

↑
Use of
Enhancement
↓

0% Enhancement

Performance
Below
Aspiration

Performance
Above
Aspiration
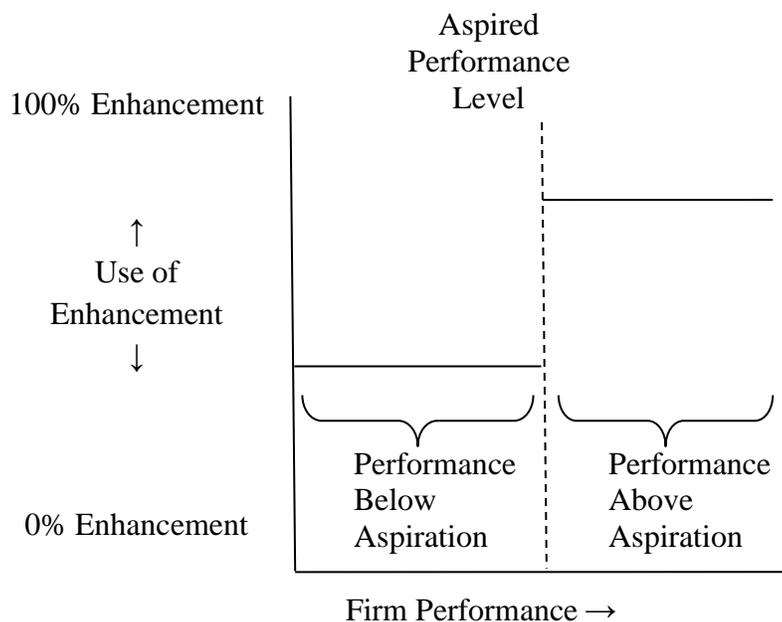
Firm Performance →

This depiction of aspiration, as a cognitive tool that results in dichotomous performance assessment and leads firms to choose between distinct behaviors, provides one possible model of the relationship between firm attribution and firm performance relative to aspirations. Hypothesis 1 applies this model to firms' use of enhancement. As discussed at the beginning this chapter, firms use enhancement to improve the firm's image in order to maximize access to resources that are vital to the firm's future success.

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Hypothesis 1 posits that firms that achieve a performance aspiration use more attribution than firms that don't achieve a performance aspiration.

Hypothesis 1: When a firm achieves (fails to achieve) a performance aspiration, it uses more (less) enhancement to explain performance than when it fails to achieve (achieves) a performance aspiration.

As discussed on page 63, it is possible that the relationship between enhancement and performance relative to attribution mirrors the relationship between blame and performance relative to attribution. In other words, when firms use more enhancement they use less blame, and vice-versa. However, it is also possible that these two relationships do not mirror each other. Consequently, this dissertation develops separate hypotheses for enhancement and blame. Hypothesis 2 tests the same dichotomous cognitive model of performance assessment with firms' use of blame. As discussed at the beginning of this chapter, firms use blame to defend the firm's image and to maintain access to valuable resources that are vital to the firm's success. Hypothesis 2 posits that firms that fail to achieve a performance aspiration use more blame than firms that achieve a performance aspiration.

Hypothesis 2: When a firm fails to achieve (achieves) a performance aspiration, it uses more (less) blame to explain performance than when it achieves (fails to achieve) a performance aspiration.

Achievement of Multiple Performance Aspirations

Seminal studies of organizational behavior regularly reference performance aspirations as a plural noun, suggesting that firms may aspire to more than one goal. For example, a firm might have separate aspirations for top-line growth (revenue growth) and for bottom-line growth (earnings growth). In any given performance period, a firm could achieve its aspirations for both top-line and bottom-line growth, or it could achieve one of these two performance aspirations but not the other, or it could fail to achieve both of these performance aspirations. Similarly, a firm could outperform its competition, achieving its social aspirations, but perform worse than it did in prior years, failing to achieve its historical aspirations. Furthermore firms could include descriptions of multiple performance metrics in their annual reports. For example, if firm 'A' achieves its aspirations for both revenue and net income, it could conceivably report both accomplishments and take credit for both accomplishments. In this scenario, firm A responds to achieving multiple aspirations by generating multiple enhancing attributions. In contrast, if firm B achieves its revenue aspiration but fails to achieve its net income aspiration, it could conceivably take credit for achieving its revenue aspiration and blame its failure to achieve its net income aspiration on environmental factors. Firm B responds to achieving one aspiration and failing to achieve another by generating one enhancing

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attribution and one blaming attribution. In this scenario, firm A achieves more

aspirations than firm B and uses more enhancement than firm B.

However, it is also possible that firms that achieve multiple aspirations don't use more

enhancement in their letters to shareholders than firms that achieve only one aspiration.

When firm 'B' achieves its revenue aspiration but not its net income aspiration, it could

focus all of its performance explanations on revenue and omit any mention of net income

from its communications with stakeholders. In this manner Firm 'B' could conceivably

make two enhancing attributions related to achieving its revenue aspiration and omit any

reference to its failure to achieve its net income aspiration. In this second scenario, firm

A achieves more aspirations that firm B, but both firms use the same amount of

enhancement.

As discussed at the beginning of this chapter, firms use enhancement to improve their

image and to maximize access to resources vital to the firm's success. Hypothesis 3 tests

whether achievement of multiple aspirations corresponds with use of even more

enhancement to further improve a firm's image and further improve access to resources.

Hypothesis 3: The more (less) performance aspirations a firm achieves the more (less)

enhancement it uses to explain performance.

As discussed on page 63, this dissertation does not assume that enhancement and

blame follow similar but opposite relationships with performance relative to aspiration.

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Hypothesis 4 uses the same logic as Hypothesis 3, but uses it to test whether failure to achieve multiple aspirations influences a firm's use of blame.

Hypothesis 4: The fewer (more) performance aspirations a firm achieves, the more (less) blame it uses to explain performance.

Continuous Performance Assessment

In contrast with the dichotomous, high jumper like depiction of performance relative to aspiration in early conceptual studies of firm behavior (Cyert & March, 1963; J. G. March & Simon, 1958), subsequent empirical studies find that performance relative to aspiration exerts a more nuanced influence on firm decision making. As described above, firms may incorporate the difference between their actual and aspired performance in their performance assessment, similar to how golfers count the number of shots they take relative to par. As described in Chapter II, in contrast with conceptual studies such as the Behavioral Theory of the Firm (Cyert & March, 1963), numerous empirical studies find that firm behavior does not change suddenly. Rather, these empirical studies find that firms change their behavior gradually as performance approaches aspiration (Audia & Greve, 2006; J. A. C. Baum & Dahlin, 2007; J. A. C. Baum et al., 2005; Glynn et al., 1991; Greve, 1998, 2002). The following sub-section develops the concept of gradual change in firm attribution as performance approaches aspiration, reviews two of these studies, and develops logic to support gradual change in attribution as performance approaches aspiration.

<u>Gradual Change Related to Performance Relative to Aspiration</u>

Prior empirical studies find that all performance above or below aspirations is not equal. Rather, the difference between actual firm performance and aspired firm performance plays a role in firms' performance assessment. In other words, these empirical studies find that a firm that greatly surpasses its performance aspirations deems itself more successful than a firm that just barely achieves its performance aspirations. Similarly, these empirical studies find that a firm that falls far short of aspirations assesses its performance as a greater failure than a firm that falls just short of aspirations. As described above, this gradual and continuous assessment of performance relative to aspiration resembles how golfers score the number of shots they take relative to par.

These empirical studies find that firm behavior also manifests itself in a nuanced manner. Rather than changing abruptly from one distinct type of behavior to another, firm behavior changes gradually. In addition, these empirical studies find that the degree of behavioral change corresponds with the size of the difference between actual and aspired performance. The larger the difference between actual and aspired performance, the larger the subsequent change in firm behavior.

Greve (2003) characterizes this relationship between firm behavior and the difference between actual and aspired performance as a linear function with different rates of change above and below the aspired performance level. Figure 3 illustrates one example of such a relationship, with one rate of change when actual performance is below aspired performance and a different rate of change above aspired performance.

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These empirical studies also find that this relationship has a different rate of change when performance exceeds firm aspiration than when it falls short of firm aspiration. For example, in many studies firm behavior changed dramatically with the extent to which performance fell short of aspiration. In contrast, these studies found that firm behavior changed little or not at all in relation with the extent to which performance surpassed aspiration (Audia & Greve, 2006; J. A. C. Baum & Dahlin, 2007; Greve, 1998, 2003). These findings suggest that scholars should conduct separate tests of the difference between actual and aspired performance above and below aspiration.

Below, Figures 3A and 3B illustrate these relationships. Figure 3A presents this incremental linear relationship between enhancement and performance. Figure 3B presents this incremental linear relationship between blame and performance.

Empirical Studies of Gradual Change Related to Performance Relative to Aspiration

Numerous empirical studies have found such a relationship between firm performance and firm behavior. In other words, the difference between actual performance and aspired performance influences firm behavior. These studies have demonstrated such a relationship for firm behaviors as varied as choice of firm strategy (Audia et al., 2000; T. K. Lant, 1992; D. Miller & Chen, 1994), increased risk taking (Bromiley, 1991; Fiegenbaum & Thomas, 1988), increased innovation (Greve, 1998, 2003; Levinthal & March, 1981), increased commitment to research and development (Bolton, 1993), increased partnering with distant firms (J. A. C. Baum et al., 2005), and increased learning from other firms (J. A. C. Baum & Dahlin, 2007).

Figure 3: Gradual Influence of Performance on Enhancement (A) and Blame (B)

Figure 3A)

Aspired
Performance
Level

100% Enhancement

↑
Use of
Enhancement
↓

0% Enhancement

Performance
Below
Aspiration

Performance
Above
Aspiration

Firm Performance   →

Figure 3B)

Aspired
Performance
Level

100% Blame

↑
Use of Blame
↓

0% Blame

Performance
Below
Aspiration

Performance
Above
Aspiration

Firm Performance   →
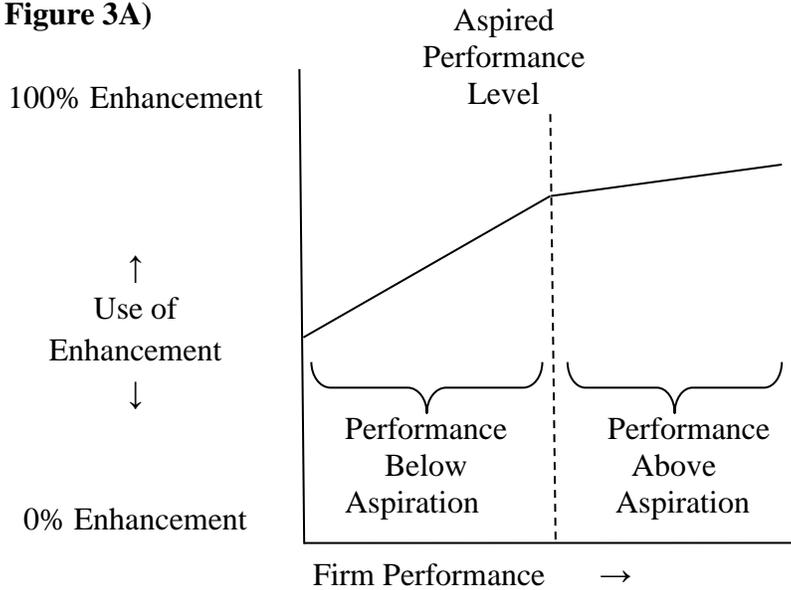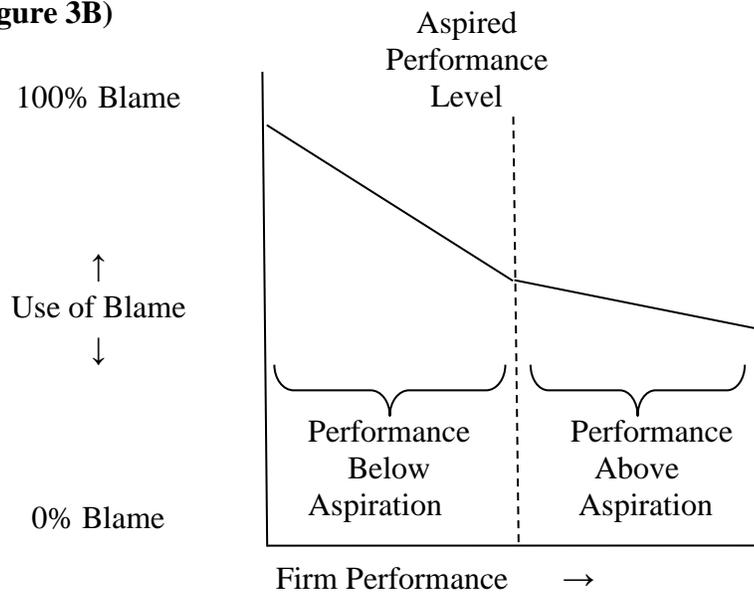
Greve (1998) conducts one such empirical study of the relationship between firm

behavior and firm aspiration in the radio broadcasting industry. Greve (1998) tests the

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changes radio stations make to their music format in response to performance feedback. Greve (1998) hypothesizes that the worse a station performs relative to aspiration, the greater the chance the station will change its music format. Furthermore, Greve (1998) hypothesizes that the probability of change will decrease slowly as the radio station's performance approaches aspiration. Greve (1998) attributes this gradual reduction in the radio stations' propensity to change to "commitment to failing courses of action (Staw, Sandelands, & Dutton, 1981), perceptual and attributional biases (Milliken & Lant, 1991), or preferences for the status quo (Hannan & Freeman, 1977; Kahneman & Tversky, 1979)." Greve (1998) finds that, as predicted, the probability for change in radio station format declines gradually as a radio station's performance approaches aspiration.

Baum et al. (2005) also find that firm behavior changes gradually as performance approaches aspiration. Baum et al. (2005) study a firm's willingness to accept risk in the form of partnering with a nonlocal firm with which the firm has no ties. Baum et al. (2005) ground this argument in learning theory. They argue that firms that perform above aspiration do not seek risk: performance above aspirations "reinforces lessons drawn from earlier experience" (J. A. C. Baum et al., 2005, p. 541). In contrast, they argue that firms that perform below aspiration accept risk: performance below aspiration "calls existing practices and strategies into question" (J. A. C. Baum et al., 2005, p. 541), inspiring firms to accept the risk of partnering with unknown firms. In addition, they argue that firms that perform far below aspiration embrace more risk than firms that perform slightly below aspiration. Firms that perform slightly below aspiration can hope to achieve aspiration through minor tweaks to past practice. In contrast, firms performing

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far below aspirations "must increase their emphasis on more exploratory, problematic search and risky undertakings that offer the possibility of raising the organization's performance to its aspiration level" (J. A. C. Baum et al., 2005p. 541).

Gradual Change in Attribution as Performance Approaches Aspiration

This depiction of aspiration provides a second model of the relationship between attribution and performance relative to attribution. In this second model, aspiration serves as a reference point from which firms assess degrees of success and failure. The greater the degree of success, the more a firm will engage in a certain behavior (i.e. lack of change or risk avoidance). The greater the degree of failure, the more a firm will engage in an alternate behavior (i.e. change or risk acceptance). In this second model, the difference between actual and aspired performance influences firms' use of attribution. In addition, this model suggests that the rate of change in firms' use of attribution relative to performance could be different above and below aspired performance levels.

As described in chapter II, firms need to maintain a positive image in order to maintain access to vital resources and they use enhancement to improve their image. In this continuous model of performance assessment relative to aspiration, firms that vastly surpass their aspired performance would use the most enhancement. Firms that just meet their performance aspirations would use less enhancement. Firms that perform below aspirations would use still less enhancement. And, firms that perform far below aspirations would use the least enhancement.

Hypothesis 5a tests the relationship between enhancement and performance above a firm's aspired performance relative to aspiration. Hypothesis 5b tests the relationship between enhancement and performance below a firm's aspired performance level.

Hypothesis 5a: The further (less) a firm's performance is above aspiration, the greater (lesser) its use of enhancement to explain performance.

Hypothesis 5b: The further (less) a firm's performance is below aspiration, the lesser (greater) its use of enhancement to explain performance.

As discussed on page 63, this dissertation does not assume that enhancement and blame follow similar but opposite relationships with performance relative to aspiration. Hypothesis 6 uses the same logic as Hypothesis 5, but uses it to test whether failure to extent by which a firm achieves or fails to achieve aspired performance influences its use of blame. Hypotheses 6a tests the relationship between blame and performance above a firm's aspired performance level and hypothesis 6b tests the relationship between blame and performance below a firm's aspired performance level.

Hypothesis 6a: The further (less) a firm's performance is above aspiration, the lesser (greater) its use of blame to explain performance.

Hypothesis 6b: The further (less) a firm's performance is below aspiration, the greater

(lesser) its use of blame to explain performance.

<u>Summary</u>

In summary, Chapter III develops six hypotheses. These hypotheses test the relationship between firm performance relative to aspiration and firms' use of attribution. These hypotheses test both firms' use of enhancement and their use of blame. In addition, these hypotheses test whether the achievement of multiple aspirations has a cumulative influence on firm attribution. Finally, these hypotheses test whether firms assess performance in a dichotomous fashion, like high-jumpers, and change attribution as a step function; or if firms assess performance in a continuous manner, like golfers, and change their attribution gradually in relation to the difference between aspiration and performance. Table 5 summarizes the six hypotheses that test the relationship between attribution and firm performance in relation to aspiration.

Table 5: Summary of Characteristics Tested in Hypotheses

Hypothesis	Type of Attribution	Type of Performance Assessment
1	Enhancement	Dichotomous
2	Blame	Dichotomous
3	Enhancement	Cumulative
4	Blame	Cumulative
5a	Enhancement	Continuous - above aspiration
5b	Enhancement	Continuous - below aspiration
6a	Blame	Continuous - above aspiration
6b	Blame	Continuous - below aspiration

CHAPTER IV

RESEARCH METHODOLOGY

Chapter IV describes the research method that this dissertation uses to empirically test the hypotheses presented in Chapter III. Chapter IV begins by describing the nature and rationale for the research method. It next discusses the empirical setting, the sample design, and data collection. It also defines variables and how they are operationalized. Finally, chapter IV presents this dissertation's framework for statistical analysis.

Description of the Research Method

In light of this dissertation's goals, and the research methods of prior studies, this dissertation uses archival data. Prior studies of firm attribution have worked primarily from either case studies or archival data. Scholars conducting case studies have examined relationships between firm attribution and its consequences. These studies have focused on internally observable firm characteristics, including strategic reorientation (Baker, Miner, & Eesley, 2003), the pace of change (Gordon, Stewart, Sweo, & Luker, 2000), and CEO replacement (Haleblian & Rajagopalan, 2006). In contrast, scholars using archival data have examined relationships between firm attribution and its antecedents. These studies have focused on externally measurable firm characteristics, including firm performance (Staw et al., 1983), industry performance (Staw et al., 1983), and the performance of the economy as a whole (Bettman & Weitz, 1983). As this dissertation seeks to identify the relationship between performance, an

externally measurable antecedent to firm attribution, and attribution, it collects archival data.

Scholars have used both cross-sectional and longitudinal data in the study of firm attribution. Early studies of firm attribution used cross-sectional data (Bettman & Weitz, 1983; Bowman, 1976; Staw et al., 1983). Subsequent studies used longitudinal data in order to study variation in financial performance (Salancik & Meindl, 1984) or change in attributions over time (W. Aerts, 2001). For example, Salancik and Meindl (1984) sampled 18 firms over 18 years, Clapham and Schwenk (1991) sampled 20 firms over 5 years, and Aerts (2001) sampled 22 firms over 8 years. As this dissertation analyzes both variation in financial performance and changes in firm attribution over time, it analyzes longitudinal data.

Empirical Setting

Letters to shareholders provide a good opportunity to study the relationships between firm attribution and firm performance. These letters give firms an opportunity to describe, explain, and justify their performance to shareholders (Staw et al., 1983). Firms produce letters to shareholders after they have compiled their annual financial performance: the firm first compiles data on its annual financial performance, then writes explanations for its performance in the letter to shareholders, and finally delivers financial statements and the letter to shareholders. This temporal sequence mirrors the hypothesized causal relationship in which performance acts as an antecedent to financial performance.

In contrast with other explanations of performance, especially those that occur in interviews or conference calls, the letter to shareholders represents a firm's most formalized explanation of firm performance. The letter to shareholders is presented in written form, allowing no opportunity for changes or improvisation to explanations in the delivery. In addition, the letter appears as part of the annual report. Preparation of the annual report consists of a well scripted process between multiple individuals in multiple divisions of the firm.

Firms produce these letters to shareholders to provide context around firm performance. Accounting regulations suggest that these letters should help shareholders understand the firm's performance (Bettman & Weitz, 1983). Furthermore, in contrast with auditors' careful scrutiny of firms financial statements, their letters to shareholders receive only a cursory review that verifies that any quantitative information in these statements matches that in audited financial reports. Auditors do not review the reasons firms give for the their performance (Bettman & Weitz, 1983), giving firms the freedom to explain firm performance as they choose (M. Clatworthy & Jones, 2003). Furthermore, investors value the information firms provide in the letter to shareholders. Studies show that letters to shareholders are the most widely read narrative portion of a firm's annual report (Bartlett & Chandler, 1997) and that investment analysts regard them as the annual report's most influential information source (Arnold & Moizer, 1984).

Prior studies have revealed that firms' CEOs and presidents generally do not write the letter to shareholders. Teams of employees from investor relations, public relations, finance, accounting, and the legal department typically draft letters to shareholders. An executive committee then edits the letter and presents it to the CEO for revision. The

new version of the letter is then reviewed by numerous individuals before receiving final approval (Bettman & Weitz, 1983). In addition, many firms ask external consultants to contribute to the preparation of the letter to shareholders. This engagement by many individuals, including outside specialists, suggests that firms take a strong interest in the image that they present in the letter to shareholders. Public relations texts confirm the widespread acceptance of these group processes in the production of letters to shareholders (Beveridge, 1963; Hettinger, 1954). Consequently, this dissertation regards the letter to shareholders as a product of the firm, namely its policies, procedures, and people, not as an expression of the personal opinions of the CEO or president.

Sample Design

Prior studies have sampled a relatively small number of firms over spans of one or more years. Table 6 summarizes the sampling techniques used in the six influential studies of attribution in letters to shareholders described in the literature review. None of these studies tested for performance relative to industry peers, nor did these studies collect the data to do so. Although three of these studies took industry into account in their sampling, none of them gathered enough data within a single industry to generate statistically significant tests: Bowman (1976) sampled 10 firms in one industry, Bettman and Weitz (1983) sampled 82 firms across 4 industries, and Clapham and Schwenk (1991) sampled 20 firms in two industries. Other studies of firm attribution did not consider industry in their samples: Staw et al. (1983) sampled 81 firms across all industries, Salancik and Meindl (1984) sampled 18 firms across all industries, and Aerts

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(2001) sampled 22 firms across 22 industries. In addition, none of these studies

considered firm size in their sample selection.

Table 6: Research Design of Prior Studies of Firm Attribution

Study	Sample	Performance Measure	Comparison Method
Bowman (1976)	10 food processing firms in one year	Five year average ROE	First quartile vs. last quartile
Bettman & Weitz (1983)	81 firms in four industries over two years: one good year and one bad year	Annual Sales	Above or below sample average by industry and year
Staw et al. (1984)	81 firms whose performance either increased or declined by 50% in 1977	Annual Earnings per Share	Firms above and below sample mean
Salancik & Meindl (1984)	18 firms over 18 years	Sums annual Profit Margin, Sales, and Earnings Per Share	Increase or decrease in performance measure
Clapham & Schwenk (1991)	20 utilities (gas and electric firms) over 5 years	5 year average Earnings per Share	Firms above and below sample mean
Aerts (2001)	22 firms in 22 industries over 8 years	Annual ROE, ROA, or Profit Margin	Significant correlation from year-to-year

Like some prior studies, this dissertation collects longitudinal data. Collecting

longitudinal data allows for analysis of changes in attribution. This dissertation collects

data from 2004 and 2005 because these two years represent years of relative macroeconomic stability. Using the S&P 500 as a proxy for macroeconomic stability, the S&P500 returned 10.88% in 2004 and 4.91% in 2005. [2] On average, from 1925 to 2004 the S&P500 yielded an average return of 10.4% (Gannon & Blum, 2006). The returns in 2004 and 2005 fall closer to the S&P500's average annual return than the return in any other two consecutive years over the last two decades.

In contrast with prior studies, this dissertation samples firms according to industry and firm size. It argues that firms compare their performance to that of peers. Relative performance evaluation, the study of how agents separate their contribution to firm performance from exogenous influences, demonstrates that executives consider firms of the same size in the same industry as their peers (Albuquerque, 2009). Furthermore, studies of relative performance evaluation show that two digit SIC codes effectively approximate peer groupings by industry (Albuquerque, 2009). Creating a dataset that allows for such comparisons within industries resulted in a multi-step process in defining the dataset.

First, this dissertation begins with all firms in the Compustat database. It is one of the most complete representations of publicly traded companies, representing over 98% of the world's total market capitalization. Within this group, this dissertation includes only firms in North America. Studies of attribution have demonstrated that different cultures use attribution differently (Tsang, 2002). Limiting the sample to firms in North America reduces the influence of such cultural differences.

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[2] Retrieved May 5, 2010, from http://www.moneychimp.com/features/market_cagr.htm

From this group of North American firms, this dissertation includes only firms with market value of over $100 million. Preliminary empirical investigation indicates that firms with market value of under $100 million rarely produce letters to shareholders or don't make these letters publicly available. This could be because the expense of producing a glossy annual report that includes a letter to shareholders is prohibitive for these smaller firms. Instead, smaller firms may communicate performance information via the 10-K report, which they are required to produce in accord with accounting regulations and which does not contain a letter to shareholders. It is also possible that firms with smaller market capitalization have a small number of owners who rely on informal channels of communication.

From this group of North American manufacturing firms with sales of over $100 million, this dissertation includes only firms with a fiscal year end in December, the most common fiscal year end. Limiting the sample to firms that share the same fiscal year eliminates time as an uncontrolled exogenous influence and eliminates two potential sources of noise in the data. First, limiting all measures of firm performance and firm attribution to a uniform period facilitates comparisons between firms. Firms do not limit performance comparisons to year-end statements. Rather, firms access data on competitors' performance from multiple sources in real time and compare performance across a single time period. Limiting this dissertation's between-firm performance comparisons to firms with the same financial year end more faithfully models firms' actual process of social comparison. Second, the business environment may influence the attributions that firms make of their performance. As the business environment varies from one time period to another, comparisons of attributions from different firms across

different time periods would manifest differences due to changes over time in the business environment. Limiting the dataset to a single time period controls for changes in the business environment and eliminates this source of noise in the data.

The remaining group contains 2,231 firms. Collecting data on all 2,231 firms could prove valuable. However, due to constraints on time and other resources, this dissertation further reduces this group to manufacturing firms, to include all firms in SIC codes 2000-3999. Although a dataset comprised of manufacturing firms is not the only viable dataset for this study, it presents numerous strengths. First, manufacturing firms present a great deal of variety. From the production of high-tech products to basic materials, these firms provide a broad representation of the economy. In addition, measures of average firm size by industry, the number of firms per industry, and industry volatility show that manufacturing encompasses a wide range of industries and firms.

Table 7 presents a profile of the resulting sample. It shows that, although the resulting sample contains only 769 firms or 11% of the firms in the Compustat database, that it represents 41 industries or 44% of all industries in the Compustat database. Table 7 also shows that the average firm in the manufacturing sector has a higher market value, sales, and net income than the average firm in the Compustat database. These higher values would be expected in more concentrated industries and the manufacturing sector contains some concentrated industries, most notably tobacco, petroleum, and automotive. However, these higher averages result from a small number of extremely large firms. If these outliers are excluded, the average size of sample firms falls much closer to the average for Compustat firms.

Table 7: Profile of Firms in Sample

Category	Number of Firms	Number of Industries (4 Digit SIC)	Average Firm Market Value ($ mil)	Average Firm Sales ($ mil)	Average Firm Net Income ($ mil)
Compustat Firms	7,112	93	2,823	2,342	141
Compustat Firms in North America	5,329	93	2,914	2,077	141
Compustat Firms in North America with market value over $100 million	3,082	93	4,823	3,296	232
Compustat Firms in North America with market value over $100 million and December Year End	2,231	93	4,826	3,296	232
Compustat Firms in North America with market value over $100 million and December Year End in Manufacturing Industries	769	41	6,090	4,410	307

Below, Table 8 breaks out the number of firms in each industry, where industry is defined as a 2-digit SIC code.

In addition, this dissertation collects annual performance data for the period from 2000-2003. It uses performance data from the years 2000-2005 to calculate the volatility of firm performance.

Table 8: Sample Firms by Industry (2-Digit SIC Code)

SIC Code	Industry Group Name	Average Market Value of Firms in Industry	Industry Beta	Number of Firms in Industry
2000	Food Processing	8,815	0.66	17
2082	Beverage (Alcoholic)	14,423	0.64	3
2085	Tobacco	61,986	0.69	3
2087	Beverage (Soft Drink)	30,669	0.59	8
2300	Apparel	2,773	0.88	8
2500	Furn./Home Furnishings	1,857	0.89	13
2600	Paper/Forest Products	6,902	0.86	13
2640	Packaging and Container	4,194	0.88	17
2700	Publishing	4,184	0.94	11
2710	Newspaper	6,253	0.91	11
2810	Chemical (Basic)	18,429	1.03	7
2813	Chemical (Diversified)	8,481	0.9	11
2820	Chemical (Specialty)	3,067	0.89	30
2830	Biotechnology	8,031	1.39	28
2834	Drug	6,334	1.43	112
2840	Household Products	8,292	0.8	10
2844	Toiletries/Cosmetics	5,073	0.8	4
2900	Petroleum (Integrated)	35,406	0.9	22
3000	Tire & Rubber	2,920	1.03	5
3140	Shoe	990	1.02	12
3200	Building Materials	2,765	0.9	15
3240	Cement & Aggregates	3,456	0.81	5
3311	Steel (General)	1,768	1.06	13
3312	Steel (Integrated)	1,305	1.67	3
3400	Metal Fabricating	4,022	0.93	11
3500	Machinery	3,580	0.9	43
3533	Oilfield Svcs./Equip.	6,028	1.01	48
3570	Office Equip/Supplies	6,980	1.01	9
3573	Computers/Peripherals	6,768	2.01	34
3579	Computer Software/Svcs.	2,477	1.84	64
3600	Electrical Equipment	29,341	1.45	28
3630	Home Appliance	3,650	0.87	5
3663	Entertainment Tech	2,096	2.09	10
3670	Electronics	1,075	1.47	28
3674	Semiconductor	10,958	2.68	29
3680	Semiconductor Equip	2,262	2.1	6
3710	Auto & Truck	58,057	1.2	9
3716	Auto Parts	2,789	1.09	19
3720	Aerospace/Defense	9,881	0.89	21
3792	Manuf. Housing/RV	511	1.14	4
3800	Precision Instrument	1,554	1.57	23
Average/Total		9,766	1.14	769

Data Collection

This dissertation uses the firm as its unit of analysis: it collects information on performance and attributions on a firm-by-firm basis. Like prior studies, this dissertation collects textual data and quantitative data, both from archival sources. Textual data come from letters to shareholders in firms' corporate annual reports. Letters were obtained from online versions of corporate annual reports and from microfiche copies of these reports in library reserves at the University of Oregon.

Following Salancik and Meindl (1984), this dissertation uses a two-step process to analyze attribution in these letters. First it identifies performance related attributions in letters to shareholders. This dissertation defines performance related attributions as phrases which identify a cause of performance. Some attributions state causation directly via causal phrases, such as "because", "due to", "as a result of". Other attributions imply causation, but do not explicitly use causal phrases. For example, Coca-Cola's 2004 annual report to shareholders makes the following causal statement without a specific causal word: "The Coca-Cola Company did not perform up to expectations in 2004. A detailed analysis confirmed that the Company's execution was not as effective as it must be". The attributed cause and the resulting performance may be found in the same sentence or they may be separated by other text. When a single causal word links multiple causes, this dissertation counts each cause as a separate attribution. For example, the sentence "income improved due to tighter inventory controls and reduced market costs for raw materials" would be coded as two attributions: one internal cause ("improved internal efficiencies") and one external cause ("reduced market costs for raw materials").

Second, similar to prior studies, this dissertation identifies two characteristics for each attribution: valence and locus of causality. First, valence can be positive or negative. If the letter to shareholders indicates that the referenced event improved the firm's performance, this dissertation codes it positive. If the letter to shareholders indicates that the referenced event detracted from the firm's performance, this dissertation codes it negative. Second, locus of causality can be internal or external. If the letter to shareholders attributes performance to something the firm controls (e.g. strategy, employees, products, distribution, etc.), this dissertation codes it "internal". If the letter to shareholders attributes performance to something the firm does not directly control (e.g. the weather, government regulation, the economy, competitor moves), this dissertation codes it "external". References to influences over which the firm has moderate control, such as suppliers, alliance partners, or customers are coded depending how control is depicted in the attribution. For example, if an attribution states that the firm managed its supply chain poorly, this dissertation would code this "internal". In contrast, if the attribution stated that a supplier provided faulty parts, this dissertation would code this "external".

As described in the literature review, these two characteristics of attribution combine in a 2x2 to define the four types of attribution: enhancement, good fortune, self-criticism, and blame. Table 9 presents this 2x2 diagram.

To check for coding bias, a student with a BA in Finance coded 20% of the sample. This dissertation checks the correlation between coders to assess the reliability of the coding.

Table 9: 2x2 of Firm Attribution

		Locus of Causality	
		Internal	**External**
Valence	**Positive**	Enhancement	Good-Fortune
	Negative	Self-Criticism	Blame

Quantitative data come from firms' audited financial statements. This dissertation accesses these audited statements via the Center for Research in Security Prices (CRSP) database, the Compustat database, and the Corporate Library. All three databases are available through the Wharton Research and Data Services website.

Data Sources and Operationalization of Variables

Dependent Variables - Attribution

This dissertation measures two aspects of the dependent variable, attribution. It measures the number of each type of attribution in each letter to shareholders and the total number of attributions in each letter to shareholders. It then uses these data to calculate the percentage of each type of attribution in each letter to shareholders. For example, Coke's 2004 letter to shareholders contained a total of 10 attributions: 3 enhancing attributions, 1 self-critical attribution, 2 attributions of good fortune, and 4 blaming attributions. This dissertation codes Coke's 2004 letter as 30% enhancement, 10% self-criticism, 20% good fortune, and 40% blame.

Table 10 presents the five dependent variables in this analysis: one count variable, and four percentages that range from 0 to 1.

Table 10: Dependent Variables in this Dissertation

Construct Name	Type of Variable	Data Source	Operationalization
Total Attributions	Count	Coding of letters to shareholders	Number of Attributions per letter to shareholders
Enhancement	Continuous Ratio	Coding of letters to shareholders	The number of enhancing attributions divided by the total number of attributions
Blame	Continuous Ratio	Coding of letters to shareholders	The number of blaming attributions divided by the total number of attributions
Good Fortune	Continuous Ratio	Coding of letters to shareholders	The number of attributions of good fortune divided by the total number of attributions
Self-Criticism	Continuous Ratio	Coding of letters to shareholders	The number of self-critical attributions divided by the total number of attributions

Independent Variables - Performance in Relation to Aspiration

This dissertation carefully measures performance, its independent variable. It selects independent variables to measure firms' subjective perception and interpretation of firm performance. This entails three steps: 1) establishing the metrics firms employ to measure their performance; 2) identifying the benchmark against which firms assess their performance; and 3) specifying the interpretive framework with which firms assess

performance in relation to their benchmark. This subsection presents this dissertation's metrics, benchmarks, and its interpretive framework for firm performance.

Performance Metric

Organizational scholars have conceptualized firm performance in many ways, including financial performance, firm survival, quality of products or services, employee satisfaction, or environmental sustainability. Studies of organizational effectiveness, the study of the "end state that mangers strive to achieve" (Steers, 1977, p. xi), state that no one conceptualization of organizational performance fits all contexts: "the concept of organizational effectiveness means different things to different people, depending on one's frame of reference" (Steers, 1977, p. 1). These statements mirror Weiner's argument that studies of attribution should reflect the subject's achievement strivings (Bernard Weiner, 1986). Studies of attribution must accurately represent the subjects' perspective on performance in the context in which the attribution is made: "The overriding flaw in the empirical research has been a failure to conceptualize the situation as perceived by the respondent" (Bernard Weiner, 1986, p. 111).

Following the framing provided by Steers (1977) and Weiner (1986), a study of firm attribution should reflect the context in which firms make attributions regarding their achievement goals. A study of attributions in letters to shareholders should conceptualize performance in the same way that firms do when addressing investors. It would be an oversimplification to state that firms consider only the firm's financial performance when assessing their performance for investors. However, it is clear that firms pursue profit (Cyert & March, 1963; England, 1967; Simon, 1947) and that investors concern

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themselves with financial return (M. Friedman, 1970; Margolis & Walsh, 2003).

Furthermore, as firms present the letter to shareholders in conjunction with their annual

financial data, this document has traditionally afforded a venue for executives to provide

context and explanations for financial performance (Graves, 1982). Texts on investor

relations state that the letter to shareholders should review "the last year from the points

of view of sales, earnings, financial position, acquisitions, new products or services, and

other items of current significance (Beveridge, 1963, p. 152). Consequently, in the study

of attributions, this dissertation uses financial measures of firm performance:

conceptualizing firm performance as financial performance aligns with both the context

in which these attributions are made and with the achievement strivings of the firms who

make them.

Scholars and practitioners have used many measures of firm performance.

Studies indicate, however, that firms consider earnings to be the most important measure

of financial performance and sales to be the second most important measure (Graham,

Campbell, & Rajgopal, 2007; Murphy, 2000). In light of these findings, this dissertation

adopts three performance measures related closely to earnings and sales: earnings per

share (EPS) growth, sales growth, and profitability (earnings divided by Sales). This

dissertation measures EPS and sales growth rather than EPS and Sales for two reasons.

First, firms typically discuss the growth of these two measures. Second, in comparisons

across firms, sales growth and EPS growth provide a measure of performance; in

contrast, in comparisons across firms, raw measures of sales provide a measure of size

and raw measures of EPS provide a measure of stock price. This dissertation does not

transform profitability into a growth measure for the same two reasons: firms discuss

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profitability, not growth in profitability; in addition, when compared across firms, profitability provides a measure of performance. Furthermore, prior studies have found that letters to shareholders most commonly mentioned EPS growth, sales growth, and profitability (Salancik & Meindl, 1984). Many other studies of firm attribution used one of the three measures (i.e. W. Aerts, 2001; Bettman & Weitz, 1983; Clapham & Schwenk, 1991; Staw et al., 1983).

Performance Benchmark

Following the work of aspiration theorists described previously in the literature review, this dissertation considers two performance benchmarks: a firm's past performance and the performance of a firm's peers. This dissertation operationalizes a firm's past performance as performance during the prior fiscal year. Although scholars have argued that it may be more accurate to operationalize a firm's historical aspirations as a weighted average of performance in numerous prior years (Greve, 2003), scholars have not determined how many years to include or how much weight to place on each year. In addition, scholars suggest that different firms and different industries may have different time horizons relative to past performance (Greve, 2003). As this dissertation makes comparisons across firms and across industries, it cannot calibrate its measures to one specific industry. As a result, it adopts the admittedly unsophisticated operationalization of historical performance as defined by a firm's performance in the prior fiscal year.

Following the work of scholars of relative performance evaluation (Albuquerque, 2009; Indjejikian & Nanda, 2002; Murphy, 2000), this dissertation operationalizes the performance of a firm's peers as the average performance of the firm's peers. Furthermore, it forms peer groups for each firm according to two criteria: size and industry. It operationalizes size in relation to market value. Firms with market value of $100 million or more are considered to be peers. It operationalizes industry in relation to SIC Codes. Firms with the same two-digit SIC code are grouped in the same industry.

Performance Scale

As discussed above in the review of aspiration literature, aspiration scholars have proposed two mental models of firm performance assessment in relation to aspirations. One model assesses firms like high jumpers, in a dichotomous manner: performance at or above an aspired performance level is satisfactory; performance below an aspired performance level is unsatisfactory (Bromiley, 1991; Cyert & March, 1963). The second model assesses firms like golfers, along a continuous scale on which the extent by which performance exceeds or falls short of aspiration impacts the assessment of performance. For example, a firm with performance that greatly exceeds aspirations (a large positive difference) would assess its performance as superior to that of a firm with performance that barley meets aspirations (a small positive difference) (Greve, 1998, 2003).

Because aspiration scholars have not determined whether firms interpret their performance in a dichotomous manner or in a continuous manner, this dissertation develops variables to test both cognitive models of performance assessment. Measures of dichotomous performance assessments take one of two values: "0" if performance is

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below aspirations and "1" if performance meets or exceeds aspirations. Measures of continuous performance assessments take continuous values in relation to performance aspirations. For example, a firm that aspires to grow revenues by 10% but only grows revenues by 8% would have a performance measure of minus 2%. Similarly, a firm that aspires to grow revenues by 10% but grows revenues by 15% would have a performance measure of plus 5%.

Performance Measures

Combining these three characteristics of performance assessment, measurement, benchmark, and assessment model, results in twelve performance variables (3 measurements x 2 benchmarks x 2 assessment models = 12). Table 11 presents each of the 12 performance variables.

Control Variables

As this dissertation uses regression analysis, it also uses control variables. Many of the control variables in this dissertation were independent variables in prior studies. Most prior studies of attribution have used few if any control variables. This is due to extensive use of mean-difference analysis and correlation analysis in these articles: most prior studies have not used regression to study the relationship between firm performance and firm attribution.

Table 11: Independent Variables, Performance Variables

Name	Abbreviation	Benchmark	Assessment Model	Metric
Historical Dichotomous Revenue Change	HD Revenue	Historical Aspiration	Dichotomous	Is Revenue Change $_t$ > Revenue Change $_{t-1}$
Historical Dichotomous EPS Change	HD EPS	Historical Aspiration	Dichotomous	Is EPS Change $_t$ > EPS Change$_{t-1}$
Historical Dichotomous Profitability	HD Profitability	Historical Aspiration	Dichotomous	Is Profitability $_t$ > Profitability $_{t-1}$
Social Dichotomous Revenue Change	SD Revenue	Social Aspiration	Dichotomous	Is Revenue Change $_{firm}$ > Revenue Change $_{peers}$
Social Dichotomous EPS Change	SD EPS	Social Aspiration	Dichotomous	Is EPS Change $_{firm}$ > EPS Change $_{peers}$
Social Dichotomous Profitability	SD Profitability	Social Aspiration	Dichotomous	Is Profitability $_{firm}$ > Profitability $_{peers}$
Historical Continuous Revenue Change	HC Revenue	Historical Aspiration	Continuous	Revenue Change $_t$ - Revenue Change $_{t-1}$
Historical Continuous EPS Change	HC EPS	Historical Aspiration	Continuous	EPS Change $_t$ - EPS Change$_{t-1}$
Historical Continuous Profitability	HC Profitability	Historical Aspiration	Continuous	Profitability $_t$ - Profitability $_{t-1}$
Social Continuous Revenue Change	SC Revenue	Social Aspiration	Continuous	Revenue Change $_{firm}$ - Revenue Change $_{peers}$
Social Continuous EPS Change	SC EPS	Social Aspiration	Continuous	EPS Change $_{firm}$ - EPS Change $_{peers}$
Social Continuous Profitability	SC Profitability	Social Aspiration	Continuous	Profitability $_{firm}$ - Profitability $_{peers}$

This dissertation uses the following control variables: CEO tenure, firm size, firm age, firm industry, and acquisitions. Two of these variables demonstrated significance as independent variables in prior studies. CEO tenure demonstrated significance in one study: the longer a CEO's tenure, the more enhancement and blame in a firm's letter to shareholders. Scholars explain this effect as a new CEOs opportunity to criticize prior management by attributing poor performance to prior management and good performance to environmental influences (Staw et al., 1983). Both new CEO and industry demonstrated significance in one study (M. Clatworthy & Jones, 2003). Neither firm size nor firm age has demonstrated a significant relationship in prior studies with firms' use of enhancement or blame. However, as management scholars often find differences between firms of different size and different age, this dissertation includes them as control variables. The influence of acquisitions, whether a firm acquires another firm during the year for which a letter to shareholders is written, has not been studied in this context. However, the addition of an acquisition necessarily changes a firm's annual financial performance through the addition of new operations. This dissertation includes a dummy variable for acquisitions to account for this change. Table 12 presents the control variables in this analysis.

Table 12: Control Variables in this Dissertation

Construct Name	Type of Variable	Data Source	Operationalization
CEO Tenure	Continuous	Corporate Library	The number of years the CEO has held that position in that firm
Firm Size	Continuous	Compustat Database	The firms' total fiscal market value
Firm Age	Continuous	Compustat Database	The number of years since the firm was founded.
Industry	Categorical	Compustat Database	Dummy codes that represent a firm's two-digit SIC code
Acquisitions	Dummy-binary	SDC Platinum	Did the firm make an acquisition in the prior year?

Framework for Statistical Analysis

The following section reviews the statistical methodologies used by prior studies of firm attribution, presents this dissertation's methodology, describes the distribution of this dissertation's dependent variables, and identifies regression models that work with this distribution.

Methodology in Prior Studies of Attribution

Prior studies of firm attribution have relied on three methodologies to analyze the relationship between firm performance and firm attribution: t-tests, correlation analysis, and log-linear analysis. Of these three, scholars have heavily favored t-tests and

correlation analysis. Only Bettman and Weitz (1983) used log-linear analysis. It is notable that none of these studies used regression analysis. In comparison with t-tests, regression analysis provides many advantages, including simultaneous analysis of multiple independent variables and the use of control variables (Baron & Kenny, 1986; Kennedy, 2003).

The prevalence of t-studies and lack of regression analysis in prior studies could be the result of many factors. These studies all have small sample sizes. Small samples tend to produce better results in t-tests than in regression analysis. However, these researchers conceivably could have gathered sufficient data to conduct regression analysis if they had chosen to do so. The lack of regression analysis in prior studies could reflect attribution theory's origins in experimental social psychology and cognitive psychology, which rely heavily on t-tests in many areas of investigation, including analyses of attribution at the level of the individual. This lack of regression analysis could also be due to the era in which most of these studies were performed: the computational power to conduct regression analysis was less commonly available in the 1980s than it has been during the past two decades. Table 13 summarizes the methodologies used in the six key studies of firm attribution reviewed in Chapter II.

Table 13: Methodologies in Prior Studies of Firm Attribution

Study	Method	Analysis
Bowman (1976)	t-test	Contrasts text in corporate reports of high and low performing firms.
Bettman & Weitz (1983)	t-test	Contrasts internal vs. external attribution by year and by industry.
	log-linear analysis	Uses year, outcome, and industry to predict attributions' locus of causality.
Staw et al. (1983)	t-test	Contrasts internal vs. external attribution; past vs. future orientation; and whether explanations of performance appear before or after financials.
	correlation analysis	Analyzes covariation of enhancement and blame with the firms' financial performance and the CEO's personal characteristics. Also analyzes covariance of negativity the negativity of letters to shareholders with firm attribution.
Salancik & Meindl (1984)	t-test	Contrasts mean attributions for stable and unstable firms.
	correlation analysis	Analyzes covariation of positive/negative attributions with firm financial performance and GDP growth.
Clapham & Schwenk (1991)	t-test	Contrasts firm attribution of stable vs. unstable firms.
	correlation analysis	Analyzes covariation of attribution with future performance and risk.
Aerts (2001)	correlation analysis	Analyzes covariation of attribution this year with attribution last year in the same firm.

Research Methodology

In contrast with prior studies of firm attribution, this dissertation uses regression analysis. Regression analysis allows for more nuanced analysis through the use of multiple independent variables and control variables (Kennedy, 2003). This dissertation

conducts two types of regression analysis: between-firm analysis on pooled cross-sectional data and within-firm analysis on longitudinal data.

This dissertation combines the independent variables, dependent variables, and control variables described above into a single regression equation. In this equation "i" represents individual firms, "j" represents individual firm characteristics, and "t" represents individual years.

(equation 1) $\text{Attribution}_{ijt} = \alpha + \beta_1 (\text{Met})_{it} + \beta_2 (\text{Difference})_{it} + \beta_3 (\text{Met})_{it}*(\text{Difference})_{it}$
$$+ \beta_4 (\text{Controls})_{ijt} + \beta_5 (\text{Year})_t + \varepsilon_{it}$$

Variables in this equation have the following meanings:

- "Attribution" represents the percentage of attribution of type "j" in firm "i"'s letter to shareholders during time "t". As discussed in Chapter II, firms use four types of attribution: enhancement, blame, good-fortune, and self-criticism.

- "Met" is a dummy variable that indicates whether a firm achieved its performance aspiration. The first six variables listed in Table 11 (the names of which contain the abbreviation "D") are represented here. "Met" operationalizes the "high jumper" model of performance assessment.

- "Difference" indicates the extent by which performance surpassed or fell short of aspiration (actual performance minus aspired performance). The last six variables listed in Table 11 (the names of which contain the abbreviation "C")

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are represented here. "Difference" operationalizes the "golfer" model of

performance assessment.

- "Controls" represents an observable characteristic "j" of firm "i" observed at

  time "t" that serves as a control variable. These control variables are: firm

  age, firm size, industry, CEO tenure, and firm acquisitions.

- "Year" represents the time period in which observations are taken. These are

  dummy variables for each year (Year) that account for unobserved effects in

  the business environment for that year.

Below, Figure 4 presents a visual illustration of the relationships that Equation 1 tests.

Figure 4 presents this information for one type of attribution, enhancement. Similar

diagrams can be created for blame.

In Figure 4, the vertical axis represents the % of enhancement a firm uses to describe

its performance and the horizontal axis represents the firm's performance. The dotted

horizontal line represents a firm's aspired performance level. Lines AB and CD graph the

percentage of enhancement that the firm uses at a given level of performance. In formula

1, coefficient β_1 represents the distance between points B and C on the Y axis.

Coefficient β_2 represents the slope of line AB. and coefficient β_3 indicates whether the

slope of line CD is equivalent to the slope of line AB. Finally coefficients β_4 and β_5

indicate whether control variables influence attribution. Figure 4 does not explicitly

illustrate either β_4 or β_5.

Figure 4: Illustration of Relationships Tested in Regression Analysis
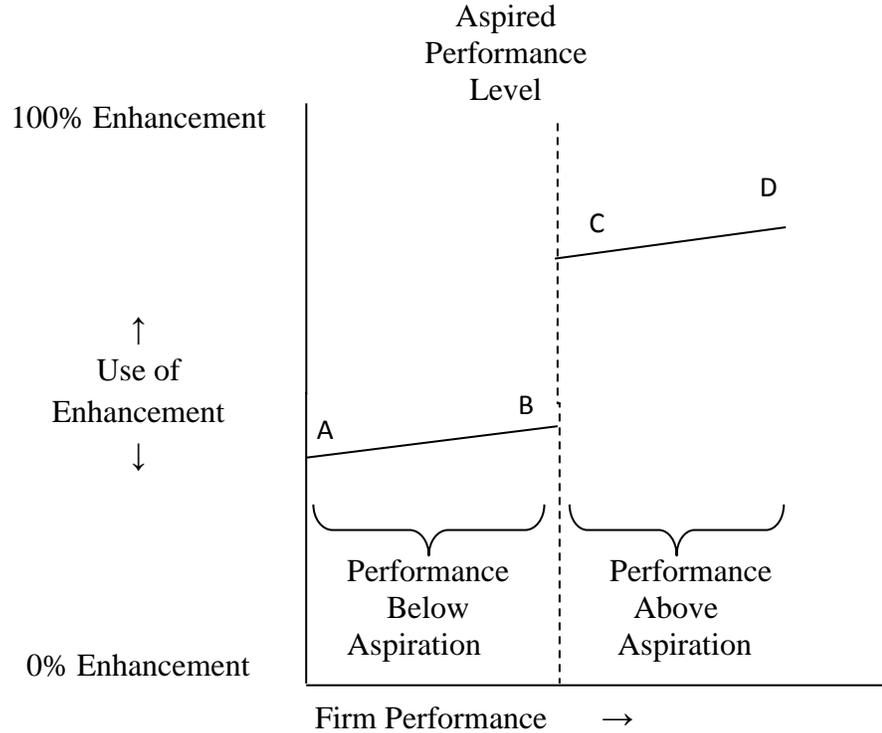
The following sub-sections present this dissertations' application of equation 1 in between-firm analysis and within-firm analysis.

Between-firm analysis

Between-firm analysis uses cross sectional data to establish comparative values between firms. It compares different firms in a single year. It does not control for endogeneity. However, cross-sectional data mimics the perspective of investors and investment analysts who evaluate the performance of numerous firms during a given time period. In addition, after pooling data from different years, year fixed effects can be used

to account for changes over time. In this manner, between-firm analysis demonstrates whether time variant variables influence firm attribution.

However, between-firm analysis's primary value lies in identifying how invariant firm characteristics influence firm attribution. Between-firm analysis also allows for between-firm comparisons of attribution: 1) whether firms that achieve aspired performance levels use attribution differently than firms that fail to achieve aspired performance levels and 2) whether firms with a greater difference between actual and aspired performance use attribution differently than firms with a smaller difference between actual and aspired performance.

Regressing equation 1 with pooled cross sectional data and determining values for β_1 to β_5 shows the following:

1. β_1 - Met Aspiration (high jumper model)

    a. If β_1 is positive (negative) and significant, then firms that achieve aspirations use more (less) of that type of attribution than firms that fail to achieve aspiration. *In other words, achieving aspiration changes firms' use of attribution. The distance between points B and C in Figure 4 is greater than zero.*

    b. If β_1 is non-significant, then firms that achieve aspirations use that type of attribution in the same manner as firms that fail to achieve aspirations. *In other words, achieving aspiration does not change firms' use of attribution. The distance between points B and C in Figure 4 is not significantly greater than zero.*

2. B_2 - Difference Between Actual and Aspired Performance (golfer model)

a. If β_2 is positive (negative) and significant, then firms with a greater positive difference between actual and aspired performance (actual minus aspired performance) use more (less) of that type of attribution, and firms with a smaller positive difference between actual and aspired performance use less (more) of that type of attribution. In addition, firms with a smaller negative difference between actual and aspired performance use more (less) of that type of attribution, and firms with a larger negative difference between actual and aspired performance use less (more) of that type of attribution. *In other words, the extent by which firms achieve or fail to achieve aspirations influences firms' use of attribution. The slope of line AB in Figure 4 is not zero.*

b. If β_2 is insignificant, the difference between actual and aspired performance has no influence on attribution. *In other words, the extent by which performance surpasses or falls short of aspiration does not influence attribution. The slope of line AB in Figure 4 is zero.*

c. β_3 Interaction Term – Met Aspiration * Difference

d. If β_3 is positive (negative) and significant, then firms that achieve aspirations use more (less) of that type of attribution as the positive difference between actual and aspired performance increases and less (more) of that type of attribution as the absolute value of the difference between actual and aspired performance decreases, than firms that fail to achieve aspirations. *In other words, the rate of change in firms' use of attribution above aspiration differs from the rate of change in firms' use of*

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attribution below aspiration. Line AB and line BC in Figure 4 have

different slopes.

  e. If β_3 is insignificant, then the difference between actual and aspired

  performance has the same influence on attribution above and below

  aspiration. *In other words, the rate of change above attribution is*

  equivalent to the rate of change below attribution. Lines AB and BC in

  Figure 4 have equivalent slopes.

3. β_4 Control Variables - Observed Time Variant Firm Characteristics

  a. If β_{4j} is positive (negative) and significant, then firms with the "j"$_{th}$ firm

  characteristic user more (less) enhancement than firms without

  characteristic "j". *In other words, the control variable in question*

  influences attribution. As mentioned above, these firm characteristics are:

  firm age, firm size, firm industry (where each industry receives a separate

  dummy code) CEO tenure, and acquisition. *In other words, the control*

  variable in question influences attribution.

  b.

  c. If β_{4j} is insignificant, then firms with characteristic "j" use attribution in

  the same way as firms without characteristic "j". *In other words, the*

  control variable in question does not influence attribution.

4. β_{5t} Year

  a. If β_{5t} is positive (negative) and significant, then firms used more (less) of

  a type of attribution in year "t". *In other words, firms used attribution*

  differently in that year.

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b. If β_{5t} is insignificant, then firms used the same amount of enhancement in that year as in other years. *In other words, firms used attribution in the same way in that year as they did in other years.*

Fixed Effect Analysis

Latent endogenous variables present the greatest challenge to demonstrating a causal relationship between performance and attribution. Both performance and attribution could be the result of a "good firm" effect. It is possible that some firms are simply better managed than other firms and that this good management would persist over time and would last the duration of the study period. It is also possible that these well managed firms use more enhancing attributions and fewer blaming attributions, independent of firm performance or achievement of aspirations. If this were the case, then the data collected on these firms would show that they achieve aspiration and that they use enhancing attributions to describe their performance, but there would be no direct relationship between a firm achieving aspirations and a firm using enhancing attributions. Both achievement of aspirations and use of enhancing attribution would result from the exogenous firm characteristic of good management. The "good firm" effect could create a correlation between performance relative to aspiration and attribution independent from any causal relationship between performance relative to aspiration and attribution. Demonstrating that the "good firm" effect is not responsible for any observed correlation between performance and attribution is necessary to demonstrate a causal relationship between performance and attribution.

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This dissertation conducts within-firm analysis to mitigate the "good firm" effect. It controls for both observed and unobserved firm characteristics by comparing firms to themselves over time. Within-firm analysis compares changes in attribution to changes in performance and changes in achievement of performance aspiration. Any changes observed in within-firm analysis could not be caused by time invariant firm characteristics. This dissertation also uses within-firm analysis to examine the influence of variables that change over time.

In its fixed effect analysis, this dissertation uses a first-difference model rather than a standard mean difference model. The first-difference model mitigates serial correlation, which could result from unobserved variables in the business environment form one year to the next. In addition, first differences give this dissertation's dependent variable a distribution that resembles a normal distribution, thus facilitating regression analysis. This dissertation discusses the distribution of the dependent variable in the following sub-section.

This dissertation presents the equation it uses for within-firm analysis below in equation 2. Equation 2 is a version of equation 1 that has been modified to measure first differences.

(equation 2) $\quad \Delta \text{Attribution}_{it} = \alpha + \beta_1 (\Delta \text{Met})_{it} + \beta_2 (\Delta \text{Difference})_{it}$

$$+ \beta_3 (\Delta \text{Met})_{it} (\Delta \text{Difference})_{it} + \beta_4 (\Delta \text{Controls})_{it} + \varepsilon_{it}$$

Variables in this equation have the same meanings as variables by the same name in equation 1. Thy symbol Δ or "delta" stands for change in the variable in question in the first-differences model. As this dissertation collects data for 2004 and 2005, Δ signifies that the value for 2004 has been subtracted from the value for 2005. Please note that only three of the five "Observed Firm" control variables can change from one year to the next: Δ acquisitions $_{it}$ (the firm conducted acquisitions in one year but not the other) and Δ CEO $_{it}$ (the firm acquired a new CEO), and Δ Firm Size. As firms do not change industry from one year to the next, the variable Δ Industry has no value. In addition, although the age of each firm changes over time, these changes are uniform for all firms (1 year), and the variable Δ Firm Age drops out of the calculation as invariant across all observations. In addition, as this dissertation only collects data over two years, the first-differences analysis generates only one value for each firm (2005 minus 2004), and the variable "Year" drops out of the equation as invariant across all observations.

Analysis of the regression coefficients in equation 2 shows the following.

1. β_1 Met Aspiration (high jumper model)

   a. If β_1 is positive (negative) and significant, then when a firm achieves an aspiration, it uses attribution differently. *In other words, when a firm achieves an aspiration, it changes the attributions it uses to describe performance. The distance between points B and C in Figure 4 is greater than zero.*

   b. If β_1 is insignificant, then achievement of an aspiration does not influence firm attribution. *In other words, a firm uses the same attribution to*

describe performance whether or not it achieves aspirations. The distance between points B and C in Figure 4 is not greater than zero.

2. B_2 Difference (golfer model)

   a. If β_2 is positive (negative) and significant, then a firm uses more (less) of a certain type of attribution as the positive difference between actual and aspired performance increases, and less (more) of that same type of attribution as the positive difference between actual and aspired performance decreases. In addition, a firm uses less (more) of that same type of attribution as the absolute value of the negative difference between actual and aspired performance increases, and more or that same type of attribution as the absolute value of the negative difference between actual and aspired performance decreases. *In other words, a firm changes its attribution in relation to the extent by which it surpasses or falls short of aspiration. The slope of line AB in Figure 4 is not zero.*

   b. If β_2 is insignificant, the difference between actual and aspired performance has no influence on firm attribution. *In other words, a firm uses the same attributions regardless of the extent by which it surpasses or falls short of aspiration. The slope of line AB in Figure 4 is equal to zero.*

3. β_3 Interaction – Met Aspiration * Difference

   c. If β_3 is positive (negative) and significant, then firms that achieve aspirations use more (less) enhancement as the difference between actual and aspired performance increases and less (more) enhancement as the difference between actual and aspired performance decreases, in

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comparison with firms that don't achieve aspirations. *In other words, the difference between actual and aspired performance has a different relationship with attribution when a firm achieves an aspiration than it has when a firm doesn't achieve an aspiration. Line AB and line BC in Figure 4 have different slopes.*

d. If β_3 is insignificant, then the difference between actual and aspired performance has the same influence on firms whether they achieve performance aspirations or not. *In other words, the relationship between attribution and the difference between actual and aspired performance is the same whether or not a firm achieves its aspiration. Line AB and line BC in Figure 4 have equivalent slopes.*

4. β_4 Observed Time Variant Firm Characteristics

a. If β_{4j} is positive (negative) and significant, then an increase in the "j"th firm characteristic corresponds with a firm using more (less) of a certain type of attribution. *In other words, attribution changes when the control variable in question changes.* As mentioned above, these control variables are: firm size, CEO tenure, and acquisition.

b. If β_{4j} is insignificant, then firms use the same amount of a certain type of attribution regardless of changes in characteristic "j". *In other words, attribution does not change when the control variable in question changes.*

Combined, the above within-firm effect analyses provide valuable descriptive information and valuable isolation of the relationship of interest between performance and attribution.

Regression Model

This dissertation will use both Tobit and OLS for its regression model. As this dissertation's dependent variable is a percentage and has many observations at the extremes of the range (0% and 100%) it is not normally distributed (Kieschnick & McCullough, 2003). Taking account of the bound nature of this distribution, this dissertation employs a Tobit model in between-firm analysis. In addition, this dissertation transforms the distribution of its dependent variable by employing the first-differences method in its within-firm analysis. This transformation results in a distribution of the dependent variable that gives it a more normal distribution. As a result, in within-firm analysis, this dissertation employs ordinary least squares (OLS). The following sub-section describes the distribution of the dependent variable, and selection of the Tobit and OLS models.

Distribution of the Dependent Variable

As with all regression analyses, distribution of the dependent variable plays a large role in selection of the optimal regression model. As discussed above, this dissertation investigates hypotheses regarding two key dependent variables: the percentages of enhancement and blame in letters to shareholders. Both of these dependent variables range on an open interval from 0 to 1. It is important to note that these variables may

regularly take on the extreme values in this range. For example, a letter with no enhancing attributions would be recorded as 0% enhancement; a letter with just one attribution total, which was positive, would be recorded as 100% enhancement; and a letter with many attributions, all of which are enhancing would be recorded as 100% enhancement. A sizeable proportion of the observations collected are at these bounds of the range.

This distribution of the dependent variable is unusual. Most other studies of attribution do not have dependent variables that are defined over a bound interval and that are observed so frequently at the extremes of this interval. Prior studies of attribution in letters to shareholders have not explicitly addressed this challenge. One study measures percentages of attributions without commenting on the distribution of the dependent variable (Bettman & Weitz, 1983). Other studies eliminate this issue by representing the dependent variable in different ways. Some studies count the number of attributions rather than calculating a percentage (Salancik & Meindl, 1984; Staw et al., 1983), while others combine different types of attribution to transform the distribution (W. Aerts, 2001; Clapham & Schwenk, 1991). Both methods should reduce the number of observations at the extremes of the range. As a result, the dependent variable can reasonably be assumed to follow a normal distribution (i.e. Nadkarni & Barr, 2008). In contrast, this dissertation must carefully consider its assumptions for distribution of the dependent variable.

Analysis of Regression Options

As discussed above, this dissertation's dependent variable ranges from 0 to 1 and is often observed at the extremes of this range. A variable bounded by 0 and 1 cannot be assumed to be normally distributed (Kieschnick & McCullough, 2003). To be normally distributed, a variable must demonstrate a constant conditional variance (Kennedy, 2003). In contrast, the conditional variance of a bound variable correlates with the dependent variable: it shrinks as the dependent variable approaches either extreme of 0 or 1 (Kieschnick & McCullough, 2003). This shrinking of the conditional variance typically results in overestimation of the significance of coefficients.

Although a bound variable cannot be assumed to follow a normal distribution, most studies of variables bounded by 0 and 1 assume a normal distribution (Kieschnick & McCullough, 2003). A normal distribution can achieve reasonable estimation if most observations of the dependent variable fall in the middle of the range, between 0.25 and 0.75. However, when the observations of the dependent variable regularly fall near one extreme or the other, as does this dissertations' dependent variable, assuming a normal distribution will likely provide inaccurate estimation (Kieschnick & McCullough, 2003).

Choice of Regression Models

This dissertation will conduct between-firm analysis using the Tobit distribution. In comparison with ordinary least squares regression (OLS), Tobit provides superior estimation of a bound distribution with values at the extremes of the range. Despite this advantage, results obtained from Tobit analysis should be expected to overestimate significance.

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This dissertation will conduct within-firm analysis using OLS. Applying the first-differences method transforms the dependent variable so that the majority of observations fall between .25 and .75, resulting in a distribution that resembles a normal distribution. Unlike the Tobit model, OLS produces coefficients on a consistent scale, which allows comparison of coefficients from one regression with those from another.

Summary of Research Methods

In many ways this dissertation follows the methodology of prior studies: it uses longitudinal data; it gathers data on public firms through their annual reports to shareholders; it measures firm performance in relation to earnings and sales; and it focuses on firms' use of enhancement and blame. In other respects, this dissertation breaks new methodological ground: it uses multivariate regression in the study of firm attribution; it assumes a Tobit distribution for between-firm analysis; it measures performance relative to aspiration; and it introduces dichotomous variables that represent firms' achievement or failure to achieve aspiration.

CHAPTER V

RESULTS

This section first presents descriptive information, second it conducts a between-firm analysis of pooled cross sectional data, and third it conducts a within-firm analysis of longitudinal data. This dissertation uses data from these analyses to test the hypotheses developed in Chapter III. It determines whether a relationship exists between firms' use of enhancement and blame and firm performance relative to aspiration. In addition, Chapter V assesses whether firms assess performance like high jumpers or like golfers. Chapter V also assesses whether firm attribution reflects achievement of social or historical aspirations.

Descriptive Information

This section describes the sample firms, their use of attribution, their performance, and correlations between attribution and performance. This section also presents graphs that describe the distribution of key independent and dependent variables.

Sample Selection - Firms that Use Attribution

As discussed in the methods section, this dissertation collects data on 769 firms. Of these 769 firms, 526 presented letters to shareholders in their corporate annual reports and 458 made attributions in those letters to shareholders in 2004 and 445 made attributions in those letters in 2005. Table 14 presents the number of firms and percentages of the total in each of these groups.

Table 14: Firms Using Attribution in Letter to Shareholders

Time Period	All Sample Firms	Firms that Produce Letters to Shareholders	Percentage of Firms that Produce Letters to Shareholders	Firms that Make Attributions in Letters to Shareholders	Percentage of Firms that Make Attributions in Letters to Shareholders
2004	769	526	68%	458	62%
2005	769	526	68%	445	60%
Total	1,538	1,052	68%	903	61%

To determine whether firms that make attributions are representative of all firms for which data were collected, Tables 15-17 present the mean performance measures for each of the three groups. Table 15 presents the number of observations, mean, median, standard deviation, minimum and maximum for all firms for which data were collected. Table 16 presents this information for all firms that included a letter to shareholders in their corporate annual report. Table 17 presents this information for all firms that made causal attributions in their letters to shareholders. Note: a few firms did not record revenue in 2003 or 2004 or earnings in 2004; consequently the variables Revenue Change, EPS Change, and Profitability could not be calculated for these firms. As a result, these variables show slightly fewer observations than other variables.

Table 15: Descriptive Statistics for All Firms for which Data Were Collected

Measure	Obs	Mean	Median	S. Dev.	Min	Max
Revenue ($MM)	769	$4,417	$584	$17,604	$0	$263,989
Net Income ($MM)	769	$281	$24	$1,519	-$4,753	$25,330
EPS ($)	769	$0.90	$0.72	$3.18	-$57.84	$34.59
Assets ($MM)	769	$6,025	$638	$36,583	$8	$750,507
Equity ($MM)	769	$1,802	$281	$7,267	-$4,080	$110,821
Revenue Change	763	32%	15%	129%	-100%	1800%
EPS Change	765	94%	72%	740%	-8400%	13700%
Profitability (NI/Sales)	765	-342%	4%	2603%	-42833%	112%
ROA	769	-2%	4%	24%	-209%	67%
ROE	769	6%	10%	256%	-3037%	5550%
CEO Tenure (years)	769	7.2	5.0	7.0	0	50
Size (m. value $MM)	769	$6,229	$910	$24,457	$2	$367,474
Acquisition (yes/no)	769	0.22	0	0.47	0	1

Table 16: Descriptive Statistics for 2004 for Firms that Produce Letters

Measure	Obs.	Mean	Median	S. Dev.	Min	Max
Revenue ($MM)	524	5,823	900	20,667	0	263,989
Net Income ($MM)	524	397	41	1,777	-2,165	25,330
EPS ($)	524	1.25	1.06	2.52	-12.26	34.59
Assets ($MM)	524	8,108	983	43,237	17	750,507
Equity ($MM)	524	2,423	440	8,537	-1,020	110,821
Revenue Change	520	30%	15%	107%	-85%	1732%
EPS Change	521	79%	26%	381%	-2200%	4600%
Profitability (NI/Sales)	522	-117%	5%	772%	-9351%	112%
ROA	524	1%	5%	20%	-171%	50%
ROE	524	20%	11%	256%	-480%	5550%
CEO Tenure (years)	524	7.1	5.0	7.0	0	50
Size (m. value $MM)	524	8,310	1,307	28,680	2	367,474
Acquisition (yes/no)	524	0.26	0	0.50	0.00	1

Table 17: Descriptive Statistics for 2004 for Firms with Attributions

Measure	Obs.	Mean	Median	S. Dev.	Min	Max
Revenue ($MM)	458	6,496	1,044	21,983	1	263,989
Net Income ($MM)	458	456	54	1,892	-2,165	25,330
EPS ($)	458	1.51	1.24	2.51	-12.26	34.59
Assets ($MM)	458	9,085	1,122	46,154	17	750,507
Equity ($MM)	458	2,675	490	9,073	-622	110,821
Revenue Change	457	31%	16%	112%	-53%	1732%
EPS Change	455	86%	31%	403%	-2200%	4600%
Profitability (NI/Sales)	458	-39%	5%	533%	-9351%	112%
ROA	458	4%	5%	11%	-68%	50%
ROE	458	21%	12%	264%	-480%	5550%
CEO Tenure (years)	458	7.24	5.0	7.18	0	50
Size (m. value $MM)	458	9,011	1,548	30,222	2	367,474
Acquisition (yes/no)	458	0.28	0	0.52	0	1

Each of these three groups of firms demonstrates a great deal of variation for each variable. Firm size ranges from $17 million (Columbia Labs Inc.) to $750 billion (General Electric), with an average size of $9 billion. CEO tenure ranges from zero to fifty years (Encore Wire Corporation), with an average of 7.24 years. Sample firms made acquisitions in 28% of the sample's firm-years.

Comparative analysis between firms that use attribution (Table 17 and the full set of firms for which data was collected (Table 15) demonstrates significant differences. Firms that produce letters to shareholders have significantly larger revenue (t(1196) = 1.80; P<.1), net income (t(1196) = 1.76; P<.1), EPS (t(1196) = 3.46; P<.01), equity (t(1196) = 1.834; P<.1), profitability (t(1196) = 2.45; P<.05), and ROA (t(1196) = 5.22; P<.01), size (t(1196=1.737; P<.1), and acquisitions (t(1196)=2.064; P<.05). However, these firms have an insignificantly larger ROE and insignificantly longer CEO tenure. In

addition, sample firms that use attributions in letters to shareholders grow revenue and EPS slower than sample firms that don't produce letters to shareholders or don't use attributions in their letters to shareholders (the difference is insignificant).

This analysis demonstrates that firms that use attribution in letters to shareholders are significantly larger (higher sales, net income, EPS, assets, & size) and more efficient (higher profitability & ROA) than other firms for which data were collected. More frequent use of letters to shareholders and of attribution in letters to shareholders by larger firms suggests that these firms provide more information to shareholders than smaller firms. It is also possible, however, that smaller firms disseminate the same information, but use less formal means to communicate it to shareholders. More frequent use of letters to shareholders and attribution in letters to shareholders by more efficient firms might suggest that more successful firms more often write letters to shareholder and use attributions in their letters to shareholders. However, this increased efficiency could also result from economies of scale achieved by these larger firms. More importantly, firms that use attributions in their letters to shareholders do not grow revenue or earnings any faster than other firms for which data were collected, an important indication of parity in performance between firms that do and don't generate performance attributions in letters to shareholders. In sum, firm size is the only reliable difference between firms that make attributions in letters to shareholders and firms that don't prepare letters to shareholders.

Differences between Tables 15-17 indicate that firms that make attributions in letter to shareholders may not be representative of public firms as a whole. The lack of smaller firms in the analysis means that the study's results may reflect the biases of large firms.

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Dependent Variable - Attribution

This dissertation's dependent variable, attribution, shows consistent use over the two years of the study. Table 18 presents descriptive statistics for the number of attributions of all types in each letter to shareholders in each year of the study and for the study as a whole. Data in Table 18 show that firms used comparable amounts of attribution in the two years of the study.

Table 18: Attributions by Year

Time Period	Obs.	Mean	Median	S. Dev.	Min	Max	Total
2004	458	7.8	6.0	6.0	1	40	3,562
2005	446	7.7	6.0	6.2	1	55	3,418
2004 & 2005	904	7.7	6.0	6.1	1	55	6,980

As discussed in chapter II, firms use four types of attribution. Similar to prior empirical studies of firm attribution, enhancement accounts for the largest percentage of total attributions at 60%. Blame accounts for the second largest percentage of total attributions at 17%. Good Fortune accounts for the third largest percentage at 16%. Self-criticism accounts for 5%. At the level of the firm, each type of attribution ranges from 0% to 100% of total attributions. Table 19 presents the total number of each type of attribution in the sample, the mean of each type, and the percentage of total sample attributions that each type represents.

Table 19: Attributions by Type

		Locus of Causality		
		Internal	**External**	**Total**
Direction of Influence	**Positive**	Enhancement Total = 4,210 Mean = 4.4 Std. Dev. = 4.0 60%	Good Fortune Total = 1,152 Mean = 1.3 Std. Dev. = 1.2 16%	Positive Total 5,362 Mean = 5.6 Std. Dev. = 5.2 77%
	Negative	Self-Criticism Total = 450 Mean = 0.5 Std. Dev. = 1.1 6%	Blame Total = 1,169 Mean = 1.2 Std. Dev. = 2.0 17%	Negative Total = 1,619 Mean = 1.7 Std. Dev. = 2.6 23%
	Total	Total Internal Total = 4,660 Mean = 4.9 Std. Dev. = 4.1 67%	Total External Total = 2,321 Mean = 2.4 Std. Dev. = 3.0 33%	

As discussed in chapter IV, this dissertation examines the two most common types of attribution, enhancement and blame. Enhancement is defined from 0 (no enhancement) to 1 (all enhancement). Table 20 presents the utilization of enhancement by year.

Table 20: Enhancement by Year

Time Period	Obs.	Mean	Median	Std. Dev.	Min	Max
2004	458	0.68	0.67	0.27	0	1
2005	446	0.62	0.64	0.30	0	1
2004 & 2005	904	0.65	0.67	0.28	0	1

Similarly, blame is defined from 0 (no blame) to 1 (all blame). Table 21 presents the use of blame by year.

Table 21: Blame by Year

Time Period	Obs.	Mean	Median	Std. Dev.	Min	Max
2004	458	0.14	0.0	0.20	0	1
2005	446	0.16	0.0	0.22	0	1
2004 & 2005	904	0.15	0.0	0.21	0	1

Note: percentages of enhancement differ between Table 19 and Table 20 and percentages of blame differ between Table 19 and Table 21. This difference results from different methods of aggregating individual attributions. Table 19 tallies each attribution separately independent from the letter in which it appeared. Percentages in Table 19 represent the number of total enhancing attributions and blaming attributions in the study. In contrast, Tables 20 and 21 tally attributions by letter. The percentages in Tables 20 and 21 represent the average percentage of enhancement and blame in each letter.

As discussed in Chapter IV, a second researcher coded 20% of the letters to shareholders in the sample. This dissertation checks for agreement between the two coders to reduce the probability of bias in coding. The second coder reviewed all firms in the food industry (SIC Codes 2000-2099) and the electronics industry (SIC Codes 3600-3699). The two coders achieved 100% agreement on the presence of attributions in a letter to shareholders. Combined, the food and electronics industries contain 133 firms. The second coder confirmed that, of these 133 firms, 97 produced letters to shareholders. These 97 firms account for 21% of the 458 firms in this study that generated attributions in their letters to shareholders. Furthermore, the second coder confirmed that these 97 letters contained 1,526 attributions. These 1,526 attributions account for 22% of the total of 1,554 attributions, or 22% of the total attributions in the study.

The two coders produced just under 100% agreement on the type of attributions in the letters in the study. The two coders agreed on 1,552 of the 1,554 attributions, an agreement rate of 99.87%. The two attributions on which the coders disagreed were retained in the analysis to avoid altering the number or proportion of attributions in each letter. At random, one of these two attributions was coded as indicated by coder number 1 and the other was coded as indicated by coder number 2.

Distribution of Dependent Variable

As discussed in Chapter IV, although both enhancement and blame are observed across the full range of their distributions, these variables are frequently observed at the bounds of their range. Chapter IV drew this conclusion based on analysis of a subsample of the data. Analysis of the entire sample confirms this tendency. Enhancement is most often observed at its upper limit, 1. Combining letters from both years of the study results in 904 observations of the percentage of enhancement and blame. Of the 904 observations of enhancement, 232 or 26% are at the upper limit of 1. Conversely, blame is most often observed at its lower limit of 0. Of the 904 observations of blame, 488 or 54% are at the lower limit of 0. Figure 5 presents a histogram of enhancement and blame for all sample firms.

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Figure 5: Histograms of Enhancement and Blame (n=904)
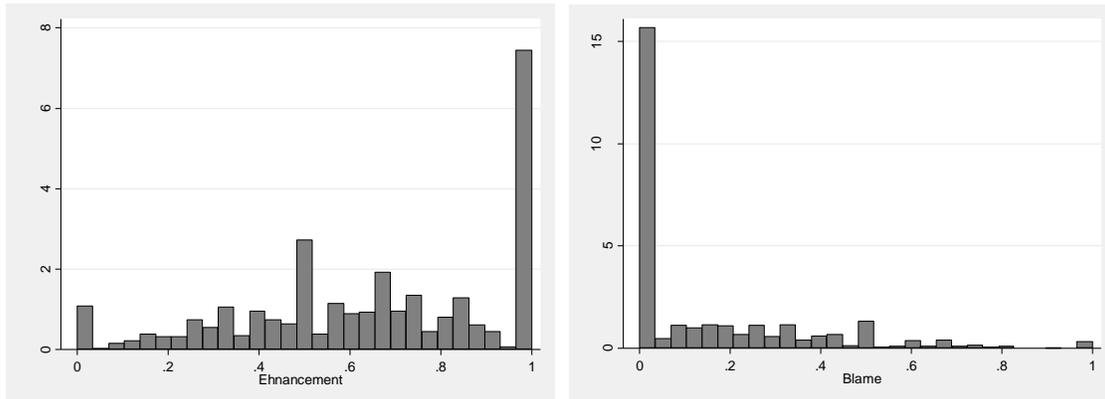
These skewed distributions of enhancement and blame, with their mode at one extreme of their bounds, likely result in part from firms' intention to improve their image through extensive use of enhancement or to defend their image through extensive use of blame. However, this skewed distribution could also result in part from enhancement and blame's non-continuous distribution. Although both enhancement and blame can theoretically take any value from 0 to 1, the number of attributions in a letter to shareholders limits the number of values that each variable can take. Mathematically, if the number of attributions in a letter is defined as "a", enhancement and blame can each take "a + 1" possible values. For example, in a letter that contains one attribution, enhancement and blame can take only two values: 0% or 100%. In a letter with two attributions, enhancement and blame can only take three values: 0%, 50%, or 100%. In a letter with three attributions, enhancement and blame can take four values: 0, 33%, 66%, or 100%. Etc. These limitations make enhancement and blame "chunky" measures and may prevent them from providing a fully nuanced measure of a firm's attribution of its performance.

Such "chunky" variables may provide a poor measurement of a firm's genuine assessment of its performance. If letters to shareholders contained more total attributions, it is possible that fewer letters would be observed with enhancement of 100% and blame of 0%. This dissertation tests this possibility by comparing letters with 1 or more attributions (n=904), against letters with 5 or more attributions (n=591), against letters with 10 or more attributions (n=271) to see if similar proportions of each group use100% and enhancement and 0% blame. All comparisons are conducted on a pooled sample of letters over two years. If letters with more attributions less frequently use 100% enhancement and 0% blame, then this "chunky" distribution may inadequately measure firms' assessment of their performance.

Analysis shows that letters with more attributions less frequently use enhancement of 100% and blame of 0%. Figure 6 presents histograms of enhancement and blame for letters that contain 5 or more attributions. In this first subsample, 57 firms or 9% of the subsample used 100% enhancement, down from 26% in the full sample. Similarly, in this first subsample, 247 firms or 42% of the subsample used 0% blame, down from 54% in the full sample.

Figure 6: Histograms of Enhancement and Blame, Attributions >5 (n=591)
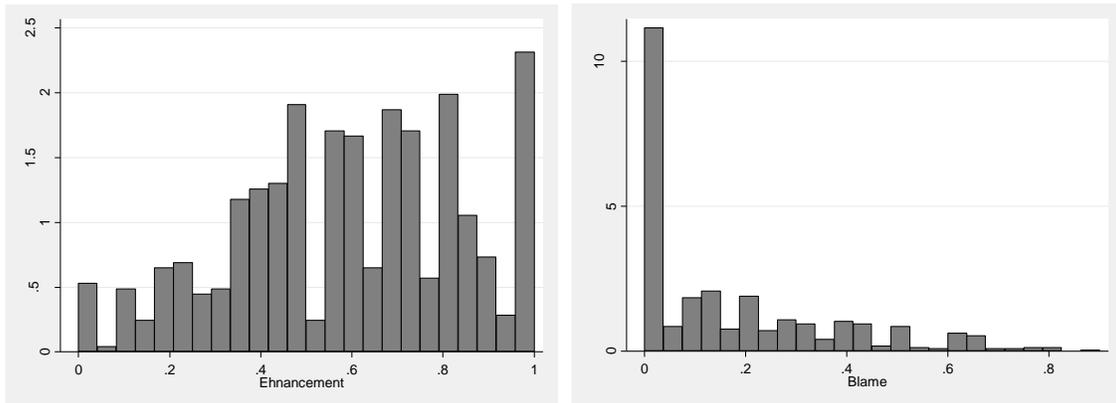
Figure 7 presents histograms of enhancement and blame for letters that contain 10 or more attributions. In this second subsample, only 8 firms or 2% of the subsample used 100% enhancement. Similarly, only 80 firms, or 30% of the subsample, used 0% blame.

Figure 7: Histograms of Enhancement, Attributions >10 (n=271)
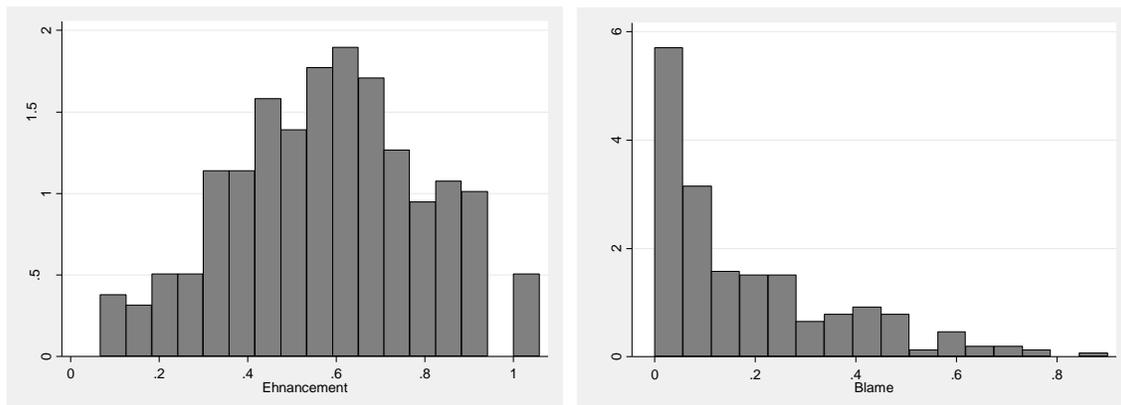
In light of these findings, this dissertation conducts empirical analysis on letters with 5 or more attributions. Optimal empirical analysis depends on the quality and the quantity of data used in statistical analysis. Including all letters with 5 or more

attributions provides a much more normally distributed dependent variable, increasing

the reliability of conclusions drawn on regression analysis. In addition, including all

letters with 5 or more attributions preserves a large enough quantity of data that the

analysis can reasonably be expected to produce significant findings. It would be valuable

to conduct a future study with a larger number of letters to shareholders. Such a study

could reasonably restrict its quantitative analysis to letters to shareholders with 10 or

more attributions. This will reduce the risk of drawing conclusions based on the

"chunky", non-continuous distribution of the dependent variables, enhancement and

blame. This dissertation will check the robustness of these findings through analysis of

the entire sample.

Graphic Representations of Data

Researchers often use graphic representations of data to gain insight into the

relationship between dependent and independent variables. As this dissertation uses

multiple independent variables and control variables, it does not present all data for all

variables in one graph. Rather, this dissertation presents the focal dependent variables,

Enhancement or Blame, with each of the three measures of performance. These graphs

reveal two things: first that the majority of the data cluster around the mean; second that

the data contains outliers.

Figure 8 presents Enhancement with Revenue Change. The graph on the left, Figure

8A, presents observations for the entire sample. This graph of all observations shows the

general distribution of the data and reveals that the majority of observations occur close

to the median of 14% revenue change. The graph on the right focuses on those

observations that fall close to the median to better illustrate their distribution. It presents

firms with Revenue Change from -1 to 1, which account for 96% of all observations.

Figure 8: Enhancement on Revenue Change

8A: All Observations　　　　　　　　　　**8B: 96% of Observations**
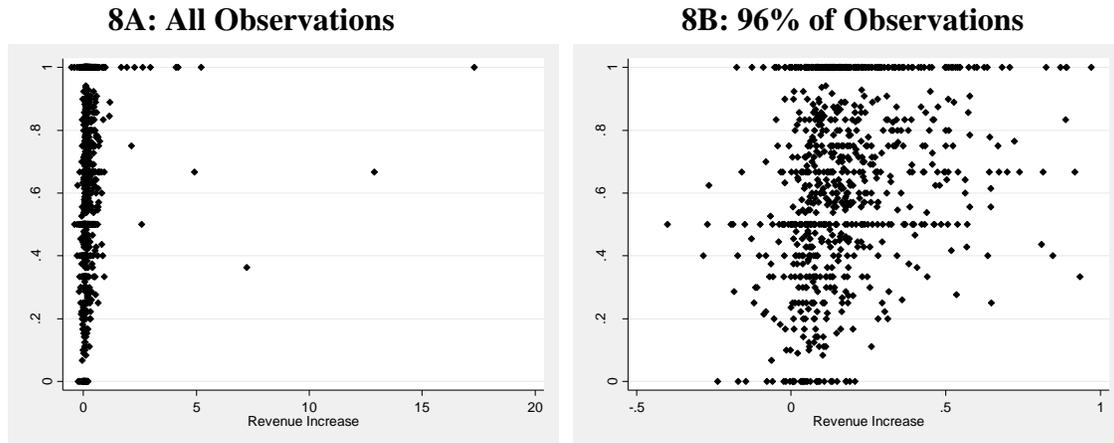
Figure 9 presents similar information for Blame, representing all observations in

Figure 9A and 96% of observations in Figure 9B. Descriptive statistics for these 96% of

observations presented in Figures 9B and 9B are mean 17%, median 13%, standard

deviation 18%.

Figure 9: Blame on Revenue Change
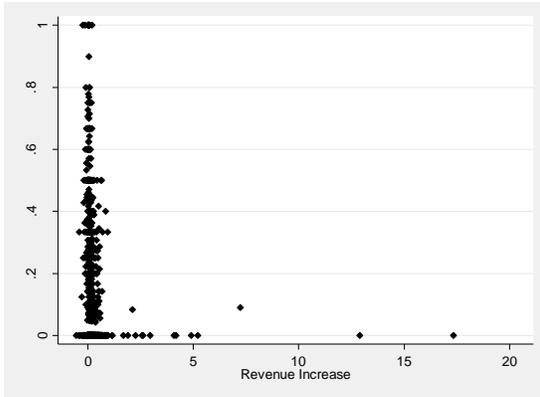
9A: All Observations   **9B: 96% of Observations**
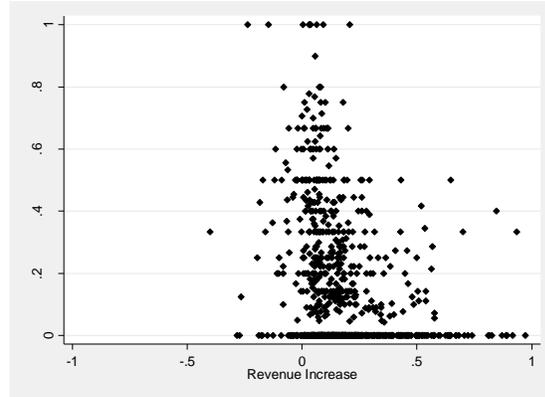
Figures 10 and 11 present the same information for EPS Change. Figures 10A and

11A present all values of EPS Change. Figures 10B and 11B present values over the

range -20 to 20. Descriptive statistics of this sample that represents 96% of all

observations are mean .51, median .20, standard deviation 2.41.

Figure 10: Enhancement on EPS Change

10A: All Observations   **10B: 96% of Observations**
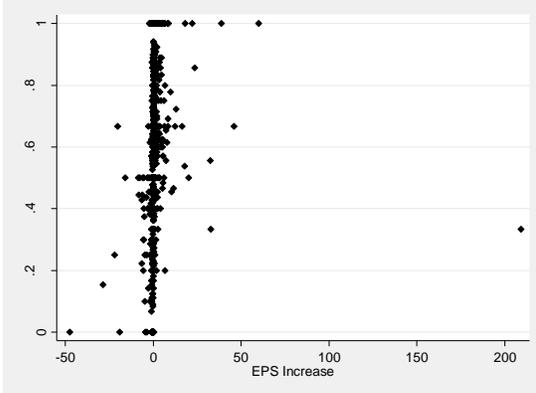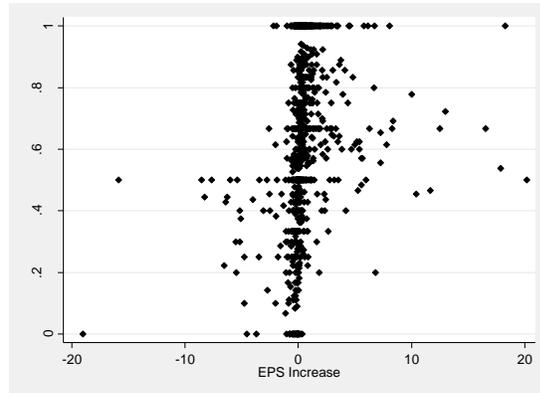
Figure 11: Blame on EPS Change

11A: All Observations   **11B: 96% of Observations**
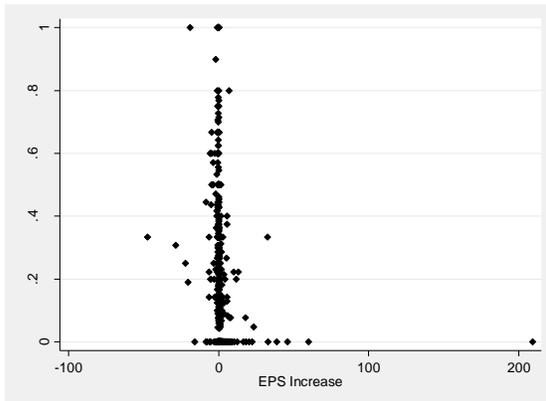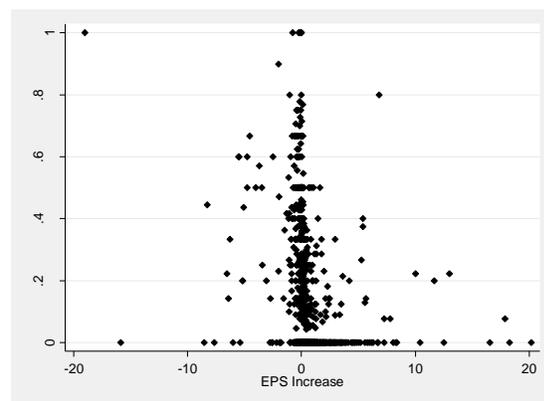
Figures 12 and 13 present the same information for Profitability. Figures 12A and 13A present all values of profitability. Figures 12B and 13B present values over the range -1 to 1. The descriptive statistics of this sample that represents 96% of all observations are mean .06, median .06, standard deviation .10.

Figure 12: Enhancement on Profitability

12A: All Observations
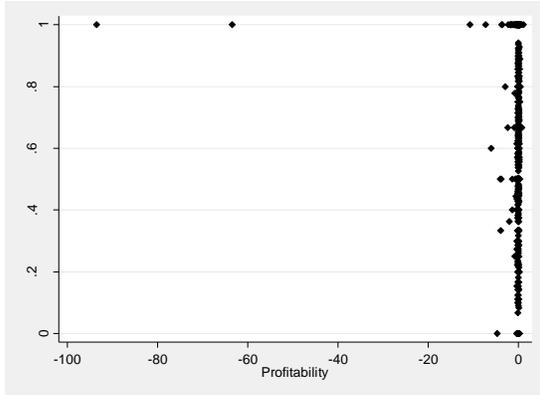
12B: 96% of Observations
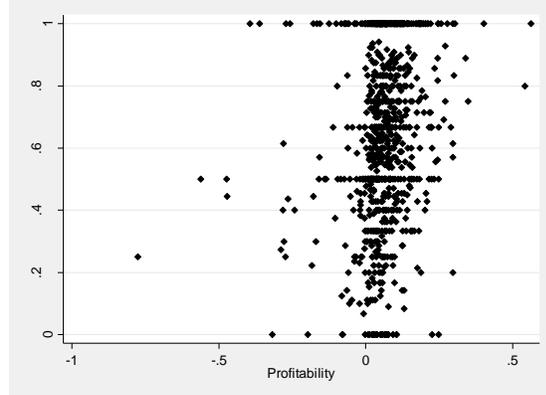
Figure 13: Blame on Profitability

13A: All Observations
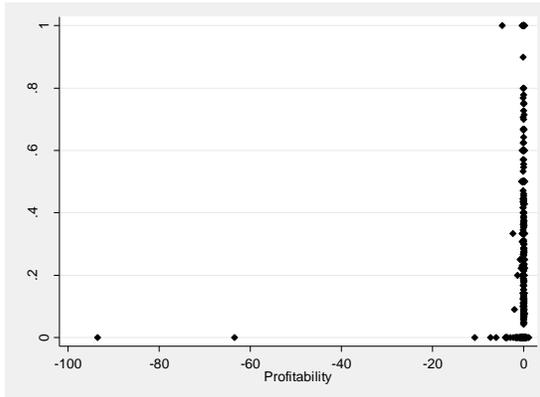
13B: 96% of Observations
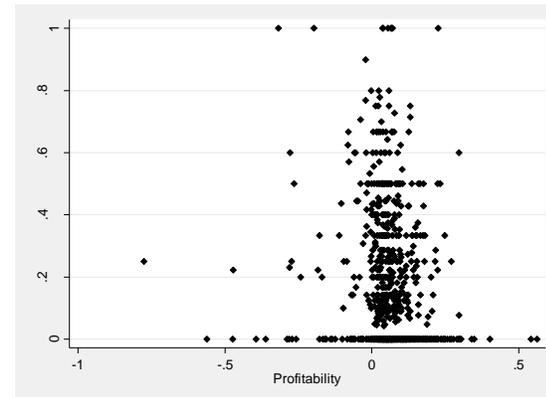
These visual depictions of observations of the three key measures of performance suggest that a small number of outliers significantly change both the visual representation of the data and the sample's descriptive statistics. Consequently, empirical analysis will be conducted on a trimmed sample that removes the most extreme 4% of observations (approximately 2% removed from each tail). These visual descriptions also make clear

that observations of the independent variable bunch around the sample mean. In contrast, observations of the dependent variables, Enhancement and Blame, range much more freely from one extreme to the other (0 to 1).   This clustering of data around a small range could be the result of a discontinuity in the dependent variable close to the mean value of the independent variable.

Primary Sample

Designation of Primary Sample

This dissertation began by collecting data on 769 firms over two years for a total of 1,538 firm-years. However, these 769 firms and 1,538 firm-years yielded only 336 firms and 562 letters that provide adequate data for analysis. Hereinafter, this dissertation refers to the dataset of these 336 firms and 562 letters as the primary sample. This dissertation uses the entire primary sample in between-firm analysis. Table 22 and the text below it explain the development of this dissertation's primary sample which it uses in between-firm analysis. Table 22 also presents information on the 215 firms that contributed letters to the primary sample in both 2004 and 2005. This dissertation uses these 215 firms in within-firm analysis.

Numerous factors contributed to the number of observations in the primary sample. First, many firms did not produce letters to shareholders in one or both years of the study: only 615 of the 769 firms (80%) produced letters to shareholders. These 615 firms produced 1,052 letters to shareholders, representing 68% of the total 1,538 firm-years for which data were collected. Second, many of the firms that produced letters to shareholders did not make attributions in their letters: only 480 firms (62%) produced

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Table 22: Development of Primary Sample

Filter	Number of Firms	%	Number of Letters	%
Data collected on firm	769	100%	1538	100%
Firm produced letter to shareholders	615	80%	1052	68%
Firm's letter contains attributions	480	62%	903	59%
Firm's letter contains 5 or more attributions	364	47%	591	38%
Firm without extreme performance	336	44%	562	37%
5 or more attributions in 2004 & 2005	215	28%	430	28%

letters to shareholders that contain attributions. These 480 firms produced 903 letters to shareholders that contain attributions, or 59% of the total number of firm years. Hereinafter, this dissertation will refer to these 480 firms and the 903 letters to shareholders that they produced as the full sample. Third, due to the "chunky" nature of the distribution of the dependent variable, this dissertation will limit its analysis to letters that contain 5 or more attributions: only 336 (44%) produced letters with 5 or more attributions. These 336 firms produced 562 letters with 5 or more attributions, or 37% of the number of firm years (277 firms in 2004 + 285 firms in 2005 = 562 firm years). Eliminating letters with fewer than 5 attributions results in 591 letters to shareholders, or 38% of the total number of firm years. Fourth, to reduce noise in the sample, this dissertation eliminates letters produced by firms in a year of extreme performance, resulting in 562 letters, or 37% of the total of firm years. This dissertation conducts between-firm analysis on this pool of 562 letters produced in 2004 and 2005.

It is important to note that many of these 562 letters were not produced by the same firms. Only 215 of the 336 firms in the primary sample produced letters in both 2004 and

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2005: 58 of the 336 firms produced a letter only in 2004 and 62 firms produced a letter only in 2005. In between-firm analysis, this dissertation uses pooled data from all 562 letters in the primary sample. In within-firm analysis, this dissertation only uses letters from those firms that produced a letter in the primary sample in both 2004 and 2005. This reduction to 215 firms and 430 letters represents 23% of the 769 firms and the 1,538 firm years for which data were collected.

In addition to conducting analysis on this primary sample, this dissertation will conduct robustness checks using all 903 letters to shareholders in the dataset that included attributions. This larger dataset includes letters to shareholders with fewer than 5 attributions and letters produced by firms with extreme performance measures. Hereinafter, this dissertation will refer to this dataset with 903 observations as the full sample.

The 336 firms in the primary sample fairly represent the 769 firms for which data were collected. Table 23 breaks these firms down by industry. Table 23 shows that no one industry dominates the primary sample.

Table 23: Primary Sample by Industry

Industry	2 Digit SIC Code	# of Firms in Industry	% of Industry	# of Firms in Primary Sample	% of Primary Sample
Food & Beverage	20	31	4%	21	6%
Apparel	23	8	1%	5	1%
Furniture	25	10	1%	5	1%
Paper	26	30	4%	25	7%
Printing	27	22	3%	16	5%
Chemicals	28	202	26%	52	15%
Petroleum	29	22	3%	14	4%
Rubber	30	5	1%	3	1%
Shoes	31	12	2%	4	1%
Glass	32	20	3%	16	5%
Steel	33	16	2%	5	1%
Metals	34	11	1%	8	2%
Machinery	35	198	26%	68	20%
Electrical	36	106	14%	53	16%
Transport	37	53	7%	32	10%
Specialized	38	23	3%	9	3%
Total	NA	769	100%	336	100%

Analysis of Independent Variable

Table 24 presents descriptive statistics for the primary sample. The text below Table 24 compares these values to those presented above for the full sample in Table 15.

Table 24: Descriptive Statistics for Primary Sample in 2004

Measure	Obs.	Mean	Median	Std. Dev.	Min	Max
Revenue ($MM)	277	8,438	1,401	27,022	30	263,989
Net Income ($MM)	277	585	70	2,269	-1,536	25,330
EPS ($)	277	1.84	1.45	2.87	-12.26	34.59
Assets ($MM)	277	12,204	1,394	58,389	20	750,507
Equity ($MM)	277	3,258	596	10,033	-622	110,821
Revenue Change	277	19%	15%	17%	-28%	84%
EPS Change	275	87%	31%	222%	-640%	1655%
Profitability	277	7%	6%	8%	-47%	34%
ROA	277	6%	6%	7%	-23%	32%
ROE	277	33%	14%	325%	-480%	5550%
CEO Tenure (years)	277	6.94	5.0	6.93	0	50
Size (m. value $MM)	277	9,977	1,547	35,396	65	386,402
Acquisition (yes/no)	277	0.28	0	0.52	0	1

Comparative analysis between the primary sample and the full sample demonstrates many differences. Firms in the primary sample had higher means on most variables. On only two variables did the primary sample lower values: Revenue Change and CEO tenure. However, statistical analysis demonstrates that none of these differences, positive or negative, are significant.

Analysis of Dependent Variable

To ascertain whether firms in the primary sample use attribution differently than other firms, this section compares attribution by firms in the primary sample those in the full sample. The 562 letters in the primary sample contain 5,915 attributions. Table 25 below presents the number and type of each of the four types of attribution in the primary sample.

Table 25: Attributions by Type

		Locus of Causality		
		Internal	**External**	**Total**
Direction of Influence	**Positive**	Enhancement Total = 3,519 Mean = 6.3 Std. Dev. = 4.3 59.5%	Good Fortune Total = 940 Mean = 1.7 Std. Dev. = 2.3 16%	Positive Total 4,459 Mean = 8.0 Std. Dev. = 6.0 76%
	Negative	Self-Criticism Total = 425 Mean = 0.8 Std. Dev. = 1.3 7%	Blame Total = 1,031 Mean = 1.8 Std. Dev. = 2.6 17.5%	Negative Total = 1,456 Mean = 2.6 Std. Dev. = 3.2 24%
	Total	Total Internal Total = 3,944 Mean = 7.1 Std. Dev. = 4.4 67%	Total External Total = 1,971 Mean = 3.5 Std. Dev. = 3.9 33%	

Firms in the primary sample use attribution in much the same way as firms in the full sample. As would be expected, on average firms in the primary sample use more attribution. However, firms in the primary sample use the same proportions of the different types of attribution as firms in the full sample. Only small changes in the proportion of each type of attribution occurred: the percentage of Self-Criticism increased from 6% to 7%, and the percentages of Enhancement and Blame each fell by .5%. However these differences are not statistically significant.

Independent Variables - Performance

This dissertation's independent variable, achievement of aspired performance, relates to firm performance. This dissertation first describes the distribution of firms' financial performance and then describes the distribution of firms' achievement of aspired performance levels.

Accounting Measures of Financial Performance

Tables 26-28 present measures of financial performance for firms in the full sample, respectively for 2004, 2005, and the two years combined. Consistent with strong growth in the overall economy in 2004 and moderate growth in 2005, sample firms show stronger financial performance in 2004 than in 2005. Sales and earnings grew more rapidly in 2004, as evidenced by higher Revenue Change, earnings increase, and EPS Change in 2004. Nevertheless, on average firms continued to grow revenue and earnings in 2005. Furthermore, firms controlled production costs in 2005, as evidenced by higher profitability and ROA in 2005 than in 2004.

Sample firms also show large differences between mean and median values. Mean values for revenue, Revenue Change, EPS, EPS Change and ROE are markedly higher than median values. This indicates that a small number of firms have very high values in these measures. In contrast, mean values for profitability are markedly lower than the median values. This indicates that a few firms recorded exceptionally low profitability. Further examination of this dissertation's data identified the causes of many of these differences between mean and median values. Firms in drug development and biotechnology achieved the exceptionally high measures of Revenue Change and the

exceptionally low measures of profitability present in the data.   Firms in oilfield services

and small firms in a variety of other industries achieved the exceptionally high measures

of EPS Change that are present in the data. Firms with large and sudden declines in

equity account for the exceptionally large ROE measures that are present in the data.

Though unusual, these extreme values accurately reflect these firms' performance as

described in corporate annual reports.

Table 26: 2004 Financial Measures of Full Sample

Variable	Obs.	Mean	Median	Std. Dev.	Min	Max
Revenue	277	8,438	1,401	27,022	30	263,989
Revenue Change	277	19%	15%	17%	-28%	84%
EPS	277	1.84	1.45	2.87	-12.26	34.59
EPS Change	275	87%	31%	2.22%	-640%	1655%
Profitability	277	7%	6%	8%	-47%	34%
ROA	277	6%	6%	7%	-23%	32%
ROE	277	33%	14%	325%	-480%	5550%

Table 27: 2005 Financial Measures of Full Sample

Variable	Obs.	Mean	Median	Std. Dev.	Min	Max
Revenue	285	$8,329	$1,656	$24,483	$32	$190,215
Revenue Change	285	17%	11%	28%	-40%	280%
EPS	285	$1.84	$1.59	$4.15	-$32.92	$32.59
EPS Change	284	41%	11%	508%	-4,727%	3283%
Profitability	285	6%	6%	9%	-30%	54%
ROA	285	6%	6%	8%	-42%	39%
ROE	285	39%	13%	321%	-192%	5,313%

Table 28: Combined 2004 and 2005 Financial Measures of Full Sample

Variable	Obs.	Mean	Median	Std. Dev.	Min	Max
Revenue	480	$7,860	$1,404	$24,553	$21	$263,989
Revenue Change	480	19%	15%	17%	-28%	84%
EPS	480	$1.87	$1.49	$2.77	-$12.26	$34.59
EPS Change	480	82%	28%	249%	-2200%	2016%
Profitability	480	6%	6%	8%	-47%	34%
ROA	480	6%	6%	7%	-23%	39%
ROE	480	26%	13%	239%	-480%	5,550%

Achievement of Performance Aspirations

As discussed in the literature review in Chapter II, firms create aspirations in relation to two benchmarks: social benchmarks and historical benchmarks. Firms that perform better than their peers achieve their social aspiration. This dissertation uses the abbreviation "S" to refer to social aspirations. Firms that perform better than their own past performance achieve their historical aspiration. This dissertation uses the letter "H" to refer to historical aspirations. Chapter II also mentions that firms can assess their performance like high jumpers with a dichotomous assessment of performance, or like golfers with a continuous assessment of performance. This dissertation uses the abbreviation "D" to refer to dichotomous assessments of performance. When assessing performance relative to aspiration in a dichotomous manner, this dissertation codes achievement of aspiration as "1" and failure to achieve aspiration as "0". This dissertation uses the abbreviation "C" to refer to continuous performance. When assessing performance relative to aspiration in a continuous manner, this dissertation subtracts the firm's aspiration from its performance. First that surpass their aspiration

have a positive difference. First that fall short of their aspiration have a negative

difference. This dissertation uses these abbreviations to designate four types of

performance assessment: HD (historical dichotomous), HC (historical continuous), SD

(social dichotomous), and SC (social continuous).

Tables 29-31 present achievement of dichotomous aspirations, respectively, for 2004,

2005, and the pooled sample. The mean of each of these measures represents the

percentage of firms that achieved their aspired performance levels (firms that received a

1).

Table 29: Measures of Achievement of Aspirations in 2004 in Primary Sample

2004	Obs.	Achieved	Percent	Failed to Achieve	Percent
SD Revenue Change	277	147	.53	130	.47
SD EPS Change	277	147	.53	130	.47
SD Profitability	277	155	.56	122	.44
HD Revenue Change	277	200	.72	76	.28
HD EPS Change	277	151	.55	126	.45
HD Profitability	277	192	.69	85	.31

Table 30: Measures of Achievement of Aspirations in 2005 in Primary Sample

2005	Obs.	Achieved	Percent	Failed to Achieve	Percent
SD Revenue Change	285	151	.53	134	.47
SD EPS Change	285	148	.52	137	.48
SD Profitability	285	180	.63	105	.37
HD Revenue Change	285	108	.38	177	.62
HD EPS Change	285	108	.38	177	.62
HD Profitability	285	151	.53	134	.47

Table 31: Measures of Achievement of Aspirations in Primary Sample

2004 & 2005	Obs.	Achieved	Percent	Failed to Achieve	Percent
SD Revenue Change	562	298	.53	264	.47
SD EPS Change	562	295	.52	267	.48
SD Profitability	562	335	.60	227	.40
HD Revenue Change	562	308	.55	254	.45
HD EPS Change	562	259	.46	303	.54
HD Profitability	562	343	.61	219	.39

Tables 29-31 show a sharp contrast in firms' average achievement of social and historical performance levels from 2004 to 2005. The proportion of firms that achieved social aspirations was either stable or increased from 2004 to 2005: SD Revenue Change was stable, SD EPS Change dropped by 1%, and SD Profitability increased by 7%. In contrast, the proportion of firms that achieved historical aspirations dropped precipitously: HD Revenue Change dropped by 34%, HD EPS Change dropped by 16%, and HD Profitability dropped by 16%. These drops in the achievement of performance aspirations reflect broad economic trends: both the US and the global economies were stronger in 2004 than in 2005.

During the two year period, over 50% of sample firms achieved five of the six aspired performance levels. This suggests that, on average, these firms improved their performance from year to year and that these firms outperformed their peers. Only HD EPS Change has an achievement rate below 50% for the entire sample, as shown in Table 31. This low achievement rate for HD EPS Change suggests that firms had stronger EPS Change in 2003, resulting in a smaller number of firms than achieved their 2004 EPS

Change. In contrast, HD Profitability presents the highest achievement level for the

pooled sample at 61%. This high achievement level for HD Profitability suggests that

sample firms effectively controlled costs and achieved good profitability during the study

period.

Correlations

   With the above description of the distribution of the independent and dependent

variables, this analysis examines correlations between the two. Table 32 provides an

index of study variables and Table 33 presents correlations for these variables. It is

important to note that, although most variables in this table are continuous, six are

dichotomous. Those that measure high-jumper like achievement of performance

aspirations take only two values, 0 or 1. As a result, correlations between these six

binary measures and the continuous measures of enhancement and blame represent point-

biserial correlation coefficients. Mathematically, point-biserial correlation coefficients

are equivalent to Pearson correlations, however, it is valuable to recognize that the

correlation table contains both types of correlation.

Table 32: Index of Study Variables

Variable Type	Concept Measured	Variable Name
Dependent Variable	Attribution *Enhancement and Blame defined from 0 to 1*	Enhancement Blame
Independent Variable	Achievement of Aspiration *Dichotomous: fail = 0; achieve = 1* *HD = Historical Dichotomous* *SD = Social Dichotomous*	HD Profitability HD EPS Change HD Revenue Change SD Profitability SD EPS Change SD Revenue Change
Independent Variable	Difference Between Actual and Aspired Performance *Continuous* *Actual Performance - Aspired Performance* *HC = Historical Continuous* *SC = Social Continuous*	HC Profitability HC EPS Change HC Revenue Change SC Profitability SC EPS Change SC Revenue Change
Control Variable	Firm Characteristics	Size Age Industry CEO Tenure Acquisitions

Table 33 presents strong correlations between dependent variables and some independent variables. As predicted, both Enhancement and Blame show significant relationships with all six dichotomous measures of achievement of performance aspirations (HD and SD variables). Achievement of each of these "high jumper" type assessments of performance correlates with an increase in Enhancement (correlations of .198 to .457) and a decrease in Blame (correlations of -.205 to -.469). These correlations indicate that when firms achieve an aspired performance level they use more enhancement; and that when firms fail to achieve an aspired performance level, they use more blame. These results appear to provide

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Table 33: Correlation Table: Performance Aspirations with Attributions, n=562

#	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	Enhancement	1.000																				
2	Blame	-0.667	1.000																			
3	Profitabilty	0.267	-0.230	1.000																		
4	EPS Increase	0.236	-0.275	0.332	1.000																	
5	Revenue Inc	0.263	-0.336	0.171	0.243	1.000																
6	HD Profitaiblity	0.457	-0.469	0.224	0.437	0.207	1.000															
7	HD EPS Increase	0.353	-0.353	0.091	0.424	0.206	0.426	1.000														
8	HD Revenue Inc.	0.225	-0.255	0.023	0.129	0.408	0.163	0.252	1.000													
9	SD Profitability	0.198	-0.205	0.586	0.171	0.126	0.157	0.028	-0.002	1.000												
10	SD EPS Increase	0.379	-0.360	0.191	0.466	0.175	0.652	0.472	0.161	0.113	1.000											
11	SD Revenue Inc	0.224	-0.288	0.068	0.100	0.589	0.114	0.153	0.288	0.166	0.130	1.000										
12	HC Profitability	0.323	-0.346	0.463	0.555	0.243	0.514	0.415	0.136	0.208	0.457	0.113	1.000									
13	HC EPS Increase	0.156	-0.174	0.141	0.681	0.133	0.308	0.562	0.129	0.058	0.341	0.094	0.464	1.000								
14	HC Revenue Inc	0.146	-0.200	-0.012	0.147	0.542	0.143	0.272	0.678	0.039	0.158	0.336	0.207	0.225	1.000							
15	SC Profiability	0.243	-0.206	0.954	0.309	0.133	0.220	0.094	0.007	0.662	0.202	0.088	0.447	0.146	-0.015	1.000						
16	SC EPS Inc	0.223	-0.250	0.335	0.992	0.203	0.418	0.409	0.101	0.190	0.479	0.097	0.541	0.671	0.116	0.326	1.000					
17	SC Revenue Inc	0.219	-0.290	0.138	0.171	0.877	0.134	0.172	0.325	0.181	0.157	0.696	0.168	0.121	0.490	0.147	0.167	1.000				
18	Size	0.003	0.021	0.170	-0.019	-0.058	-0.026	-0.027	0.003	0.143	-0.058	-0.155	-0.011	-0.019	-0.047	0.167	-0.022	-0.122	1.000			
19	Age	0.012	0.038	0.083	-0.044	-0.181	-0.055	-0.043	-0.096	0.104	-0.016	-0.104	-0.076	-0.021	-0.035	0.105	-0.028	-0.145	0.240	1.000		
20	CEO Tenure	-0.054	0.044	0.091	-0.006	0.138	-0.023	-0.005	0.063	0.087	-0.007	0.049	0.003	-0.037	0.056	0.068	-0.011	0.107	-0.086	-0.179	1.000	
21	Acquisitions	0.094	-0.034	0.041	-0.031	0.181	-0.032	0.010	-0.008	0.105	-0.036	0.155	-0.116	-0.052	-0.019	0.026	-0.034	0.202	0.106	0.071	-0.005	1.000

Note: all correlations over 0.081 are significant at $p < .05$?

evidence in support of Hypotheses 1, that firms that achieve an aspiration use more enhancement than firms that fail to achieve an aspiration. These results also appear to provide support for Hypothesis 2, that firms that fail to achieve an aspiration use more blame than firms that achieve an aspiration.

As predicted, both Enhancement and Blame show significant relationships with all six continuous measures of the difference between actual and aspired performance (HC and SC Variables). Increases in each of these "golfer" type assessments of performance correlates with an increase in Enhancement (correlations of .146 to .323) and a decrease in Blame (correlations of -.174 and -.346). These correlations indicate that firms with higher performance in relation to aspirations use more Enhancement; and that firms with lower performance in relation to aspirations use more Blame. These results appear to provide support for Hypothesis 5a, that the further a firm's performance is above aspiration, the greater its use of enhancement to explain performance; and they appear to provide support for Hypothesis 5b, that the further a firm's performance is below aspiration, the lesser its use of enhancement to explain performance. These results also appear to provide support for hypothesis 6a, that the further a firm's performance is above aspiration, the lesser its use of blame to explain performance; and they appear to provide support for Hypothesis 6b, that the further a firm's performance is below aspiration, the greater its use of blame to explain performance.

Table 33 shows few significant correlations between control variables and dependent variables. Only Acquisition shows significant correlations: Acquisition has a significant correlation with Enhancement (.094) indicating that firms that make acquisitions use

more Enhancement. However, Table 33 does not show a significant relationship between acquisition and Blame.

Table 33 also presents correlations among independent variables. As expected, some independent variables correlate highly with each other. As would be expected, variables calculated from the same measure of performance correlate with each other. For example, HC Profitability shows a significant correlation with SC Profitability (.662) with HD Profitability (.514), and with SD Profitability (.220). Table 33 presently a similar pattern of significant correlations for the various assessments of Revenue Change and EPS Change.

Table 33 also presents many significant correlations between variables calculated from different performance measures. For example, HD Profitability correlates strongly with HD EPS Change (.426), with HD EPS Change (.652), and with SC EPS Change (.418).

These correlations among independent variables influence how they can be used effectively in regression analysis. Regression coefficients represent an independent variable's unique capacity to explain the dependent variable. When variables are combined in a single regression, collinearity reduces the beta coefficients of both variables and reduces the model's explanatory power (Kennedy, 2003). Consequently, this dissertation creates separate regression models to test different measures of performance (Profitability, Revenue Change, and EPS Change) and different scales for assessing firms' performance (historical vs. social and dichotomous vs. continuous).

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<u>Individual Mean Values</u>

Analysis of individual mean values of attribution percentages of firms that achieve and don't achieve their aspirations provides an initial quantification of the relationship between achievement of aspiration and attribution. It also indicates whether these two groups manifest differences. If these two groups present equivalent means, then this dissertation likely will not reveal differences in their use of attribution. In contrast, if these two groups present different means, then this dissertation could reveal a difference between the use of attribution by firms that achieve their aspirations and those who fail to do so.

Table 33 presents means of firms that failed to achieve aspired performance levels, means of firms that achieved aspired performance levels, and the results of a t-test that presents the statistical probability that these two means are equal. Table 34 reports statistics for Enhancement and Table 35 reports statistics for Blame.

Table 34 reveals that firms that achieve aspirations use more enhancement than firms that don't achieve aspirations. Firms demonstrate the greatest contrast in their use of enhancement in relation to aspirations derived from historical profitability: firms that achieve historical aspirations related to profitability use 23.7% more enhancement than firms that fail to achieve historical aspirations related to profitability. T-tests indicate that this difference is significant ($t(562) = 11.869$, $P<.0001$). Firms that fail to achieve social aspirations related to profitability demonstrate the least difference in use of enhancement: firms that achieve social aspirations related to profitability only use 10.2% more enhancement than firms that fail to achieve social aspirations related to profitability. Although this difference is modest, T-tests indicate that it is significant ($t(562) = 4.374$,

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Table 34: T-tests of Mean Use of Enhancement (n=562)

Measure of Performance	Mean of Firms that Failed to Achieve Aspiration (Std. Error)	Mean of Firms that Achieved Aspiration (Std. Error)	Difference in Mean Attribution	t-Value	Probability of Equivalent Mean
HD Revenue Change	0.533 (.017)	0.646 (.013)	0.114 (0.021)	5.367	p< .0001
SD Revenue Change	0.534 (0.015)	0.648 (0.012)	0.152 (0.021)	5.426	p<.0001
HD EPS Increase	0.514 (0.014)	0.693 (0.014)	0.179 (0.018)	9.052	p<.0001
SD EPS Increase	0.500 (0.016)	0.687 (0.012)	0.192 (0.020)	9.615	p<.0001
HD Profitability	0.451 (0.016)	0.688 (0.012)	0.237 (0.020)	11.869	p<.0001
SD Profitability	0.535 (.0167)	0.637 (.0134)	0.102 (0.021)	4.374	p<.0001

P<.0001). These results support Hypothesis 1, that firms that achieve a performance

aspiration use more enhancement that firms that fail to achieve a performance aspiration.

Table 35 presents a similar analysis of firms' use of blame in relation to their

achievement of aspired performance levels. Table 36 compares the mean use of blame

by firms that achieve aspirations and firms that fail to achieve aspirations.

Table 35 reveals that firms that fail to achieve aspirations use more blame than firms

that achieve aspirations. Firms demonstrate the greatest contrast in their use of blame in

relation to aspiration derived from historical profitability: firms that fail to achieve

historical aspirations related to profitability use 19.6% more blame than firms that

achieve historical aspirations related to profitability. T-tests indicate that this difference

is significant (t(562) = 11.524, P<.0001). Firms demonstrate the least difference in use of

enhancement in relation to social aspirations related to profitability:

Table 35: T-tests of Mean Use of Blame by Achievement of Aspiration (n=562)

Measure of Performance	Mean of Firms that Failed to Achieve Aspiration (Std. Error)	Mean of Firms that Achieved Aspiration (Std. Error)	Difference in Mean Attribution	t-Value	Probability of Equivalent Mean
HD Revenue Change	0.231 (0.014)	0.127 (0.010)	0.105 (0.017)	6.065	p< .0001
SD Revenue Change	0.237 (0.014)	0.119 (0.009)	0.174 (0.017)	6.965	p<.0001
HD EPS Increase	0.240 (0.013)	0.095 (0.009)	0.145 (0.016)	9.307	p<.0001
SD EPS Increase	0.251 (0.014)	0.104 (0.009)	0.149 (0.016)	8.986	p<.0001
HD Profitability	0.293 (0.015)	0.097 (0.008)	0.196 (0.017)	11.524	p<.0001
SD Profitability	0.224 (0.014)	0.140 (0.010)	0.085 (0.017)	4.802	p<.001

firms that fail to achieve social aspirations related to profitability only use 8.5% more blame than firms that achieve social aspirations related to profitability. Although this difference is modest, T-tests indicate that it is significant (t(562) = 4.802, P<.001). These results appear to provide support for Hypothesis 2, that firms that fail to achieve a performance aspiration use more blame than firms that achieve a performance aspiration.

Multiple Mean Values

This dissertation also investigates whether achievement of multiple aspirations influences firms' use of attribution. Do firms that achieve multiple aspirations use attribution differently than firms that achieve only one aspiration? For example, do firms that achieve two aspirations use more enhancement than firms that achieve only one

aspiration? This dissertation begins to answer these questions by calculating the total

number aspirations that each firm achieves. The following analysis creates a new

variable that sums the number of aspirations that each firm achieves. Each firm can

achieve as many as six aspirations: Historical Revenue Change, Social Revenue Change,

Historical EPS Change, Social EPS Change, Historical Profitability, and Social

Profitability. This new variable, Aspirations Achieved, is defined over the range 0 to 6

and can take the value of any whole number in that range. This dissertation calculates the

mean values of Enhancement and Blame for firms with the same value for Aspirations

Achieved. For example, firms that achieved a total of 5 aspirations used 78%

Enhancement and 5% Blame. Table 36 presents the results of this analysis.

Table 36: Means of Enhancement and Blame by Number of Aspirations Achieved

Aspirations Achieved	Observations	Enhancement	Blame
0	45	35%	39%
1	67	33%	37%
2	81	51%	25%
3	96	64%	15%.
4	117	71%	9%
5	100	72%	7%
6	56	68%	6%
Total/Average	562	59%	17%

In Table 36, there is no significant difference in the mean use of Enhancement or

Blame between firms that achieved 0 aspirations or 1 aspiration. In addition, there is no

significant difference between the mean use of Enhancement or Blame of firms that

achieved 4, 5, or 6 aspirations. However, a significant difference in firms' use of

enhancement and blame exits at the p < .001 level between firms that achieve 1 and 2 aspirations, 2 and 3 aspirations, and 3 and 4 aspirations.

Figure 14 presents the same data in visual form. As the amount of attribution in a letter to shareholders may jump with the achievement of performance aspiration, Figure 14 presents these data as points rather than as lines.

Figure 14: Means of Enhancement and Blame by Number of Aspirations Achieved
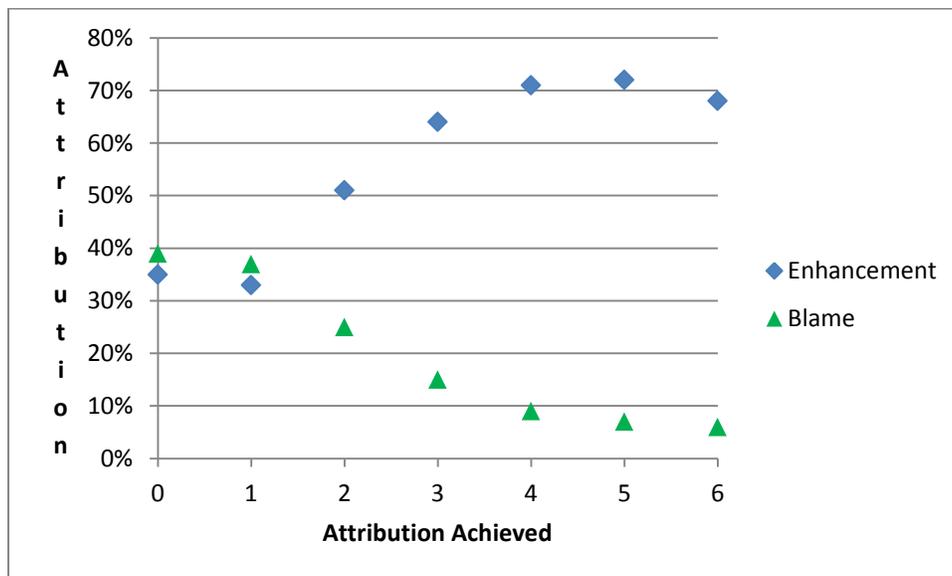
Figure 14 makes clear that firms that achieve 0 or 1 aspirations use approximately the same amounts of Enhancement and Blame. It also makes clear that firms that achieve 4, 5, and 6 aspirations use approximately the same amount of Enhancement and Blame. However, Figure 14 visually illustrates how firms that achieve 2, 3, and 4 aspirations use progressively more Enhancement and progressively less Blame. These results appear to provide partial support for hypothesis 3, that the more performance aspirations a firm achieves, the more enhancement it uses to explain performance. These results also

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appear to provide partial support for Hypothesis 4, that the fewer performance aspirations a firm achieves the more blame it uses.

Conclusions from Descriptive Statistics

These descriptive statistics provide insight on this dissertation's primary sample and appears to provide support for each of this dissertation's hypotheses. This insight also provides parameters for the regression analysis conducted in the balance of this chapter. Before undertaking regression analysis, this dissertation summarizes six findings from its descriptive analysis.

First, some firms have extreme values for the independent variables related to performance. To eliminate the influence of these outliers, this dissertation removes approximately 4% of the sample, 2% from each end of the distribution from its primary sample. This dissertation will conduct robustness checks with a full dataset that includes the firms with these extreme performance measures.

Second, analysis of the distribution of the dependent variable demonstrates that Enhancement and Blame are "chunky" variables: these variables accept a limited number of values based on the number of attributions in a given letter to shareholders. Consequently, letters with a small number of attributions present very rough and potentially inaccurate measures of the amount of enhancement or blame that the firm intends to present in its letter. As a result, this dissertation conducts primary analysis on letters that contain 5 or more attributions to provide more nuanced measures of Enhancement and Blame. This dissertation also conducts robustness checks on a full dataset that includes all letters to shareholders,

Third, the 277 firms in the primary sample are significantly larger and more efficient (higher profitability, ROA, & ROE) than the 615 firms in the full sample. In addition, the firms in the primary sample make more acquisitions than the firms in the full sample. In other respects, these two groups demonstrate similar characteristics. Most notably, although firms in the primary sample had higher profitability, ROE, and ROA than firms in the full sample, these firms had similar Revenue Changes and similar EPS Changes. The most notable distinguishing characteristic of firms in the primary sample is that they are larger and more efficient.

Fourth, the almost 6,000 observations of the dependent variable produced by firms in the primary sample show a good deal of variance, ranging from 0 attributions to 50 attributions in a single letter. Enhancement and Blame account for over 4,500 observations, or 77% of the primary sample. Both Enhancement and Blame range from their lower to their upper bounds (0 to 1 with averages of 59.5% and 17.5%, respectively.

Fifth, dependent and independent variables show significant correlations along relationships of interest. In addition, strong correlations between independent variables necessitate models that analyze these independent variables separately.

Sixth, the above descriptive analysis appears to provide support for each of this dissertation's hypotheses. Correlation analysis produced support for Hypothesis 5, that as firm performance improves relative to aspirations, firms use more enhancement. Correlation analysis also produced support for Hypothesis 6, that as firm performance decreases in relation to aspiration, firms use more blame. Both correlation analysis and t-tests of group means produced support for Hypothesis 1, that firms that achieve an aspiration use more enhancement than firms that don't. Correlation analysis and t-tests of

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group means also produced support for Hypothesis 2, that firms that don't achieve an aspiration use more blame than firms that do. Finally, analysis of the means of firms that achieved multiple aspirations produced support for hypothesis 3, that the more performance aspirations a firm achieves the more enhancement it uses to explain performance. The analysis of means also produced support for Hypothesis 4, that the fewer performance aspirations a firm achieves, the more blame it uses to explain performance.

Between-firm Analysis with Pooled Data

Between-firm analysis uses pooled cross-sectional data to establish differences between firms. It can provide a wealth of descriptive data to better understand the nuances of correlations between study variables. In contrast with the descriptive statistics presented above, between-firm analysis can simultaneously analyze the influence of multiple independent variables. Furthermore, it allows this analysis to estimate the magnitude of the relationship between variables.

However, it is important to note that between-firm analysis does not identify how achievement of aspiration influences the behavior of individual firms. It also does not control for endogeneity in unobserved firm characteristics (such as the effect of "good firms" on both achievement of performance aspirations and on attribution). As such, between-firm analysis cannot establish a causal effect of aspiration on attribution.

As mentioned in section 4, this dissertation's between-firm analysis uses the following equation.

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(equation 2) $\text{Attribution}_{it} = \alpha + \beta_1 \, (\text{Met})_{it} + \beta_2 \, (\text{Difference})_{it} + \beta_3 \, (\text{Met})_{it}*(\text{Difference})_{it}$

$$+ \beta_{4ijt} \, (\text{Controls})_{ijt} + \beta_{5jt} \, (\text{Year})_t + \varepsilon_{it}$$

As discussed in Chapter IV, terms in this equation have the following meanings:

- "Met" represents whether a firm achieved aspirations.

- "Difference" represents the difference between actual and aspired

  performance.

- "Controls" represent focal firm characteristics of firm size, firm age, CEO

  tenure, acquisitions, and industry dummies that are used as control variables.

  Each firm characteristic has a distinct coefficient, identified by β_{5j}, with a

  different "j" for each control variable.

- "Year" represents a fixed effect (dummy variable) that captures the difference

  in firm's use of attribution in different years.

This dissertation runs equation 2 separately on six sets of variables, each of which

tests one of the three measures of performance (profitability, EPS Change, and Revenue

Change) and one of the two types of aspiration (historical and social) along both

assessment models (dichotomous and continuous). This creates a total of 12 performance

assessments (3 measures x 2 aspirations x 2 assessments).

Model 1 contains only control variables. Models 2 - 7 each test one measure of

performance. Model 2 tests historical aspirations related to profitability. Model 3 tests

social aspirations related to profitability. Model 4 tests historical aspirations related to

EPS Change. Model 5 tests social aspirations related to EPS Change. Model 6 tests

historical aspirations relative to Revenue Change. Model 7 tests social aspirations

relative to Revenue Change. Each of these six models contains a dichotomous measure, a

continuous measure, and an interaction term. If the coefficient on the dichotomous measure is significant, then firms that achieve aspired performance measures use enhancement or blame differently than firms that don't achieve aspired performance measures. If the coefficient on the continuous measure is significant, then the difference between a firm's actual and aspired performance is related to its use of enhancement and blame. If the interaction term is significant, then a different relationship exists above and below aspiration.

This dissertation also conducts regressions that include multiple measures of performance. Models with multiple measures of performance allow this dissertation to investigate the use of attribution by firms that achieve multiple aspirations. Model 8 combines all six dichotomous measures of performance in a single equation. It tests the cumulative effect of achieving multiple aspirations. Model 9 combines all six continuous measures of performance in a single equation. It tests the cumulative effect of multiple differences between actual and aspired performance. Model 10 combines all of the variables in other models into a single estimate of firms' use of enhancement. It serves as a robustness check to assure that results in model 8 are not the result of omission of potentially relevant variables.

The following analysis applies these models to this dissertation's primary sample. As discussed above, the primary sample eliminates letters to shareholders with fewer than 5 attributions to smooth distribution of the dependent variable. The primary sample also eliminates the most extreme values of the independent variable, eliminating approximately the top 2% of values and the bottom 2% of values.

Analysis of Enhancement

Table 37 shows the results of regression analysis of models 1-9. Table 37 omits the 16 industry controls. The text following Table 37 discusses results for industry dummies.

Table 37: Between-Firm Tobit of Enhancing Attributions - Primary Sample

Model	(1) Controls	(2) Historical Profitability	(3) Social Profitability	(4) Historical EPS	(5) Social EPS	(6) Historical Revenue	(7) Social Revenue	(8) Combined Dichotomous	(9) Combined Continuous	(10) Combined All
B_1 - HD Profitability		0.196***						0.142***		0.122***
		(0.025)						(0.028)		(0.029)
B_2 - HC Profitability		1.120***							1.114***	0.331
		(0.312)							(0.421)	(0.401)
B_3 - HD*HC Profitability		-0.797**							-0.706	-0.265
		(0.368)							(0.506)	(0.470)
B_1 - SD Profitability			0.048					0.079***		0.029
			(0.031)					(0.021)		(0.027)
B_2 - SC Profitability			0.819***						-0.177	0.099
			(0.261)						(0.291)	(0.285)
B_3 - SD*SC Profitability			-0.110						0.758*	0.332
			(0.355)						(0.413)	(0.379)
B1 - HD EPS Change				0.213***				0.097***		0.124***
				(0.027)				(0.023)		(0.026)
B2 - HC EPS Change				0.003					0.000	-0.006
				(0.006)					(0.007)	(0.006)
B3 - HD*HC EPS Change				-0.012					0.000	-0.003
				(0.008)					(0.012)	(0.011)
B1 - SD EPS Change					0.178***			0.050*		0.045
					(0.024)			(0.028)		(0.028)
B2 - SC EPS Change					0.055***				0.044***	0.014
					(0.012)				(0.016)	(0.016)
B3 - SD*SC EPS Change					-0.0584***				-0.043**	-0.019
					(0.013)				(0.020)	(0.018)
B1 - HD Revenue Change						0.120***		0.043*		0.070**
						(0.032)		(0.022)		(0.028)
B2 - HC Revenue Change						0.016			0.054	-0.058
						(0.115)			(0.102)	(0.103)
B3 - HD*HC Revenue Change						-0.054			-0.215	-0.267*
						(0.163)			(0.176)	(0.161)
B1 - SD Revenue Change							0.042	0.070***		0.028
							(0.034)	(0.023)		(0.030)
B2 - SC Revenue Change							0.833***		0.726***	0.429*
							(0.244)		(0.201)	(0.224)
B3 - SD* SC Revenue Change							-0.609**		-0.428*	-0.167
							(0.264)		(0.249)	(0.247)
$B_{4.1}$ - CEO	-0.004**	-0.004**	-0.006***	-0.004**	-0.004***	-0.004***	-0.005***	-0.005***	-0.006***	-0.005***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.001)
$B_{4.2}$ - Acquisition	0.067***	0.079***	0.063***	0.059***	0.070***	0.069***	0.035	0.051***	0.053**	0.040**
	(0.023)	(0.020)	(0.022)	(0.021)	(0.020)	(0.022)	(0.022)	(0.019)	(0.021)	(0.020)
$B_{4.3}$ - Size	0.000	0.000	-7.00e-07*	0.000	0.000	0.000	0.000	-0.367***	-0.090	-0.089
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.128)	(0.127)	(0.117)
$B_{4.4}$ - Age	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.224	0.055	0.074
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.151)	(0.153)	(0.141)
$B_{4.5}$ - Year	-0.059**	-0.013	-0.064***	-0.022	-0.054***	-0.020	-0.059***	-0.532***	-0.199	-0.221*
	(0.023)	(0.021)	(0.022)	(0.022)	(0.021)	(0.024)	(0.022)	(0.142)	(0.144)	(0.132)
Constant	0.648***	0.533***	0.648***	0.906***	0.636***	0.544***	0.638***	0.727***	0.704***	0.504***
	(0.137)	(0.121)	(0.131)	(0.132)	(0.123)	(0.137)	(0.135)	(0.124)	(0.122)	(0.118)
Observations	562	562	562	562	562	562	562	562	562	562
Pseudo-R^2	0.182	0.597	0.335	0.434	0.551	0.253	0.328	0.767	0.568	0.867

*** p<.01, ** p<.05, * p<.1

<u>Individual Measures of Dichotomous Assessment of Performance</u>

Models 2-7 examine the relationships between individual performance measures and firms' use of enhancement. Each of the three coefficients in each of these models represents a different part of the relationship between performance relative to aspiration and firms' use of attributions. In Table 37, Coefficient β_1 tests the "high jumper" model of performance assessment and indicates whether firms that achieve their aspirations use enhancement differently than firms that don't achieve their aspirations. β_1 is positive and significant in four of the six models: HD Profitability, HD EPS Change, HC EPS Change, and HD Revenue Change. In each of these four models, β_1 is significant at the .01 level. These results provide partial support for Hypothesis 1, that firms that achieve a performance aspiration use more enhancement.

The magnitude of the coefficient for β_1 in each model indicates the extent to which firms that achieve an aspiration use more enhancement than firms that don't achieve that aspiration. For example, in model 2, β_1 equals .196, indicating that firms that achieve aspirations related to historical profitability use 19.6% more enhancement than firms that fail to achieve this aspiration. Comparing coefficient β_1 among models provides insight on the relative difference in the use of attribution by firms that achieve different performance aspirations. These β_1 coefficients show that firms that achieve HD-EPS Change produce letters with the most enhancement ($\beta_1 = 0.213$); firms that achieve HD-Profitability produce letters with the second most enhancement ($\beta_1 = 0.196$); firms that achieve SD-EPS Change produce letters with the third most Enhancement ($\beta_1 = 0.178$); firms that achieve HD-Revenue Change produce letters with the fourth most enhancement ($\beta_1 = .120$).

These results partially support Hypothesis 1, that firms that achieve their aspired performance levels use more enhancement. It is notable that all three historical aspirations were significant and only one social aspiration was significant for this "high jumper" like dichotomous assessment of performance.

Aspiration's Continuous Relationship with Attribution

This dissertation also measures the difference between actual and aspired performance in order to test the "golfer" model of performance assessment. A firm with a large positive difference between actual and aspired performance vastly surpassed its expectations. In contrast, a firm with a small positive difference between actual and aspired performance just barely surpassed its expectations. Similarly, a firm with a small negative difference between actual and aspired performance fell just short of its expectations. And, a firm with a large negative difference between actual and aspired performance fell far short of its expectations.

Coefficient β_2 indicates whether the difference between actual and aspired performance correlates with firms' use of enhancement. β_2 is positive and significant in four models: HC-Profitability, SC-Profitability, SC-EPS Change, and SC Revenue Change. β_2 is significant at the .01 level in each of these models. In these models, firms with higher actual performance in relation to their aspired performance used more enhancement. These results provide partial support of Hypothesis 2, that firms that fail to achieve a performance aspiration use less enhancement.

Coefficient β_2 can be compared across models, but only when the variables to which β_2 relates operate on the same scale. Regressions run on the same financial metric have

the same scale. Regressions run on different financial metrics have different scales. For example, HC Profitability ($\beta_2 = 1.12$) can be compared with SC Profitability but it cannot be compared to SC EPS Change or to SC Revenue Change. To compare across financial metrics, this dissertation standardizes each metric by calculating the influence of one standard deviation in change in firm performance on a firm's use of enhancement. Table 38 presents this standardization.

Table 38: Standardization of β_2 Coefficients for Enhancement, P<. 05

		Model 2 HC-Profit	Model 3 SC-Profit	Model 4 HC-EPS Change	Model 5 SC-EPS Change	Model 6 HC-Rev. Increase	Model 7 SC-Rev. Increase
β_2	Upper Bound	1.73	1.33	0.03	0.07	0.49	1.06
	Average	1.12	0.819	0.003	0.055	0.016	0.833
	Lower Bound	0.51	0.31	-0.02	0.04	-0.46	0.61
	Standard Deviation	0.08	0.08	2.22	2.22	0.17	0.17
Effect Size	Upper Bound	14%	11%	6%	15%	8%	18%
	Average	9%	7%	1%	12%	0%	14%
	Lower Bound	4%	2%	-5%	10%	-8%	10%

Table 38 shows that SC Revenue Change has the largest correlation with firm's use of enhancement. For example, if firm A's Revenue Change fell just short of its social aspirations and firm B's Revenue Change fell 0.17 (1 standard deviation) short of its social aspirations, firm A's performance explanations would be expected to contain 14% more Enhancement than firm B's. Similarly, if firm C's profitability fell just short of social aspirations and firm D's profitability fell 0.08 (1 standard deviation) short of social aspirations, firm C would be expected to use 7% more Enhancement than firm D. These

findings provide partial support for Hypothesis 5b, that the further a firm's performance is below aspiration, the lesser its use of enhancement to explain performance. These results do not, however, relate to Hypothesis 5a. To determine whether these results support Hypothesis 5a, this dissertation next analyzes coefficient β_3.

Rate of Change in Enhancement Above and Below the Aspired Performance Level

The coefficient on the interaction term, β_3, indicates whether the rate of change is the same above and below the aspired performance level. Below aspired performance the rate of change is equal to coefficient β_2. If β_3 is insignificant, than the rate of change above aspired performance is also β_2. If β_3 is significant, then above aspired performance, the rate of change equals $\beta_2 + \beta_3$. In other words, it indicates whether the rate of change in enhancement relative to the difference between actual and aspired performance changes at the aspired performance level. Figure 15 below illustrates these different rates of change. Figure 15A on the left depicts a constant rate of change, which occurs when β_3 is insignificant. In this case, β_2 is the slope both above and below aspired performance. Figure 15B on the right depicts a change in the rate of change, which occurs when β_2 is significant. In this case, β_2 is the rate of change below aspired performance and β_2 plus β_3 is the rate of change above aspired performance.

The difference between actual and aspired performance ($\beta2$) is significant in four models: models 2, 3, 5, 7. The interaction term ($\beta3$) is significant in three of these models: models 2, 5, & 7). Furthermore, in each of these three models, the interaction

Figure 15: Difference Between Actual and Aspired Performance on Enhancement

15A: β_3 is insignificant

15B: β_3 is significant

Aspiration

Aspiration

slope = β_2

slope = β_2 | slope = $\beta_2 + \beta_3$

E
n
h
a
n
c
e
m
e
n
t

Actual minus   Actual minus

Aspired   Aspired
= Negative   = Positive

Actual minus   Actual minus

Aspired   Aspired
= Negative   = Positive

Performance

Performance
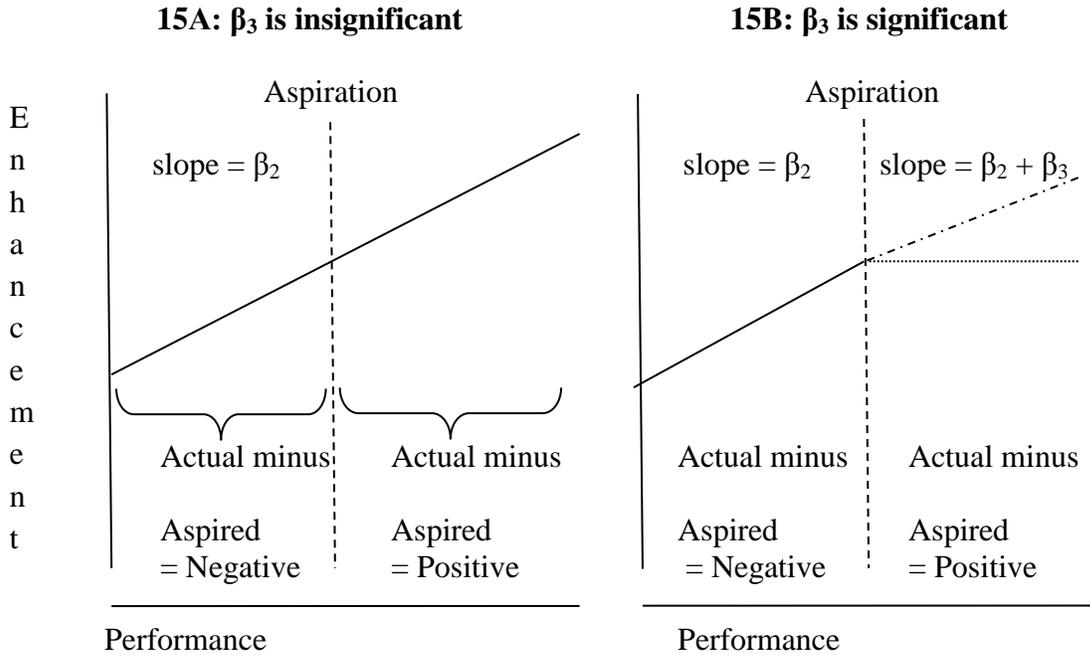
term (β_3) is negative, indicating that the rate of change is smaller above aspiration than it is below aspiration. In other words, in these regressions the line on the right hand side of the graph in Figure 15B is flatter than the line on the left hand side of the same graph. Table 39 calculates the slope of these lines that appear on the right hand side of the graph in Figure 15B.

Table 39: Continuous Performance Assessment & Enhancement, P< .05

		Model 2 HC-Profit	Model 3 SC-Profit	Model 4 HC-EPS Change	Model 5 SC-EPS Change	Model 6 HC - EPS Change	Model 7 SC-Rev. Increase
β_2	Upper Bound	0.93	1.22	-0.01	0.02	-0.04	0.70
	Average	0.32	0.71	-0.01	0.00	-0.04	0.22
	Lower Bound	-0.29	0.20	-0.01	-0.03	-0.04	-0.25
	Standard Deviation	0.08	0.08	2.22	2.22	0.017	0.17
Effect Size	Upper Bound	7.5%	9.8%	-2.0%	4.5%	-0.1%	11.9%
	Average	2.6%	5.7%	-2.0%	-0.8%	-0.1%	3.8%
	Lower Bound	-2.3%	1.6%	-2.0%	-6.0%	-0.1%	-4.3%

This analysis demonstrates that the difference between actual and aspired performance has a different relationship with enhancement when performance falls below aspiration than when it rises above aspiration. The results for coefficient β_2 in Table 38 show average slopes ranging from 7% to 14%, while the results for the sum of coefficients β_2 & β_3 in Table 39 show average slopes ranging from -2% to 6%. These findings provide partial support for hypotheses 5a and 5b. However, they provide much stronger support for hypothesis 5b. Below aspiration a strong relationship exists between enhancement and the difference between actual and aspired performance. Above aspiration a weaker relationship exists between enhancement and the difference between actual and aspired performance.

<u>Combined Models</u>

As mentioned above, models 8, 9 and 10 combine multiple measures of performance in a single regression analysis. These models analyze the relationship between achievement of multiple performance aspirations and firms' use of enhancement.

Model 8 analyzes dichotomous assessment of all six performance measures. In model 8, if coefficients on individual performance measures are significant, then firms that achieve multiple performance aspirations use more enhancement than firms that achieve only one aspired performance level. Model 8 reveals that all six measures of performance are significant when combined, indicating that each performance aspiration correlates with a cumulative increase in firms' use of enhancement. As expected, due to collinearity each β_1 coefficient in model 8 is smaller than the β_1 coefficient for the same performance measure in models 2-7. Nevertheless, the cumulative effect of the multiple measures can be seen in the Pseudo-R^2 of 0.77, which is higher than the Pseudo-R^2 in any of the models 2-7.

It is notable that β_1 in model 7, SD Revenue Change, was insignificant when analyzed as a single performance measure in model 7, but becomes significant in model 8. This change in significance is not due to the combination of multiple dichotomous assessments of different measures of performance in model 8. Rather it is due to the elimination of β_2, the continuous assessment of performance that was present in model 7. In the absence of β_2 SC Revenue Change, β_1 SD Revenue Change is significant. Analysis of model 8 provides partial support for hypothesis 3, that the more aspirations a firm achieves the more enhancement it uses.

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Model 9 analyzes the continuous assessment of all six performance measures. It assesses whether the effect of these continuous performance measures is also cumulative. In model 9, if coefficients on individual performance measures are significant, then firms that perform far below aspirations on numerous measures of performance use less enhancement than firms that perform far below aspiration on only one measure of performance. In model 9, three performance measures demonstrate statistical significance: HC Profitability, SC EPS Change, and SC Revenue Change. All three measures are significant at the 1% level. It is notable that coefficients β_2 in model 9 are close to the same size as the coefficients for the same measurement in models 2-7: these coefficients did not shrink as they did in model 8. Furthermore, the sizable Pseudo-R^2 value of .568 suggests the cumulative explanatory power of multiple continuous performance assessments. Comparing the Pseudo-R^2 values in model 8 (Pseudo-R^2 =. 767) and model 9 (Pseudo-R^2 =. 568) reveals that model 8 explains a greater percentage of variation in Enhancement than model 9.

Model 10 provides a robustness check for models 8 and 9. Model 10 combines all variables in models 1-9. It tests the cumulative effect of combining dichotomous and continuous models of performance assessment for all six performance measures. Variables that demonstrate significance in model 10 can be understood to have a correlation with firms' use of enhancement. No correlations in model 10 result from misspecification caused by the absence of other study variables, as was the case with β_1 - SD Revenue Change in model 8. Three variables related to dichotomous performance assessment demonstrate significance in model 10: β_1 - HD Profitability, β_1 - HD EPS Change, and, β_1 - HD Revenue Change. Only one variable related to continuous

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performance assessment demonstrates significance in model 10: β_2 - SC Revenue

Change. This analysis of model 10 confirms support for hypothesis 3 relative to

dichotomous performance assessment, but fails to confirm support for hypothesis 3

relative to continuous performance assessment.

Control Variables

   Numerous control variables also demonstrated significance in some models. First,

the variables New CEO was coded "1" if the firm has a CEO with less than 24 months at

the CEO position and "0" if the CEO had 2 years or more as the CEO. New CEO is

significant and negative in all models, indicating that firms with new CEOs produce

letters with more enhancement than firms with longer tenured CEOs. Second, as

expected, in most models firms that make acquisitions produced letters with more

enhancement in the year of the acquisition than firms that did not make an acquisition in

that year. This increased use of enhancement could represent a way that firms express

support for their acquisitions. Third, in six models the dummy variable for year is

negative and significant, indicating that firms used less enhancement in 2005 than in

2004. As most sample firms achieved superior performance in 2004 than in 2005, this

year-effect is not surprising. Fourth, in two models size was significant and negative,

indicating that larger firms use less enhancement than smaller firms. Finally, none of the

industry controls showed a consistent and significant effect on firms' use of attribution.

<u>Summary of Between-firm Analysis of Enhancing Attributions in Primary Sample</u>

In sum, this between-firm analysis of enhancing attributions in the primary sample finds partial support for Hypotheses 1, 3, and 5. For Hypothesis 1, it finds partial support for dichotomous, 'high jumper' performance assessment with significance in four of the six β_1 coefficients in Models 2-7. For Hypothesis 3, it finds full support for multiple dichotomous, 'high jumper' like performance assessment with significance in six of the six β_1 coefficients in Model 8. Finally, for Hypothesis 5a and 5b, it also finds partial support for continuous 'golfer' like performance assessments when firms perform above or below aspirations with significance in four of the six β_1 coefficients in Models 2-7. However, it finds much smaller magnitudes of effect above aspired performance (Hypothesis 5a) than below aspired performance (Hypothesis 5b).

<u>Robustness Test</u>

For robustness, this analysis tests these same ten models on all 903 firms that use attribution in their letters to shareholders in 2004 or 2005. This larger dataset includes many letters that contain from one to four attributions. As described above, letters with fewer attributions present less continuous (more "chunky") measures of enhancement. As a result, the Pseudo-R^2 values in the robustness test should be lower than the Pseudo-R^2 values in the initial analysis. In addition, as this larger sample contains extreme values of the firm performance, the independent variable, the coefficients in this robustness check could be higher than those in the initial analysis. Table 40 presents the results of this robustness check.

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Table 40: Between-Firm Tobit of Enhancing Attributions - Full Sample

Model	(1) Controls	(2) Historical Profitability	(3) Social Profitability	(4) Historical EPS	(5) Social EPS	(6) Historical Revenue	(7) Social Revenue	(8) Combined Dichotomous	(9) Combined Continuous	(10) Combined All
B_1 - HD Profitability		0.325***						0.188***		0.194***
		(0.026)						(0.033)		(0.033)
B_2 - HC Profitability		-0.158							-0.096	-0.319**
		(0.099)							(0.147)	(0.142)
B_3 - HD*HC Profitability		0.164*							0.091	0.323**
		-0.099							-0.155	-0.149
B_1 - SD Profitability			0.049					0.024		-0.002
			(0.032)					(0.025)		(0.028)
B_2 - SC Profitability			-0.046*						-0.038	0.011
			(0.026)						(0.039)	(0.035)
B_3 - SD*SC Profitability			0.726***						0.690***	0.351*
			(0.216)						(0.207)	(0.198)
B1 - HD EPS Change				0.241***				0.094***		0.119***
				(0.027)				(0.027)		(0.028)
B2 - HC EPS Change				0.000					-0.002	-0.008**
				(0.003)					(0.004)	(0.004)
B3 - HD*HC EPS Change				-0.003					0.007	0.004
				(0.004)					(0.007)	(0.007)
B1 - SD EPS Change					0.251***			0.079**		0.063**
					(0.025)			(0.032)		(0.031)
B2 - SC EPS Change					0.022***				0.035***	0.022***
					(0.006)				(0.008)	(0.006)
B3 - SD*SC EPS Change					-0.024***				-0.040***	-0.022**
					(0.006)				(0.010)	(0.008)
B1 - HD Revenue Change						0.131***		0.024		0.0446*
						(0.028)		(0.026)		(0.027)
B2 - HC Revenue Change						-0.060**			0.012	-0.026
						(0.026)			(0.034)	(0.031)
B3 - HD*HC Revenue Change						0.076**			-0.048	-0.013
						(0.032)			(0.092)	(0.083)
B1 - SD Revenue Change							0.179***	0.115***		0.105***
							(0.035)	(0.027)		(0.032)
B2 - SC Revenue Change							0.098		0.843***	0.130
							(0.235)		(0.214)	(0.240)
B3 - SD* SC Revenue Change							-0.077		-0.773***	-0.096
							(0.235)		(0.233)	(0.249)
$B_{4.1}$ - CEO	-0.003*	-0.003*	-0.004**	-0.003*	-0.004**	-0.003*	-0.004**	-0.004**	-0.005***	-0.004**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
$B_{4.2}$ - Acquisition	0.079***	0.091***	0.082***	0.081***	0.083***	0.077***	0.045*	0.068***	0.068***	0.065***
	(0.026)	(0.023)	(0.026)	(0.025)	(0.024)	(0.026)	(0.026)	(0.023)	(0.025)	(0.023)
$B_{4.3}$ - Size	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.138	-0.178	-0.118
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.123)	(0.158)	(0.143)
$B_{4.4}$ - Age	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.024	-0.072	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.145)	(0.179)	(0.161)
$B_{4.5}$ - Year	-0.054**	-0.007	-0.054**	-0.019	-0.049**	-0.016	-0.052**	-0.222	-0.209	-0.180
	(0.026)	(0.024)	(0.026)	(0.025)	(0.024)	(0.027)	(0.025)	(0.141)	(0.175)	(0.157)
Constant	0.761***	0.538***	0.755***	0.686***	0.697***	0.689***	0.662***	0.492***	0.819***	0.456***
	(0.130)	(0.118)	(0.157)	(0.152)	(0.119)	(0.128)	(0.129)	(0.116)	(0.151)	(0.141)
Observations	903	903	903	902	903	903	903	903	902	902
Pseudo-R^2	0.046	0.185	0.072	0.121	0.165	0.068	0.090	0.224	0.120	0.264

*** p<.01, ** p<.05, * p<.1

The robustness test in Table 40 provides further insight on initial analysis in Table 37. First, this robustness check affirms the relationship between dichotomous performance assessment (high jumper performance assessment) and enhancement. β_1 is positive and significant in five models (2, 4, 5, 6, and 7). This confirms the initial finding that firms

that achieve performance aspirations use more enhancement than firms that fail to achieve them. Only in model 2, SD Profitability, did firms that achieve aspirations not use significantly more enhancement than firms that did not achieve aspirations. Additional statistical analysis indicates that this loss of significance in model 2 results from the "chunky" measure of enhancement in letters with fewer than five attributions. Furthermore in the five models in which β_1 was significant, the magnitude of coefficient β_1 increased in each model. Additional statistical analysis indicates that these increased coefficients result from the inclusion of extreme values of performance. Despite these differences with the initial analysis of these models, this robustness check confirms partial support for Hypothesis 1, that firms that achieve performance aspirations use more enhancement than firms that don't achieve aspirations.

Second, this robustness test reveals sensitivity in the relationship between continuous performance assessment (golfer performance assessment) and enhancement. Coefficient β_2 represents this relationship between the difference between actual and aspired performance and firm's use of enhancement. In the initial analysis in Table 37, β_2 was positive and significant in four models: models 2, 3, 5, and 7. In this robustness check in Table 40, β_2 is only positive and significant in one model: model 5 the assessment of SC-EPS Change. β_2 is significant but negative in models 3 & 6: tests of SC-Profitability and HC-Revenue Change, respectively. Additional statistical analysis indicates that these changes in valence and the significance of coefficients β_2 result from the extreme values included in the robustness check. Change in valence between Tables 37 and 40 can be understood as sensitivity to extreme performance values: the result of a small number of observations, not as the result of a fundamental characteristic of the data. Consequently,

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this robustness check reveals that support for Hypothesis 5, the relationship between enhancement and the difference between actual and aspired performance, is sensitive to the data used to test it.

Third, the robustness test in Table 40 confirms that firms that achieve many aspirations use more enhancement than firms that achieve fewer aspirations. Model 8 tests the combination of all six dichotomous assessments of performance (coefficients β_1). In model 8, four β_1 coefficients demonstrate significance: only β_1 SD Profitability and β_1 HD Revenue Change do not. In the initial analysis, all six β_1 coefficients were significant. Additional analysis shows that this reduction in the number of significant coefficients in model 8 results from the "chunky" measurement of attribution in letters with fewer than five attributions. The results in model 8 confirm support for Hypothesis 3, that firms that achieve more aspirations use more enhancement than firms that achieve fewer aspirations. However, these results also reveal that this relationship may not hold in letters to shareholders with fewer attributions.

Fourth, model 9 in Table 40 provides further support for the robustness test in Table 40 and confirms the cumulative effect of the difference between actual and aspired performance on multiple performance measures. Model 9 tests the combination of all six continuous assessments of performance (coefficients β_2). In model 9, two β_2 coefficients are positive and significant: SC EPS Change and SC Revenue Change. Both are significant at the 1% level. In the initial analysis, three β_2 coefficients were positive and significant at the 1% level. Additional analysis shows that this reduction in the number of significant coefficients in model 9 results from the "chunky" measurement of

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attribution in letters with fewer than five attributions. The results in model 9 confirm

support for Hypothesis 3.

Fifth, Model 10 tests the combination of all independent variables in this dissertation.

In model 10 in Table 40, five of the six measures of β_1 are significant: only β_1 - SD

Profitability does not demonstrate a positive cumulative relationship with firms' use of

attribution. In the initial analysis of model 10 in Table 37, only four of the six measures

of β_1 were significant. These results provide support for the cumulative nature of

increases in enhancement with achievement of multiple performance aspirations. In

model 10, three of the six measures of β_2 are significant: β_2 - HC Profitability, β_2 - HC

EPS Change, and β_2 - SC EPS Change. In the initial analysis, only one β_2 coefficient is

significant. These results confirm that multiple differences between actual and aspired

performance has a cumulative effect on the relationship with enhancement. These results

in model 10 confirm support for hypothesis 3, that firms that achieve more aspirations

use more enhancement than firms that achieve fewer aspirations.

Finally, this robustness check reveals that the relative magnitude of coefficients is

sensitive to the changes in the data used to test each model. Different models produce the

largest coefficients for β_1 in the initial analysis and in the robustness check. In the

robustness check, HD Profitability produced the largest coefficient ($\beta_1 = .325$) and SD

EPS produced the second largest coefficient ($\beta_1 = .251$). In contrast, in the initial

analysis, HD EPS produced the largest coefficient ($\beta_1 = .225$) and HD Profitability

produced the second largest coefficient ($\beta_1 = .203$). These results indicate that the

relative size of coefficients for β_1 is sensitive to the data included in the analysis.

In sum, the robustness check on the full sample finds that firms that achieve aspirations use more enhancement than firms that fail to achieve them, confirming support for Hypothesis 1. It also finds that firms that achieve multiple aspirations use more enhancement than firms that achieve fewer aspirations, confirming support for Hypothesis 3. However, this robustness check does not support a relationship between firms' use of enhancement and the difference between actual and aspired performance. Thus, it fails to confirm support for Hypothesis 5a or 5b. This robustness check also reveals that the magnitude of coefficients in all models is sensitive to the data used to test them. Consequently, this dissertation does make any claims about the size of changes in enhancement relative to achievement of a specific performance aspiration.

Analysis of Blame

As in the analysis of enhancement above, the following analysis of blame first analyzes the primary sample: letters to shareholders that contain 5 or more attributions and firms with no extreme performance measures. A subsequent analysis of the full sample provides a robustness check. Table 41 presents the results of analysis of the same ten models shown above in Tables 37 and 40.

Table 41: Between-Firm Tobit of Blaming Attributions - Primary Sample

Model	(1) Controls	(2) Historical Profitability	(3) Social Profitability	(4) Historical EPS	(5) Social EPS	(6) Historical Revenue	(7) Social Revenue	(8) Combined Dichotomous	(9) Combined Continuous	(10) Combined All
B_1 - HD Profitability		-0.203***						-0.143***		-0.127***
		(0.028)						(0.031)		(0.032)
B_2 - HC Profitability		-0.751**							-0.836*	-0.249
		(0.331)							(0.449)	(0.422)
B_3 - HD*HC Profitability		-0.203							-0.297	-0.184
		-0.441							-0.615	-0.543
B_1 - SD Profitability			-0.123***					-0.134***		-0.092***
			(0.035)					(0.024)		(0.031)
B_2 - SC Profitability			-0.549***						0.250	0.225
			(0.205)						(0.330)	(0.316)
B_3 - SD*SC Profitability			-0.021*						-1.322***	-0.831*
			(0.007)						(0.485)	(0.438)
B1 - HD EPS Change				-0.225***				-0.104***		-0.121***
				(0.031)				(0.026)		(0.029)
B2 - HC EPS Change				-0.001					0.003	0.009
				(0.007)					(0.008)	(0.007)
B3 - HD*HC EPS Change				0.005					-0.006	-0.004
				(0.009)					(0.013)	(0.012)
B1 - SD EPS Change					-0.198***		-0.046			-0.039
					(0.027)		(0.031)			(0.032)
B2 - SC EPS Change					-0.041***				-0.034*	-0.004
					(0.013)				(0.018)	(0.017)
B3 - SD*SC EPS Change					0.039***				0.033	0.009
					(0.015)				(0.022)	(0.020)
B1 - HD Revenue Change						-0.115***		-0.073***		-0.069**
						(0.036)		(0.025)		(0.031)
B2 - HC Revenue Change						-0.199			-0.260**	-0.130
						(0.125)			(0.115)	(0.114)
B3 - HD*HC Revenue Change						0.133			0.369*	0.384**
						(0.187)			(0.203)	(0.185)
B1 - SD Revenue Change							-0.037	-0.060**		-0.016
							(0.039)	(0.026)		(0.033)
B2 - SC Revenue Change							-0.912***		-0.588***	-0.329
							(0.269)		(0.223)	(0.245)
B3 - SD* SC Revenue Change							0.578*		0.220	0.031
							(0.296)		(0.284)	(0.275)
$B_{4.1}$ - CEO	0.003*	0.003*	0.006***	0.004*	0.004**	0.004**	0.005**	0.005***	0.006***	0.006***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
$B_{4.2}$ - Acquisition	-0.042	-0.0583**	-0.032	-0.036	-0.0468**	-0.0445*	-0.004	-0.022	-0.033	-0.018
	(0.026)	(0.023)	(0.025)	(0.024)	(0.023)	(0.025)	(0.026)	(0.022)	(0.024)	(0.022)
$B_{4.3}$ - Size	0.000	0.000	1.01e-06**	0.000	0.000	0.000	0.000	0.238*	0.154	0.146
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.135)	(0.133)	(0.121)
$B_{4.4}$ - Age	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.125	0.021	0.014
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.161)	(0.163)	(0.149)
$B_{4.5}$ - Year	0.052**	-0.003	0.064**	0.014	0.046*	-0.003	0.052**	0.222	0.062	0.092
	(0.026)	(0.023)	(0.025)	(0.025)	(0.024)	(0.027)	(0.025)	(0.151)	(0.151)	(0.138)
Constant	0.106	0.229*	0.141	0.041	0.131	0.214	0.114	0.241*	0.070	0.287**
	(0.147)	(0.128)	(0.139)	(0.143)	(0.131)	(0.145)	(0.143)	(0.131)	(0.128)	(0.122)
Observations	562	562	562	562	562	562	562	562	562	562
Pseudo-R^2	0.150	0.267	0.282	0.336	0.210	0.238	0.557	0.514	0.402	0.557

*** p<.01, ** p<.05, * p<.1

As in the analysis of enhancement above, tests of equation 2 in models 2-7 assesses the influence of individual performance aspirations. In Table 41, coefficient β_1 reveals whether firms that achieve a performance aspiration use blame differently than firms that

don't achieve that performance aspiration. β_1 is negative and significant at the .01 level in five models that test a single performance measure (models 2, 3, 4, 5, & 6). Coefficient β_1 is not significant for SD Revenue Change.

The coefficient for β_1 in each of these five models indicates the extent to which firms that fail to achieve an aspiration use more blame than firms that don't achieve that aspiration. The coefficients show that firms that fail to achieve HD EPS Change use the most blame ($\beta_1 = -.225$); firms that fail to achieve HD Profitability use the second most blame ($\beta_1 = -.203$); firms that fail to achieve HD EPS Change use the third most blame ($\beta_1 = -.198$); firms that fail to achieve SD Profitability use the fourth most blame ($\beta_1 = -.118$); firms that fail to achieve HD Revenue Change use the fifth most blame ($\beta_1 = -.115$).

These results provide partial support for Hypothesis 2, that firms that fail to achieve an aspiration use more blame than firms that achieve an aspiration.

Aspiration's Continuous Relationship with Attribution

This dissertation also measures the difference between actual and aspired performance. Coefficient β_2 indicates whether this difference correlates with firms' use of blame. β_2 is negative and significant in four of the six models: model 7 - SC Revenue Change, model 5 - SC EPS Change, model 3 - SC Profitability, and model 2 - HC Profitability. In these four models, firms with a larger negative difference between actual and aspired performance used more blame than firms with a smaller negative difference. Coefficient β_2 is negative and insignificant in the other two models.

Coefficient β_2 can be compared only when the variables to which it relates operate on the same scale. Table 42 presents this standardization.

Table 42: Standardization of β_2 Coefficients for Blame, P< .05

		Model 2 HC Profit	Model 3 SC Profit	Model 4 HC-EPS Change	Model 5 SC EPS Change	Model 6 HC - EPS Change	Model 7 SC Rev. Change
β_2	Upper Bound	-0.10	-0.15	0.01	-0.02	0.05	-0.38
	Average	-0.75	-0.55	0.00	-0.04	-0.20	-0.91
	Lower Bound	-1.40	-0.95	-0.01	-0.07	-0.44	-1.44
	Standard Deviation	0.08	0.08	2.22	2.22	0.17	0.17
Effect Size	Upper Bound	-1%	-1%	3%	-3%	1%	-7%
	Average	-6%	-4%	0%	-9%	-3%	-16%
	Lower Bound	-11%	-8%	-3%	-15%	-8%	-24%

Table 42 shows that SC Revenue Change has the largest correlation with firms' use of blame. For example, if firm A's revenue growth fell .17 (1 standard deviation) short of its social aspiration and firm B's revenue growth fell just short of its social aspiration, firm A's performance explanations would be expected to contain 16% more blame than firm B's. In contrast, if firm C's profitability fell .09 short of its historical aspiration and firm D's profitability fell just short of its historical aspiration, firm C's performance explanations would be expected to contain 6% more blame than firm D's.

Rate of Change in Enhancement Above and Below the Aspired Performance Level

The coefficient on the interaction term, β_3, indicates whether the rate of change in blame relative to the difference between actual and aspired performance changes at the aspired performance level. If β_3 is insignificant, then the same rate of change applies both above and below aspiration. If β_3 is significant, then the rate of change changes at the aspired performance level: the difference between actual and aspired performance has one relationship with blame above the aspired performance level and another relationship with blame below the aspired performance level. Refer to Figure 15B for an illustration of this change in the rate of change.

In Table 43, in three of the four models in which β_2 is significant, β_3 is also significant (models 5 & 7, SC EPS Change and SC Revenue Change). Furthermore, in models 5 & 7, β_3 is positive and close to the same size but in the opposite direction as β_2. As a result, the rate of change in blame relative to the difference between actual and aspired performance is much smaller above aspiration than below aspiration. Table 43 calculates the slope of the lines above aspired performance.

This analysis demonstrates that in Models 5 & 7 the difference between actual and aspired performance has a different relationship with blame when performance falls above aspiration than when it falls below aspiration. For example, if firm A just achieves its aspirations for Revenue Change and firm B performs .17 above its aspirations for Revenue Change, firm A would be expected to use 6% more blame than firm B. In contrast, if firm C misses its aspiration for Revenue Change by .17, and firm D just misses its aspiration for Revenue Change, firm C would be expected to use 16% more blame than firm D.

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Table 43: Continuous Performance Assessment and Blame, P< .05

		Model 2 HC Profit	Model 3 SC Profit	Model 4 HC-EPS Change	Model 5 SC EPS Change	Model 6 HC - EPS Change	Model 7 SC Rev. Increase
β_2	Upper Bound	-0.10	-0.17	0.02	0.02	0.18	0.19
	Average	-0.75	-0.57	0.004	-0.002	-0.07	-0.33
	Lower Bound	-1.40	-0.97	-0.01	-0.03	-0.31	-0.86
	Standard Deviation	0.08	0.08	2.22	2.22	0.17	0.17
Effect Size	Upper Bound	-1%	-1%	4%	5%	3%	3%
	Average	-6%	-5%	1%	0%	-1%	-6%
	Lower Bound	-11%	-8%	-2%	-6%	-5%	-15%

Combined Models

As described above, Models 8, 9, and 10 combine multiple measures of performance in a single regression analysis. These models analyze the relationship between achievement of multiple performance aspirations and firms' use of blame.

Model 8 analyzes dichotomous assessment of all six performance measures. In model 8, significant coefficients indicate that firms that fail to achieve multiple performance aspirations use more blame than firms that fail to achieve a single performance aspiration. Model 8 reveals that five of the six measures of performance are significant in combination: failing to achieve each of these five measures has a cumulative relationship with firms' use of blame. As expected, due to collinearity of measures of performance, most β_1 coefficients in model 8 are smaller than the corresponding β_1 coefficients in models 2-7. Nevertheless, the cumulative effect of the multiple measures can be seen in the Pseudo-R^2 of 0.514, which is higher than the

Pseudo-R^2 value in any of the five models 2-6 in which coefficient β_1 is significant. These findings support hypothesis 4, that firms that fail to achieve more performance aspirations use more blame than firms that fail to achieve fewer performance aspirations.

Model 9 analyzes continuous assessment of all six performance measures. In model 9, significant correlations reveal the cumulative effect of the difference between actual and aspired performance. Model 9 reveals that four of the six β_2 coefficients are significant, indicating that these four have a cumulative effect on the relationship with firms' use of blame. Comparing the Pseudo-R^2 values in model 8 (Pseudo-$R^2 =. 514$) and model 9 (Pseudo-$R^2 =. 402$) reveals that model 8 explains a greater percentage of variation in Blame than model 9.

Finally, model 10 combines all variables in models 1-8. It tests the cumulative effect of combining dichotomous and continuous models of performance assessment for all six performance measures. Variables that demonstrate significance in model 10 can be understood to have a correlation with firms' use of blame: no correlations in model 10 result from the absence of other study variables. Four of six β_1 coefficients related to dichotomous assessment of performance are negative and significant in model 10: HD Profitability, SD Profitability, HD EPS Change, and HD Revenue Change. These results provide further support for hypothesis 4, that firms that fail to achieve multiple aspirations use more blame than firms that fail to achieve fewer aspirations.

Control Variables

Numerous control variables demonstrated significance. First, CEO tenure (B4.1 - CEO) is significant and positive (as expected) in all ten models, indicating that veteran

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CEOs use more blame than new CEOs. Prior studies have suggested that new CEO's use less blame because they use more self-criticism, attributing poor performance to the prior CEO. Second, as expected, acquisition is negative in all models and significant in some models, indicating that firms that make acquisitions used less blame in the year of the acquisition than firms that did not make acquisitions. This reduced use of blame could represent an expression of support for the firm's recent acquisition. Third, firm size is positive in all models and significant in two models, suggesting that larger firms use more blame. Fourth, year is positive and significant in four models, indicating that firms used more blame in 2005 than in 2004. As the economic climate in 2005 was weaker than it was in 2004 and sample firms achieved fewer performance aspirations in 2005, this increased use of blame in 2005 is expected.

Summary of Between-firm Analysis of Blaming Attributions in Primary Sample

In sum, this between-firm analysis of blaming attributions in the primary sample finds partial support for Hypotheses 2, 4, and 6. For Hypothesis 2, it finds partial support for dichotomous, 'high jumper' performance assessment with significance in five of the six β_1 coefficients in Models 2-7. For Hypothesis 4, it finds partial support for multiple dichotomous, 'high jumper' like performance assessment with significance in five of the six β_1 coefficients in Model 8. Finally, for Hypothesis 6a and 6b, it also finds partial support for continuous 'golfer' like performance assessments when firms perform above aspiration with significance in four of the six β_1 coefficients in Models 2-7. However, it finds much smaller magnitudes of effect above aspired performance (Hypothesis 5a) than below aspired performance (Hypothesis 5b).

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<u>Robustness Test</u>

For robustness, this analysis tests these same 9 models on all 903 observations in the sample. This larger sample contains many letters that contain 5 or fewer attributions, which is expected to reduce the Pseudo-R^2 values. This larger sample also contains firms with extreme values on performance measures, which is expected to increase the magnitude of coefficients (β_1, β_2, β_3). Table 44 presents the results of this robustness check.

Many of the results in this robustness check confirm the initial analysis. First, this robustness check affirms the relationship between dichotomous performance assessment (high jumper performance assessment) and blame. In all six models from 2-7, β_1 is negative and significant, indicating that firms that fail to achieve performance aspirations use more blame than firms that achieve them. This confirms support for Hypothesis 1, that firms that achieve performance aspirations use less blame than firms that fail to achieve their performance aspirations.

Second, this robustness check raises questions about the relationship between blame and the difference between actual and aspired performance. Although β_2 is significant in five of the six models in Table 44, four of the five significant coefficients are positive in the robustness check. These positive coefficients indicate that firms that just miss their performance aspirations use more blame than firms that fall far short of their performance aspirations. In the initial analysis, by contrast, all values of β_1 were negative. Additional statistical analysis reveals that the change in valence from negative to positive in these five models results from the extreme performance values included in the robustness

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Table 44: Between-Firm Tobit of Blaming Attributions - Full Sample

Model	(1) Controls	(2) Historical Profitability	(3) Social Profitability	(4) Historical EPS	(5) Social EPS	(6) Historical Revenue	(7) Social Revenue	(8) Combined Dichotomous	(9) Combined Continuous	(10) Combined All
B_1 - HD Profitability		-0.335***						-0.182***		-0.188***
		(0.029)						(0.035)		(0.035)
B_2 - HC Profitability		0.191*							0.035	0.351*
		(0.115)							(0.194)	(0.197)
B_3 - HD*HC Profitability		-0.222*							-0.041	-0.388*
		-0.117							-0.204	-0.212
B_1 - SD Profitability			-0.095**					-0.066**		-0.045
			(0.037)					(0.027)		(0.033)
B_2 - SC Profitability			0.092**						0.078	-0.005
			(0.040)						(0.064)	(0.061)
B_3 - SD*SC Profitability			-1.049***						-1.196***	-0.543*
			(0.324)						(0.296)	(0.294)
B1 - HD EPS Change				-0.246***				-0.079***		-0.109***
				(0.032)				(0.030)		(0.032)
B2 - HC EPS Change				0.007*					0.014**	0.020***
				(0.004)					(0.006)	(0.006)
B3 - HD*HC EPS Change				-0.013**					-0.036***	-0.031***
				(0.006)					(0.011)	(0.010)
B1 - SD EPS Change					-0.251***			-0.100***		-0.0790**
					(0.025)			(0.035)		(0.035)
B2 - SC EPS Change					-0.022***				-0.026***	-0.021***
					(0.006)				(0.008)	(0.008)
B3 - SD*SC EPS Change					0.024***				0.032**	0.031***
					(0.006)				(0.014)	(0.011)
B1 - HD Revenue Change						-0.200***		-0.078***		-0.130***
						(0.033)		(0.028)		(0.031)
B2 - HC Revenue Change						0.159**			0.044	0.128**
						(0.067)			(0.049)	(0.062)
B3 - HD*HC Revenue Change						-0.213***			0.098	0.084
						(0.076)			(0.130)	(0.132)
B1 - SD Revenue Change							-0.190***	-0.117***		-0.094***
							(0.039)	(0.029)		(0.035)
B2 - SC Revenue Change							-0.160		-0.928***	-0.116
							(0.250)		(0.234)	(0.255)
B3 - SD* SC Revenue Change							0.081		0.702***	-0.080
							(0.254)		(0.270)	(0.275)
$B_{4.1}$ - CEO	0.003	0.003	0.004**	0.003	-0.004**	0.003	0.004*	0.004**	0.004**	0.004**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
$B_{4.2}$ - Acquisition	-0.050*	-0.065**	-0.050*	-0.057**	0.083***	-0.047*	-0.011	-0.033	-0.041	-0.029
	(0.029)	(0.026)	(0.029)	(0.028)	(0.024)	(0.028)	(0.029)	(0.026)	(0.028)	(0.025)
$B_{4.3}$ - Size	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.100	0.205	0.148
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.127)	(0.167)	(0.149)
$B_{4.4}$ - Age	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.129	0.254	0.178
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.149)	(0.188)	(0.167)
$B_{4.5}$ - Year	0.026	-0.024	0.030	-0.006	-0.049**	-0.034	0.024	0.067	0.120	0.090
	(0.029)	(0.026)	(0.029)	(0.028)	(0.024)	(0.030)	(0.028)	(0.146)	(0.185)	(0.164)
Constant	0.068	0.313**	0.011	0.051	0.697***	0.180	0.169	0.370***	-0.049	0.381**
	(0.137)	(0.124)	(0.168)	(0.165)	(0.119)	(0.133)	(0.135)	(0.120)	(0.160)	(0.148)
Observations	903	903	903	902	903	903	903	903	902	902
Pseudo-R^2	0.075	0.213	0.111	0.145	0.165	0.120	0.129	0.266	0.166	0.316

*** p<.01, ** p<.05, * p<.1

check. Consequently, this change in valence can be understood to be the result of a small number of observations, not as the result of a fundamental characteristic of the data. However, this reversal of valence indicates that this relationship is sensitive to extreme values.

Third, this robustness check confirms that the difference between actual and aspired performance has a different relationship with blame above and below aspired performance. In the robustness check, β_3 is significant and negative in the same models in which β_2 is significant and positive. In other words, a graph of the relationship between blame and the difference between actual and aspired performance would have an inflection point at the aspired performance level.

Fourth, this robustness check confirms that firms that fail to achieve many aspirations use more blame than firms that fail to achieve fewer aspirations. Model 8 simultaneously analyzes the combination of all six dichotomous assessments of performance (coefficients β_1). In model 8, significant coefficients indicate that when a firm fails to achieve an additional performance aspiration, it uses more blame than it did when it achieved that aspiration. Model 8 reveals that all six measures of performance are significant in combination: failing to achieve each measure has a cumulative relationship with firms' use of blame. As expected, due to collinearity of measures of performance, each β_1 coefficient in model 8 is smaller than the corresponding β_1 coefficient in models 2-7. Nevertheless, the cumulative effect of the multiple measures can be seen in the R^2 of 0.26, which is higher than the R^2 value in any model from 2-7. These results confirm support for hypothesis 4, that firms that fail to achieve many performance aspirations use more blame than firms that fail to achieve fewer performance aspirations.

Fifth, model 9 analyzes the continuous assessment of all six performance measures. It assess whether the effect of these continuous measures is also cumulative. In model 9, two performance measures (coefficients β_2) are negative and significant. HC EPS

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Change is significant but positive. Taken independently, this result suggests that as a firm's EPS rises above further and further above aspiration that the firm uses more blame. However, independent regressions of HC EPS on blame produced insignificant results. Consequently, it is more likely that this significant and positive result in Model 9 appears because HC EPS correlates with the error term in the regression of SC EPS Change and SC Revenue Change.   More importantly, Model 9 provides valuable contrast with model 8. In comparison, model 8 has more coefficients that are negative and significant (six in model 8 vs. 2 in model 9) and model 8 explains a greater proportion of the variance in firms use of blame (Pseudo-R^2 =.266 in model 8 vs. Pseudo-R^2 = .166 in model 9). These results confirm support for Hypothesis 4, that firms that fail to achieve multiple aspirations use more blame than firms that fail to achieve fewer aspirations.

Finally, model 10 combines all variables in models 1-8. It tests the cumulative effect of combining dichotomous and continuous models of performance assessment for all six performance measures. Variables that demonstrate significance in model 10 can be understood to have a correlation with firms' use of blame. No correlations in model 10 result from the absence of other variables. Five of six coefficients related to dichotomous assessment of performance are negative and significant in model 10: HD Profitability, HD EPS Change, SD EPS Change, HD Revenue Change, and SD Revenue Change. Four of these five variables are significant at the .01 level; SD EPS Change is only significant at the .05 level. These results provide further support for hypothesis 4, that firms that fail to achieve many aspirations use more blame than firms that fail to achieve fewer aspirations.

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However, in other respects, this robustness check counters the findings of the original analysis. Notably, the robustness test produced contrasting values of β_1. In the robustness check, HD Profitability produced the largest absolute value for β_1 ($\beta_1 = -.335$); SD EPS produced the second highest absolute value (β_1, is $= -.251$), and HD EPS produced the third highest absolute value ($\beta_1 = -.246$). In contrast, in the initial analysis, HD EPS produced the highest absolute value ($\beta_1 = -.225$); HD profitability produced the second highest absolute value ($\beta_1 = -.203$); and SD EPS produces the third highest absolute value ($\beta_1 = -.198$). These results indicate that the relative magnitude of coefficient β_1 is sensitive to the presence of extreme values of performance.

In sum, this robustness check confirms that firms that fail to achieve aspirations use more blame than firms that achieve aspirations, providing support for Hypothesis 2. It also confirms that firms that fail to achieve many aspirations use more blame than firms that fail to achieve fewer aspirations, providing support for Hypothesis 4. Finally, this robustness check provides little insight on the relationship between firms' use of blame and the difference between actual and aspired performance: firms with a larger negative difference between actual and aspired performance may use more enhancement than firms with a smaller negative difference between actual and aspired performance, but this relationship is very sensitive to inclusion of extreme performance measures.

Conclusions from Between-Firm Analysis

The between-firm analysis presented above consistently demonstrates numerous significant relationships between firms' performance relative to aspiration and firms'

causal descriptions of performance. First, this analysis shows a significant relationship between achievement of a single performance aspiration and causal descriptions of performance. In support of Hypothesis 1, firms that achieve an aspiration use more enhancement than firms that don't achieve an aspiration. In support of Hypotheses 2, firms that fail to achieve an aspiration use more blame than firms that achieve an aspiration. These relationships hold for enhancement in four of the six models that assess a single performance measure; they hold for blame in five of the six models that assess a single performance measure. In other words, firms' use of enhancement and blame reflects whether or not firms achieve a performance aspiration.

Second, between-firm analysis consistently demonstrates a significant relationship between achievement of multiple aspired performance levels and use of enhancement and blame. In support of hypothesis 3, all six dichotomous assessments of performance showed a significant relationship with enhancement when tested simultaneously. In other words, firms that achieved many aspirations used more enhancement than firms that achieved fewer aspirations. In support of Hypothesis 4, five of six dichotomous assessments of performance showed a significant relationship with blame tested simultaneously. In other words, firms that achieved many aspirations used less blame than firms that achieved fewer aspirations. These results indicate that firms' use of enhancement and blame reflects the number of aspirations that they achieve.

Third, the between-firm analysis presented above demonstrates a relationship between the difference between actual and aspired performance and causal descriptions of performance. In support of hypothesis 5b, firms that perform just below aspiration generally use more enhancement than firms that perform far below aspiration. Four of

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six continuous measures of performance demonstrated significance. In support of hypothesis 6b, firms that perform far below aspiration generally use more blame than firms that perform just below aspiration. Three of six continuous measures of performance demonstrated significance. This analysis supports similar relationships above aspired performance, but with a lower rate of change. In support of hypothesis 5a, firms that perform far above aspiration generally use more enhancement than firms that perform just above aspiration. However, this effect is partial and muted: it shows a smaller effect size than performance below aspiration. In support of hypothesis 6a, firms that perform far above aspiration use less blame than firms that perform far above aspiration. However, this effect is also partial and muted: it shows a smaller effect size than performance below aspiration.

In conclusion the above between-firm analysis finds support for hypotheses 1 & 2, that achievement of a single performance aspiration is related to attribution, and for hypotheses 3 and 4, that achievement of multiple aspirations is related to attribution. It also finds support for hypotheses 5b and 6b, that below aspired performance the difference between actual and aspired performance relates to firm's use of enhancement and blame. However, it finds muted support for hypotheses 5a and 6a, that above aspired performance, the difference between aspired and actual performance influences firms' use of attribution. The following section tests these same six hypotheses in a within-firm analysis.

Within-Firm Analysis with Longitudinal Data

Within-firm analysis uses longitudinal data to measure changes within firms over time. This dissertation conducts within-firm analysis for two reasons. First, this dissertation postulates that a mechanism internal to the firm drives firm's use of attribution: firms do not measure the amount of enhancement and blame used by other firms or modify their use of enhancement and blame in response. Rather, firms assess their performance relative to aspiration and use attributions that reflect their assessment of their performance. Second, within-firm analysis controls for endogeneity by mitigating for persistent "good" or "bad" firm effects. Endogeneity is present if some firms may use attribution differently than other firms independent of performance relative to aspirations. For example, some firms might consistently take responsibility for their performance while other firms consistently blame their performance on external influences. These differences between firms could create noise in the estimation of the relationship between attribution and performance relative to aspiration. Within-firm analysis eliminates these persistent differences between firms, creating a more reliable estimate of the influence of performance relative to aspiration on attribution. This dissertation's within-firm analysis compares changes in attribution to changes in performance relative to aspired performance. As discussed in Chapter III, this dissertation predicts that as firm performance improves relative to firm aspiration, firms use more enhancement. Similarly, this dissertation predicts that as firm performance declines relative to firm aspiration, firms use more blame.

The "good firm" effect is an example of this potential for unobserved endogeneity. It is possible that better firms have higher performance, that better firms achieve their

aspired performance levels, and that better firms consistently use enhancing rather than blaming attributions. The "good firm" effect could create a correlation between performance and attribution independent of causality. Demonstrating that the "good firm" effect is not responsible for observed correlation between performance and attribution is necessary to demonstrate a causal relationship between performance and attribution. Within-firm analysis effectively mitigates the "good firm" effect.

The within-firm effect does not, however, mitigate all possible confounds. Dynamic firm characteristics or dynamic characteristics of the firm's environment could also cause observed changes in firm attribution. To control for observed dynamic variables, this analysis includes two control variables: change in CEO and change in acquisition. Bringing in a new CEO could cause firms to change their use of attribution. New CEOs have the opportunity to blame their firm's performance on the firm's prior management team, potentially resulting in less use of enhancement and less use of blame. Acquisitions could also cause firms to change their attributions. As demonstrated above, firms that make acquisitions use more enhancement than firms that don't. Applying this finding across time, it is possible that firms that make acquisitions in one year but not in another will use more enhancement in years in which they make an acquisition(s) and more blame in years in which they don't make an acquisition(s).

This dissertations within-firm analysis controls for time invariant firm characteristics (observed or unobserved) and for the two observed time varying firm characteristics of CEO change and change in acquisitions. This model does not control, however, for unobserved time variant firm characteristics. Nevertheless, it provides reasonable

assurance that any observed correlation between changes in firms' use of attribution and firm performance relative to aspiration result from a causal relationship.

This dissertation calculates within-firm effects with a first-difference model rather than the more standard mean-differences model. The first-difference model mitigates serial correlation, which could result from unobserved variables in the business environment from one year to the next. In addition, first-differences analysis facilitates this dissertation's regression analysis by transforming the distribution of this dissertation's dependent variables to more closely resemble a normal distribution. Figures 16 and 17 illustrate this transformation of the distribution of dependent variables Enhancement and Blame.

Figure 16A presents a histogram of pooled panel data for the dependent variable, Enhancement. These data are defined over the range 0 to 1. A bound distribution cannot be assumed to present a normal distribution. Even more important to assumptions of normal distribution, the distribution of Enhancement in this dissertation has a mode of 1, the upper limit of the data range. Any estimator that assumes a normal distribution will underestimate the error term for measurements near this upper limit and overestimate the significance of regression coefficients (Kennedy, 2003; Kieschnick & McCullough, 2003).

Figure 16B shows a histogram of the same variable, use of enhancement, but as annual change (i.e. Δ Enhancement = Enhancement$_{2005}$ minus Enhancement$_{2004}$). Δ Enhancement is defined over the range -1 to 1. It also cannot be assumed to be a normal distribution. However, its mode is zero, and the majority of observations cluster around the mode. Only a small proportion of observations fall close to the bounds of the range.

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Consequently, for Δ Enhancement, regression can be conducted with a technique that assumes normal distribution, such as ordinary least squares. As the distribution is bound, any estimator that assumes a normal distribution will still underestimate the error term and overestimate the significance of regression coefficients, but the overestimation will be minor.

Figure 16: Histograms of Enhancement
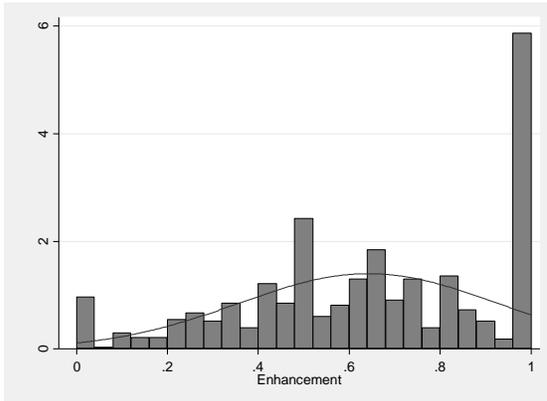
16A: Enhancement   **16B: Δ Enhancement**
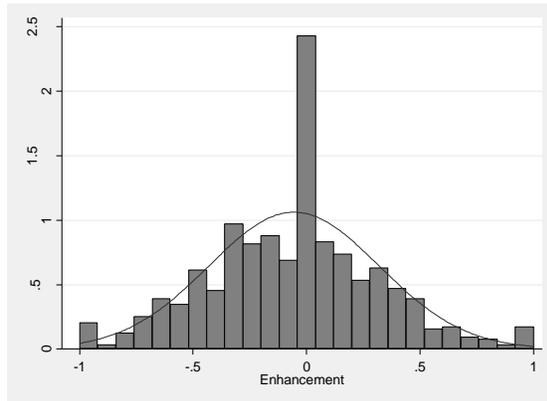
Figures 17A and 17B show the same graphs for Blame. Figure 17A shows that Blame is defined over the range 0 to 1 with a mode of zero and most observations clustered around the extremes of the range. Figure 17B shows that change in Blame (i.e. Δ Blame = $Blame_{2005}$ minus $Blame_{2004}$) is defined over the range -1 to 1. Furthermore it shows that Δ Blame's mode is zero and that the majority of observations cluster around the mode. Only a small proportion of observations fall close to the bounds of the range. Consequently, regression can be conducted with a technique that assumes normal

distribution with only minor overestimation of the significance of regression coefficients (Kennedy, 2003; Kieschnick & McCullough, 2003).

Figure 17: Histograms of Blame
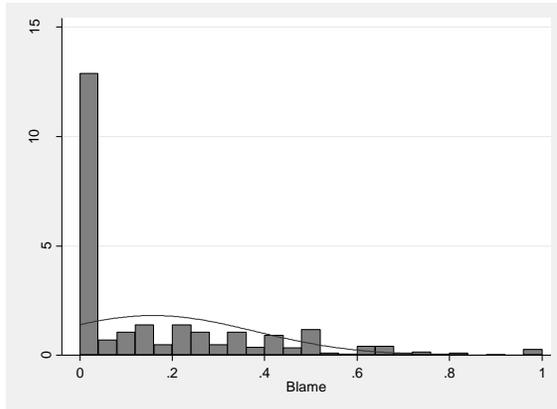
17A: Blame	**17B: Δ Blame**
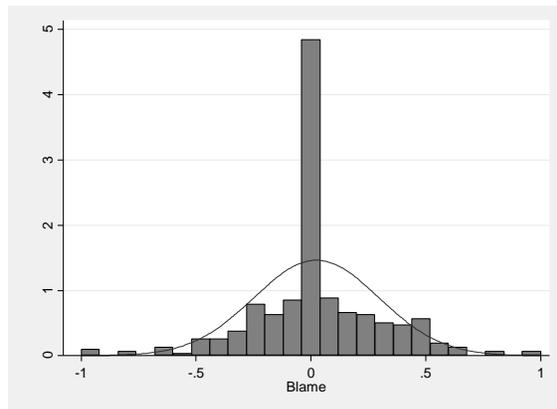
The transformation of the dependent variable in first differences presented above requires a similar differencing of the regression equation. Transforming equation 2, used above for the between-firm analysis, yields the equation presented below in equation 3.

(*equation 3*) $\Delta \text{Attribution}_{it} = \alpha + \beta_1 (\Delta \text{Met})_{it} + \beta_2 (\Delta \text{Difference})_{it}$

$$+ \beta_3 (\Delta \text{Met})_{it} (\Delta \text{Difference})_{it} + \beta_4 (\text{Variable Firm})_{ijt} + \varepsilon_{it}$$

Terms in this equation are defined as follows:

- "i" represents individual firms
- "t" represents individual years

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- "j" represents individual variables in a class of variables

- Δ Attribution = Attribution$_t$ - Attribution$_{t-1}$. Attribution represents the % of a specific type of attribution in a firm's letter to shareholders. This dissertation runs separate regressions for two measures of Attribution: Enhancement and Blame.

- Δ Met = Met$_t$ - Met$_{t-1}$. Met measures whether a firm achieves (1) or fails to achieve (0) aspired performance levels.

- Δ Difference = Difference$_t$ - Difference$_{t-1}$. Difference measures the difference between a firm's actual performance and its aspired performance.

- Variable Firm = observed, variable firm characteristics. This dissertation analyzes two such observed, variable firm measures: change in CEO and change in Acquisitions. Each firm characteristic has a distinct coefficient, identified by β_{4j}, with a different "j" for each control variable. Equation 3 omits the firm characteristics age, size, and industry. Although these three firm characteristics change over time, they change so slightly over the two year time frame of the study's sample that they are effectively fixed.

Descriptive Statistics for Within-firm Analysis

This dissertation uses within-firm analysis to test all six of its hypotheses. Although within-firm analysis begins with the same data as between-firm analysis, first differencing in within-firm analysis produces an entirely new set of variables. In first differencing, the variable's value in 2004 is subtracted from its value in 2005. This

dissertation uses the symbol "Δ" to designate this change in performance. This section presents descriptive statistics of the variables used in within-firm analysis. It presents data that describe the independent variable, Δ performance, the dependent variable, Δ attribution, and relationships between the two.

Dependent Variables - Change in Attribution

To understand how firms' use of Enhancement and Blame changes from 2004 to 2005, the following analysis presents first-differences data for these variables. First-differences data subtract values for each variable for 2004 from values for 2005. For example, if Firm A's letter to shareholders contains 75% Enhancement in 2004 and 50% Enhancement in 2005, Firm A's use of Enhancement decreased by 25%.

Tables 45 and 46, below, present data for firms that use 5 or more attributions in both 2004 and 2005. This results in a smaller dataset than was used in the between-firm analysis above: letters to shareholders with 5 or more attributions in either year were included in between-firm analysis; within-firm analysis includes only firms whose letters included 5 or more attributions in both years. Table 45 presents data for Enhancement for 2004, 2005, and the difference between the two years. It provides information on both the number of enhancing attributions and the % of each type of attribution.

Table 45 shows that firms decreased their use of enhancing attributions from 2004 to 2005. On average firms use .68 fewer enhancing attributions, a decrease of 8%. One firm decreased its use of enhancing attributions by 92%. Such a change could result from a firm that used 100% enhancing attributions in 2004 and only 8% enhancing attributions in 2005. However, not all firms decreased their use of enhancing attributions: one firm

Table 45: Change in Use of Enhancement from 2004 to 2005

Variable	Obs	Mean	Median	S. Dev.	Min	Max
Enhancing Attributions 2004	215	7.28	7	3.92	1	25
Enhancing Attributions 2005	215	6.60	5	4.69	0	27
Change in Enhancing Attributions	215	-0.68	-1	4.81	-20	15

Variable	Obs	Mean	Median	S. Dev.	Min	Max
% Enhancement 2004	215	63%	64%	22%	8%	100%
% Enhancement 2005	215	55%	55%	26%	0%	100%
Change in % Enhancement	215	-8%	-5%	31%	-92%	83%

increased its use of enhancing attributions by 83%.

Table 46 presents the same information for blaming attributions.

Table 46: Change in Use of Blame from 2004 to 2005

Variable	Obs	Mean	Median	S. Dev.	Min	Max
Blaming Attributions 2004	215	2.19	2	2.30	0	12
Blaming Attributions 2005	215	2.71	2	2.97	0	17
Change in Blaming Attributions	215	0.52	0	3.12	-10	15

Variable	Obs	Mean	Median	Std. Dev.	Min	Max
% Blame 2004	215	15%	10%	18%	0%	90%
% Blame 2005	215	21%	14%	21%	0%	80%
Change in % Blame	215	6%	0%	24%	-82%	80%

Table 46 shows that firms used .52 more blaming attributions in 2005 than in 2004, an increase of 6%. The greatest increase in the use of blame was 80%. Such an increase would be possible for a firm that used 20% blame in 2004 and 100% blame in 2004.

Independent Variables - Change in Performance

This dissertation collects data on three performance measures. Table 47 presents the average change in each of these measures from 2004 to 2005.

Table 47: First Difference of Basic Performance Metrics

Variable	Obs	Mean	Median	S. Dev.	Min	Max
Δ Profitability	215	0.1%	0.1%	8%	-35%	46%
Δ EPS Change	215	-44%	-12%	627%	-4641%	3368%
Δ Revenue Change	215	-3%	-4%	27%	-84%	238%

Table 47 shows that 215 firms used 5 or more attributions in their letter to shareholders in both 2004 and 2005. It shows that, despite the decline in the overall economy from 2004 to 2005, on average, sample firms' profitability increased by .1%. In contrast, in line with the slowdown in the overall economy, firms' average EPS Change fell by 44% and their average Revenue Change fell by 3%. The changes in all three variables echo the summary statistics presented in Tables 26 and 27

This dissertation combines these three measures of performance (Profitability, EPS Change, and Revenue Change) with two benchmarks (historical aspirations and social aspirations). This produces six different measures of performance, each of which can be assessed with two models of performance assessment: a high jumper's dichotomous

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mental model of performance or a golfer's continuous mental model of performance.

Table 47 presents descriptive statistics for these six measures under a high jumper's

dichotomous mental model of assessment. As dichotomous assessment creates only two

values (0 or 1), first differences combines these values to create three possible values: -1,

0, or 1(e.g. 0 - 1 = -1; 1 - 1 = 0; 1 - 0 = 1). Table 48 presents the number and percentage

of sample firms that achieved each measure.

Table 48: First Difference of Dichotomous Assessment of Performance

Variable	-1		0		1		Total	
	#	%	#	%	#	%	#	%
Δ HD Profitability	74	34%	108	50%	33	15%	215	100%
Δ HD EPS Change	94	44%	63	29%	58	27%	215	100%
Δ HD Revenue Change	115	53%	69	32%	31	14%	215	100%
Δ SD Profitability	17	8%	173	80%	25	12%	215	100%
Δ SD EPS Change	66	31%	84	39%	65	30%	215	100%
Δ SD Revenue Change	39	18%	141	66%	35	16%	215	100%

Table 48 shows that a general decline in achievement of aspired performance levels

from 2004 to 2005. Large number of firms failed to meet their historical performance

aspirations: 34% saw a decrease in their achievement of HD Profitability, 44% saw a

decrease in their achievement of HD EPS Change, and 53% saw a decrease in their

achievement of HD Revenue Change. These results reflect the decline in the general

economy from 2004 to 2005. In contrast, the majority of firms saw no change in their

achievement of social performance aspirations: 80% of firms saw no change in their

achievement of SD Profitability, 39% saw no change in their achievement of EPS

Change, and 66% saw no change in their achievement of Revenue Change. These results

reflect a general stability in firm performance relative to competitors. Despite the

downturn in the overall economy, firms' achievements relative to their peers changed little from 2004 to 2005.

Table 49 presents descriptive statistics for these same six measures of performance, but does so in the golfer's mental model of continuous performance. As these continuous measures can take any value, the difference between the values for 2004 and 2005 are also continuous. For example, if firm A performed 10% above aspired historical Revenue Change in 2004 and 15% below aspired revenue change in 2005, the firm's performance relative to aspired historical revenue change fell by 25% (-15% - 10% = -25%).

Table 49: First Difference of Continuous Measures of Performance

Variable	Obs	Mean	Median	Std. Dev.	Min	Max
Δ HC Profitability	215	-3%	-1%	12%	-66%	44%
Δ HC EPS Change	215	-92%	-16%	768%	-4542%	3614%
Δ HC Revenue Change	215	-12%	-10%	33%	-138%	114%
Δ SC Profitability	215	0%	0%	8%	-37%	41%
Δ SC EPS Change	215	2%	-1%	532%	-2689%	3458%
Δ SC Revenue Change	215	0%	-1%	21%	-71%	154%

Table 49 shows that on average, firm performance fell in relation to each of the three historical aspirations: firms' Profitability declined by 3% in relation to historical aspiration, firms' EPS Change declined by 92% in relation to historical aspirations, and firms' Revenue Change declined 12% in relation to historical aspirations. These decreases reflect the overall decline in the economy from 2004 to 2005. In contrast, Table 49 shows that firm performance changed very little in relation to social aspirations.

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Firm performance did not change in relation to social aspirations for Profitability, nor did it change in relation to social aspirations for Revenue Change. Firm performance changed marginally in relation to social aspirations for EPS Change, but this change is very small: the 2% change in the median is a very small fraction of the standard deviation of 532%.

This analysis of the independent variables for within-firm analysis shows that firm performance declined in relation to historical aspirations, especially in relation to EPS Change and Revenue Change. This analysis also shows that firm performance relative to social aspirations remained relatively constant.

Correlations

With the above description of the distribution of the independent and dependent variables, this analysis examines correlations between the two. Table 50 presents correlations for these variables.

Table 50 presents strong correlations between dependent and some independent variables. Enhancement and Blame show significant correlations with almost all of the study's independent variables. Only Δ SD Revenue Change does not show a significant correlation with Enhancement or Blame. With the exception of Δ SD Revenue Change, high-jumper like dichotomous assessments of performance correlate with an increase in Enhancement (correlations of .146 to .475) and a decrease in Blame (correlations of -.143 to -.434). This correlation indicates that when firms achieve an aspired performance level that they didn't previously achieve, they use more Enhancement; when firms fail to achieve an aspired performance level, they use more Blame. These results provide

Table 50: Correlation Matrix of First-Difference Data (n=215)

#	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	Δ Enhancement	1.000																		
2	Δ Blame	-0.734	1.000																	
3	Δ Profitability	0.316	-0.293	1.000																
4	Δ EPS Change	0.213	-0.214	0.561	1.000															
5	Δ Revenue Change	0.146	-0.143	0.049	0.133	1.000														
6	Δ HD Profitability	0.475	-0.484	0.390	0.320	0.072	1.000													
7	Δ HD EPS Change	0.459	-0.434	0.282	0.324	0.091	0.534	1.000												
8	Δ HD Revenue Change	0.196	-0.194	0.022	-0.018	0.448	0.065	0.160	1.000											
9	Δ SD Profitability	0.334	-0.319	0.781	0.498	0.147	0.507	0.452	0.032	1.000										
10	Δ SD EPS Change	0.249	-0.251	0.508	0.924	0.170	0.391	0.491	0.038	0.579	1.000									
11	Δ SD Revenue Change	0.110	-0.116	0.043	0.100	0.696	0.065	0.166	0.637	0.176	0.168	1.000								
12	Δ HC Profitability	0.300	-0.275	0.386	0.253	0.102	0.257	0.094	-0.004	0.346	0.192	0.123	1.000							
13	Δ HC EPS Change	0.478	-0.425	0.409	0.329	0.124	0.676	0.597	0.115	0.503	0.405	0.138	0.277	1.000						
14	Δ HC Revenue Change	0.186	-0.187	0.054	0.057	0.373	-0.023	0.099	0.419	0.071	0.074	0.424	0.168	0.164	1.000					
15	Δ SC Profitability	0.296	-0.290	0.963	0.554	0.058	0.375	0.246	-0.015	0.745	0.486	0.009	0.451	0.433	0.094	1.000				
16	Δ SC EPS Change	0.213	-0.211	0.560	0.998	0.126	0.312	0.312	-0.028	0.490	0.915	0.085	0.255	0.335	0.064	0.558	1.000			
17	Δ SC Revenue Change	0.187	-0.171	0.061	0.127	0.779	0.035	0.118	0.428	0.133	0.151	0.756	0.133	0.176	0.537	0.066	0.129	1.000		
18	Δ CEO	0.102	-0.087	-0.008	0.137	0.000	0.105	0.044	0.064	-0.011	0.123	0.058	0.136	0.025	0.064	0.027	0.137	0.035	1.000	
19	Δ Acquisition	0.001	0.034	-0.070	-0.069	-0.033	-0.089	-0.054	-0.068	-0.124	-0.104	-0.050	0.002	-0.062	0.040	-0.072	-0.077	-0.061	0.009	1.000

Note: all correlations over .135 are significant at p<.05.

evidence that seems to support Hypothesis 1, that when a firm achieves an aspired performance level, it uses more Enhancement. These results also appear to support Hypothesis 2, that when a firm fails to achieve an aspired performance level it uses more blame.

As predicted, both Enhancement and Blame show significant relationships with all six continuous measures of the difference between actual and aspired performance (HC and SC variables). A firm that increases these golfer-like assessments of performance uses more Enhancement (correlations of .186 to .478) and less Blame (correlations of -.187 to -.425). These results support Hypothesis 5, that when a firm improves its performance in relation to aspirations, it increases its use of Enhancement. These results also support Hypothesis 6, that when a firm improves its performance in relation to aspirations, it uses less Blame.

Individual Mean Values

Analysis of firms' mean values for each of these measures provides an initial quantification of the relationship between performance relative to aspiration and firms' use of enhancement and blame. As noted above, after first-differences analysis, the six high jumper like dichotomous variables take one of three values: -1, 0, or 1. Table 51 presents the number of firms that record each of these three values for each measure of dichotomous performance. In addition, it presents the mean values of Enhancement and Blame for firms at each level.

Table 51: Change in Attribution by Change in Achievement of Aspiration (n=215)

Variable	-1	0	1
Δ HD Profitability	74	108	33
Δ % Enhancement	-23%	-7%	25%
Δ % Blame	20%	2%	-14%

Variable	-1	0	1
Δ HD EPS Change	94	63	58
Δ % Enhancement	-22%	-7%	14%
Δ in % Blame	14%	9%	-12%

Variable	-1	0	1
Δ HD Revenue Change	115	69	31
Δ % Enhancement	-14%	-2%	1%
Δ % Blame	11%	1.5%	2%

Variable	-1	0	1
Δ SD Profitability	17	173	25
Δ % Enhancement	-29%	-9%	14%
Δ % Blame	22%	6%	-8%

Variable	-1	0	1
Δ SD EPS Change	66	84	65
Δ % Enhancement	-28%	-5%	10%
Δ % Blame	20%	4%	-6%

Variable	-1	0	1
Δ SD Revenue Change	39	141	35
Δ % Enhancement	-20%	-6%	0%
Δ % Blame	16%	4%	1%

Table 51 shows a consistent pattern in which an increase in achievement of an aspiration corresponds with an increase in the use of Enhancement and a decrease in the use of Blame. Only one aspiration, Δ SD Revenue Change does not present this relationship. For Δ SD Revenue Change, when firms increases their achievement of aspirations related to SD Revenue Change they continue to use the same amount of Enhancement and increase their use of Blame by 1%. Nevertheless, even when firms

improve their achievement of aspirations related to SD Revenue Change, they increase their use of Blame less than when they don't increase their achievement of aspirations related to SD Revenue Change.   These results provide evidence that appears to support Hypothesis 1, that when a firm achieves its aspirations it uses more Enhancement. These results also appear to provide evidence to support Hypothesis 2, that when a firm achieves its aspirations it uses less Blame.

Multiple Mean Values

   This dissertation also investigates whether achievement of multiple aspirations influences firms' use of attribution. When a firm achieves more aspirations does it use attribution differently that when it achieves fewer aspirations? For example, if a firm achieved one aspiration in 2004 and achieved four aspirations in 2005, would it increase its use of Enhancement? This dissertation begins to answer this question by first-differencing the variable Aspirations Achieved, the total number of aspirations a firm achieves in one time period. Each firm can achieve as many as six aspirations. Thus, after first differencing, the variable Aspirations Achieved could increase by any number from 0 to 6. Similarly, the variable Aspirations Achieved could decrease by any number from 0 to 6. Consequently, Δ Aspirations Achieved can take the value of any whole number from -6 to 6. This dissertation calculates the mean values of Change in Enhancement and Change in Blame for each value of Change in Aspirations Achieved. Table 52 presents the results of this analysis.

Table 52: Change in Attribution by Change in Number of Aspirations Achieved

Δ Aspirations Achieved	Observations	Δ Enhancement	Δ Blame
6	0	NA	NA
5	2	16%	-13%
4	6	30%	-18%
3	16	20%	-17%
2	16	16%	-10%
1	38	2%	-1%
0	28	-1%	-3%
-1	25	-12%	10%
-2	24	-18%	15%
-3	21	-14%	15%
-4	23	-36%	26%
-5	16	-42%	25.5%
-6	2	-21%	24.5%
Total/Average	215	-8%	6%

Figure 18 presents the same information in visual form.

Figure 18: Change in Attribution by Change in Aspirations Achieved
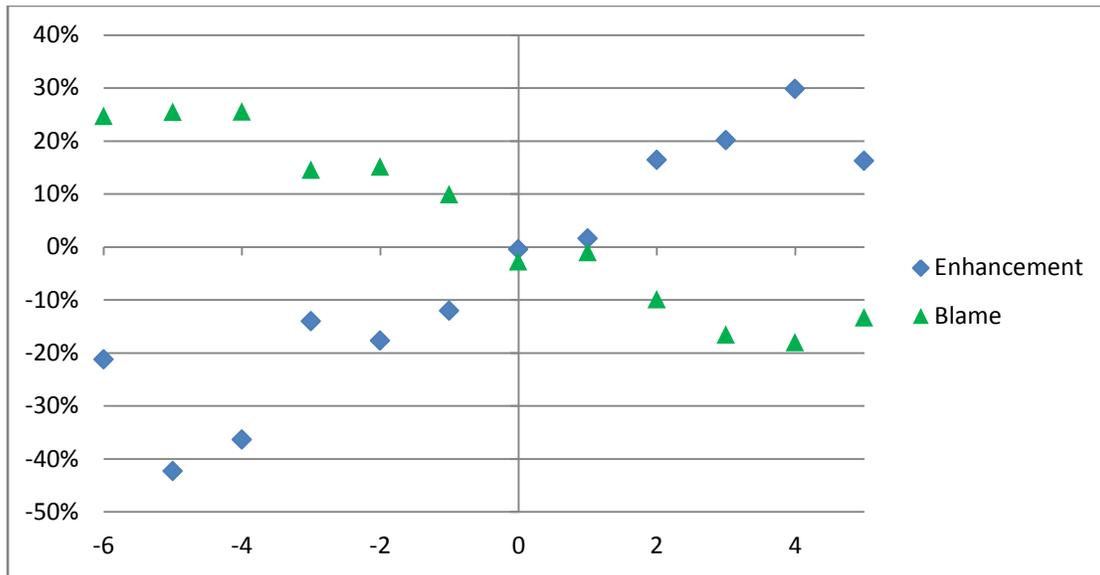
The above analysis of means demonstrates that, in general, the greater a firm's increase in Aspirations Achieved, the greater its increase in Enhancement and the greater its reduction in Blame. For both Enhancement and Blame, this relationship generally holds for firms that change their aspirations achieved by from -4 to 4. For example, assume that Firm A achieved zero aspirations in 2004 and used 40% enhancement and 60% blame. If Firm A achieved four aspirations in 2005 (an increase of 4), it would be expected to use 70% enhancement (an increase of 30%) and 22% Blame (a decrease of 18%).

However, this relationship does not hold at the extremes of the range. First, no firm increased aspirations by 6, so no data are available on the top extreme of the range. Second, Firms that increase Aspirations Achieved by 5 make smaller increases in their use of Enhancement and smaller decreases in Blame than firms that increase their Aspirations Achieved by 4. Similarly, firms that decrease their Aspirations Achieved by

6 make smaller decreases in their use of Enhancement and smaller increases in their use of Blame than firms that decrease their Aspirations Achieved by 5. The small sample size at the extremes of the range could contribute to these breaks in the pattern that exists in the middle of the range (n=2 for Δ Aspirations Achieved of -6 and Δ Aspirations Achieved of 5).

Finally, this pattern also does not hold throughout the middle of the range for Δ Aspirations Achieved. Firms with Δ Aspirations Achieved of -3 increase their use of Enhancement more and decrease their use of Blame less than firms with Δ Aspirations Achieved of -2.

Despite these negative results, the above analysis of Δ Aspirations Achieved displays a general pattern in which greater increases in the number of aspirations achieved occur with greater increases in use of Enhancement and greater decreases in use of Blame. These results provide evidence that seems to support Hypothesis 3, that the more a firm increases its achievement of aspiration, the more it increases its use of Enhancement. Similarly, these results provide evidence that seems to support Hypothesis 4, that the more a firm increases its use of attribution, the more it decreases its use of Blame.

Conclusions to Descriptive Statistics of Within-firm Analysis

These descriptive statistics provide insight on the relationships between changes in firms' achievement of aspirations and changes in firms' use of Enhancement and Blame to describe their performance. Before undertaking within-firm regression analysis, this dissertation summarizes six findings from its descriptive of first-differenced variables.

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First, firms decreased their use of Enhancement and increased their use of Blame from 2004 to 2005. This change in the proportion of each dependent variable in firm's letters to shareholders reflects a decline in economic conditions and a larger proportion of firms failing to achieve their historical performance aspirations.

Second, dependent and independent variables show significant correlations along relationships of interest. These strong correlations exist for both Enhancement and Blame, for both historical and social aspirations, and for both dichotomous and continuous mental models of assessment.

Third, the above descriptive analysis provides evidence that seems to support each of the dissertation's hypotheses. First, both correlation analysis and analysis of individual mean values provide findings that seem to support Hypothesis 1 and Hypothesis 2, that when a firm achieves an aspiration it uses more Enhancement and less Blame than when it fails to achieve the same aspiration. Second, analysis of multiple mean values provides evidence that seems to support Hypothesis 3 and Hypothesis 4, that the more a firm improves its achievement of aspirations, the more it increases its use of Enhancement and the less it uses Blame. Third, correlation analysis appears to provide support for Hypothesis 5 and Hypothesis 6, that as firm performance improves relative to aspirations, firms use more Enhancement and less Blame.

Analysis of Enhancement

This dissertation uses ten models to test the relationship between change in performance and change in enhancement. These ten models are identical to those presented above in Tables 37, 40, 41, and 44 for between-firm analysis. Model 1

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contains only control variables. Model 2 tests change in achievement of historical

aspirations related to profitability. It includes a measure of change in achievement of a

binary measure of historical profitability (β_1-HD Profitability), a measure of change in

achievement of a continuous measure of historical profitability (β_2-HAD Profitability),

and an interaction term (β_3-HD*HAD Profitability). Model 3 conducts the same tests

with changes in achievement of social aspirations related to profitability. Model 4

conducts the same tests with changes in achievement of historical aspirations related to

EPS Change. Model 5 conducts the same tests with changes in achievement of social

aspirations related to EPS Change. Model 6 conducts the same tests with changes in

achievement of historical aspirations relative to Revenue Change. And model 7 conducts

the same tests with achievement of social aspirations relative to Revenue Change. Model

8 tests the cumulative effect of the change in achieving multiple aspirations. Model 9

tests the cumulative effect of the change in multiple differences between actual and

aspired performance. Model 10 combines all variables that measure change in

achievement of aspirations used in other models as a robustness check. Table 53 presents

the results of this analysis with change in Enhancement as the dependent variable in each

of the ten models.

Table 53: Within-Firm Analysis of Enhancing Attributions - Primary Sample

Model	(1) Controls	(2) Historical Profitability	(3) Social Profitability	(4) Historical EPS	(5) Social EPS	(6) Historical Revenue	(7) Social Revenue	(8) Combined Dichotomous	(9) Combined Continuous	(10) Combined All
B_1 - HD Profitability		0.188***						0.105***		0.113***
		(0.032)						(0.037)		(0.034)
B_2 - HC Profitability		0.473**							0.459	0.361
		(0.207)							(0.317)	(0.312)
B_3 - HD*HC Profitability		0.292								0.273
		(0.225)								(0.273)
B_1 - SD Profitability			0.154***					0.130***		0.132***
			(0.052)					(0.043)		(0.047)
B_2 - SC Profitability			0.827***						0.573	0.018
			(0.286)						(0.451)	(0.420)
B_3 - SD*SC Profitability			-0.071							-0.410
			(0.395)							(0.404)
B1 - HD EPS Change				0.166***				0.088***		0.121***
				(0.027)				(0.028)		(0.030)
B2 - HC EPS Change				0.003					0.010	-0.013
				(0.003)					(0.008)	(0.009)
B3 - HD*HC EPS Change				0.005						-0.007
				(0.004)						(0.006)
B1 - SD EPS Change					0.148***			0.043		0.029
					(0.031)			(0.034)		(0.036)
B2 - SC EPS Change					0.036**				-0.008	0.010
					(0.014)				(0.010)	(0.010)
B3 - SD*SC EPS Change					0.010					0.009
					(0.017)					(0.008)
B1 - HD Revenue Change						0.088**		0.0458*		0.086**
						(0.039)		(0.027)		(0.036)
B2 - HC Revenue Change						0.017			-0.109	-0.208*
						(0.104)			(0.095)	(0.112)
B3 - HD*HC Revenue Change						0.058				0.139
						(0.103)				(0.097)
B1 - SD Revenue Change							0.053	0.041		0.025
							(0.052)	(0.035)		(0.038)
B2 - SC Revenue Change							0.594**		0.366**	0.375**
							(0.287)		(0.151)	(0.144)
B3 - SD* SC Revenue Change							-0.143			0.012
							(0.388)			(0.182)
$B_{4.1}$ - CEO	0.051	0.031	0.104	0.068	0.027	0.067	0.067	0.073	0.101	0.080
	(0.077)	(0.068)	(0.073)	(0.070)	(0.070)	(0.076)	(0.073)	(0.064)	(0.074)	(0.065)
$B_{4.2}$ - Acquisition	-0.004	0.026	-0.001	0.008	-0.018	0.004	-0.022	0.018	0.020	0.022
	(0.038)	(0.033)	(0.035)	(0.034)	(0.034)	(0.037)	(0.035)	(0.031)	(0.035)	(0.031)
Constant	-0.081***	-0.044**	-0.089***	-0.068***	-0.079***	-0.058*	-0.079***	-0.034	-0.078***	-0.066**
	(0.023)	(0.022)	(0.022)	(0.024)	(0.024)	(0.030)	(0.025)	(0.022)	(0.024)	(0.029)
Observations	215	215	215	215	215	215	215	215	215	215
R^2	0.002	0.247	0.132	0.219	0.230	0.044	0.036	0.358	0.160	0.403

*** p<.01, ** p<.05, * p<.1

Dichotomous Performance Assessment

Tests of Models 2-7 in Table 53 consistently show a significant relationship between changes in achievement of aspired performance and changes in use of enhancement. Coefficient β_1 is positive and significant in five of the six models. It is only insignificant

in model 7, SD Revenue Change. Furthermore, coefficient β_1 is significant at the .01

level in four of the five models. Only in model 6, HD Revenue Change is it only

significant at the .05 level. These results indicate that when firms achieve a performance

aspiration they use more Enhancement. These findings generally support Hypothesis 1,

that when firms achieve an aspired performance level they use more Enhancement.

The size of the coefficients for β_1 in each model indicates the extent to which firms

increase their use of Enhancement when they achieve a specific performance aspiration.

Comparing these coefficients in Table 53 shows that achieving historical aspirations

related to profitability (HD Profitability) has the greatest influence on firms' use of

enhancement (Model 2, $\beta_1 = .188$) . Achieving HD EPS Change has the second greatest

impact on firms' use of enhancement (Model 4, $\beta_1 = .166$). Achieving SD Profitability

has the third greatest impact on firms' use of enhancement (Model 3, $\beta_1 = .154$).

Achieving SD EPS Change correlates with the fourth greatest increase in firms' use of

enhancement (Model 5, $\beta_1 = .148$). Achieving HD Revenue Change has the fifth greatest

impact on firms' use of enhancement (Model 6, $\beta_1 = .088$).

The R^2 values in Table 53 indicate how well each model explains distribution of the

dependent variable, change in Enhancement. The study's control variables explain almost

none of the change in firms' use of enhancement (model 1, $R^2 = .002$).   Historical

aspiration relative to Profitability provides the best explanation of change in firms use of

enhancement (model 2, $R^2 = .247$). Social aspiration relative to EPS Change provides the

second best explanation of change in firms use of enhancement (model 5, $R^2 = .230$).

Historical aspiration in relation to EPS Change provides the third best explanation of

change in firms' use of enhancement (model 4, $R^2 = .219$). Social aspiration in relation to

Profitability provides the fourth best explanation of change in firms' use of enhancement (model 3, R^2 = .132). Historical aspiration in relation to Revenue Change provides the fifth best explanation of change in firms' use of enhancement (model 3, R^2 = .044). Historical aspiration in relation to Revenue Change provides the least amount of explanation of change in firms' use of enhancement (model 6, R^2 = .036).

As would be expected, most of the models with a larger coefficient for β_1 have higher values of R^2. For example, model 2, profitability in relation to historical aspiration, has the highest value for β_1 (.188) and the highest value for R^2 (.247).

Continuous Performance Assessment

Tests of Models 2-7 show general support for the relationship between change in the difference between actual and aspired performance and change in firms' use of Enhancement. Coefficient β_2 is positive in models 2-7, and is significant in four of these six models. It is only insignificant in model 4 (HD EPS Change) and model 6 (HD Revenue Change). Coefficients can only be compared between models when the variables to which they relate have the same scale. This dissertation standardizes each of the four significant coefficients by multiplying them by their standard deviations. Table 54 presents this standardization.

The results in Table 54 indicate the extent by which a firm is expected to change its use of enhancement in conjunction with a change in its performance. For example, when a firm increases its profitability by one standard deviation (.08) in relation to historical aspiration, it is expected to increase its use of enhancement by 5.7%. When a firm increases its profitability by one standard deviation in relation to social aspiration, it is

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Table 54: Standardization of β₂ Coefficients for Δ Enhancement

		Model 2 HC Profit	Model 3 SC Profit	Model 4 HC-EPS Change	Model 5 SC EPS Change	Model 6 HC - EPS Change	Model 7 SC Rev. Increase
β_2	Upper Bound	0.88	1.39	0.009	0.06	0.22	1.16
	Average	0.47	0.83	0.003	0.04	0.02	0.59
	Lower Bound	0.07	0.27	-0.003	0.01	-0.19	0.03
	Standard Deviation	0.12	0.12	5.32	5.32	0.21	0.21
Effect Size	Upper Bound	11%	17%	5%	34%	5%	24%
	Average	6%	10%	2%	19%	0%	12%
	Lower Bound	1%	3%	-2%	5%	-4%	1%

expected to increase its use of enhancement by 6.6%. These results provide partial support for hypothesis 5b, that the further a firm's performance is below aspiration, the less enhancement it uses.

Rate of Change in Enhancement above the Aspired Performance Level

The coefficient on the interaction term is insignificant in all six models. This indicates that a single rate of change applies both above and below each aspired performance level. This indicates that hypothesis 5a receives the same support as hypothesis 5b above. Thus, these results provide partial support for hypothesis 5a, that the further a firm's performance is above aspiration, the more enhancement it uses.

Combined Models

As described above, models 8, 9, and 10 combine multiple measures of performance in a single regression analysis. These models analyze the relationship between changes

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in firms' achievement of multiple performance levels and changes in firms' use of enhancement.

Model 8 analyzes dichotomous assessment of all six performance measures. In model 8, if coefficients on individual performance aspirations demonstrate statistical significance, then the effect of achieving that aspiration has a cumulative correlation with firms' use of enhancement. In other words, when firms achieve many aspirations they use more enhancement than when they achieve few or no aspirations. Tests of model 8 in Table 53 shows that four of the six coefficient β_1 coefficients are significant. β_1 is significant at the .01 level for HD Profitability, SD Profitability, and HD Revenue Change; it is significant at the .01 level for HD Revenue Change. Each coefficient β_1 in model 8 is smaller than the corresponding coefficient β_1 in models 2-7. This is expected due to collinearity between different measures of performance. Model 8's R^2 value confirms this cumulative effect ($R^2 = .358$): model 8's R^2 value is higher than the R^2 value in any of the models 2-7 that test single measures of performance. These results provide partial support for Hypothesis 3, that the more aspirations a firm achieves, the more enhancement it uses.

Model 9 provides a robustness check for model 8. Model 9 tests the cumulative effect of multiple continuous assessments of performance. It assesses whether the effect of these continuous measures is also cumulative. In model 9, one performance measure (coefficients β_2) is significant: SC Revenue Change. Model 9 provides valuable contrast with model 8. In comparison, model 8 has more coefficients that are positive and significant (four in model 8 versus one in model 9) and model 8 explains a greater proportion of the variance in firms' use of enhancement (Pseudo-R^2 =.358 in model 8 vs.

Pseudo-R^2 = .16 in model 9). This contrast affirms the cumulative relationship between

achievement of multiple dichotomous measures and use of enhancement. These results

confirm support for Hypothesis 3, that the more aspirations a firm achieves the more

enhancement is uses in performance explanations.

Model 10 also provides a robustness check for model 8. As model 8 excludes

measures of the difference between actual and aspired performance, it is possible that this

absence influences the significance of coefficients. Model 10 includes all variables used

in this study to assess the magnitude of coefficients β_1 in the presence of other study

variables. The results in model 10 show that all four variables that were significant in

model 8 are also significant in model 10. These results in model 10 confirm the

significance of the cumulative effect of these three variables in relation to enhancement.

These results provide further partial support for Hypothesis 3, that the more aspirations a

firm achieves the more enhancement it uses.

Control Variables

Changes in control variables in this within-firm analysis show no correlation with

changes in enhancement. $\beta_{4.1}$ is insignificant, indicating that changes in a sample firm's

CEO demonstrate no significant correlation with changes in that firm's use of

enhancement. $\beta_{4.2}$ is also insignificant, indicating that changes in a sample firm's

acquisitions demonstrate no significant correlation with changes in that firm's use of

enhancement.

<u>Summary of Within-firm Analysis of Enhancing Attributions in Primary Sample</u>

In sum, this within-firm analysis of enhancing attributions in the primary sample finds partial support for Hypotheses 1, 3, and 5. For Hypothesis 1, it finds partial support for dichotomous, 'high jumper' performance assessment with significance in five of the six β_1 coefficients in Models 2-7. For Hypothesis 3, it finds partial support for multiple dichotomous, 'high jumper' like performance assessment with significance in four of the six β_1 coefficients in Model 8. Finally, for Hypothesis 5a and 5b, it also finds partial support for continuous 'golfer' like performance assessments when firms perform above or below aspirations with significance in four of the six β_1 coefficients in Models 2-7. It finds equivalent magnitudes of effect above (Hypothesis 5a) and below aspired performance (Hypothesis 5b).

<u>Robustness Check</u>

As discussed in the methods section, this dissertation conducts a robustness check for each regression analysis. This robustness check of within-firm analysis uses the same equation (equation 3) and the same ten models as the analyses presented above. The within-firm analysis presented above in Table 53 excludes letters with fewer than five attributions and firms with extreme performance measures. The robustness check below includes all letters, regardless of the number of attributions in each letter. The "chunky" measurement of the percentage of attributions in these letters is expected to reduce the R^2 values in these regressions. The robustness check below also includes firms with extreme performance values. These extreme values are expected to result in larger regression coefficients. Table 55 presents the results of this robustness check.

Table 55: Within-Firm Analysis of Enhancing Attribution - Full Sample

Model	(1) Controls	(2) Historical Profitability	(3) Social Profitability	(4) Historical EPS	(5) Social EPS	(6) Historical Revenue	(7) Social Revenue	(8) Combined Dichotomous	(9) Combined Continuous	(10) Combined All
B_1 - HD Profitability		0.256***						0.147***		0.161***
		(0.024)						(0.032)		(0.032)
B_2 - HC Profitability		-0.011							0.031	-0.010
		(0.013)							(0.029)	(0.025)
B_3 - HD*HC Profitability		-0.003							-0.0841**	-0.005
		(0.013)							(0.040)	(0.035)
B_1 - SD Profitability			0.1785***					0.100***		0.117***
			(0.041)					(0.037)		(0.038)
B_2 - SC Profitability			-0.015**						0.069	-0.002
			(0.007)						(0.048)	(0.042)
B_3 - SD*SC Profitability			0.123						0.028	-0.005
			(0.159)						(0.021)	(0.185)
B1 - HD EPS Change				0.194***				0.077***		0.108***
				(0.022)				(0.025)		(0.027)
B2 - HC EPS Change				-0.003**					0.004	-0.005*
				(0.001)					(0.003)	(0.003)
B3 - HD*HC EPS Change				0.000					0.001	0.001
				(0.002)					(0.003)	(0.003)
B1 - SD EPS Change					0.206***			0.044		0.033
					(0.023)			(0.030)		(0.031)
B2 - SC EPS Change					0.002				-0.005	0.002
					(0.001)				(0.004)	(0.004)
B3 - SD*SC EPS Change					0.002				-0.001	-0.003
					(0.004)				(0.006)	(0.005)
B1 - HD Revenue Change						0.098***		0.027		0.028
						(0.027)		(0.025)		(0.027)
B2 - HC Revenue Change						-0.040*			0.006	0.007
						(0.023)			(0.039)	(0.036)
B3 - HD*HC Revenue Change						-0.034			0.071	0.014
						(0.024)			(0.049)	(0.046)
B1 - SD Revenue Change							0.095***	0.024		0.037
							(0.031)	(0.031)		(0.032)
B2 - SC Revenue Change							-0.017		0.122	0.016
							(0.028)		(0.082)	(0.078)
B3 - SD* SC Revenue Change							-0.161**		-0.132	0.012
							(0.065)		(0.109)	(0.096)
$B_{4.1}$ - CEO	0.105*	0.0829*	0.049	0.091*	0.087	0.106*	0.105*	0.042	0.067	0.051
	(0.056)	(0.049)	(0.050)	(0.052)	(0.048)	(0.055)	(0.055)	(0.045)	(0.048)	(0.046)
$B_{4.2}$ - Acquisition	0.018	0.027	0.021	0.025	0.019	0.014	0.013	0.024	0.016	0.024
	(0.030)	(0.027)	(0.029)	(0.028)	(0.028)	(0.030)	(0.030)	(0.026)	(0.028)	(0.026)
Constant	-0.114***	-0.070**	-0.086***	-0.079***	-0.082***	-0.081**	-0.103***	-0.038*	-0.096***	-0.035
	(0.031)	(0.028)	(0.020)	(0.030)	(0.019)	(0.032)	(0.031)	(0.019)	(0.028)	(0.022)
Observations	433	433	433	432	433	433	433	433	432	432
R^2	0.010	0.232	0.063	0.162	0.164	0.041	0.046	0.259	0.050	0.308

*** p<.01, ** p<.05, * p<.1

This robustness check confirms numerous aspects of the initial analysis. First, it confirms the initial analysis that firms that when firms achieve an aspired performance level they use more enhancement. Coefficient β_1 is positive and significant at the .01 level in models 2-7. These results confirm support for Hypothesis 1.

Second, this robustness check confirms lack of support for a relationship between the difference between actual and aspired performance and a firm's use of enhancement.

Coefficient β_2 is not positive and significant in any of the models 2-7. Coefficient β_2 was positive and insignificant in models 3, 4, and 6 in the initial analysis. Although coefficient β_2 is significant in models 3, 4, and 6 in the robustness check, it is negative in these models. The predicted result for coefficient β_2 is positive. These results confirm a lack of support for hypothesis 3.

Third, this robustness check confirms support for the cumulative effect of achieving aspired performance levels on the relationship with enhancement. In model 8, all six β_1 coefficients are positive. Of these six, three demonstrate significance at the .01 level (HD Profitability, SD Profitability, and HD EPS Change). In addition, model 8 explains a greater proportion of variance ($R^2 = .259$) than any of the models that test individual measures of performance (models 2-7). These results confirm support for a cumulative relationship between achieving multiple aspirations and a firms' use of enhancement. These results confirm support for Hypothesis 3.

Model 9 tests the cumulative effect of multiple continuous assessments of performance. It assesses whether the effect of these continuous measures is cumulative. In model 9, no performance measures (coefficients β_2) are significant. In comparison with model 9, model 8 has more coefficients that are positive and significant (three in model 8 vs. zero in model 9) and model 8 explains a greater proportion of variance in firms' use of enhancement (Pseudo-$R^2 = .259$ in model 8 vs. Pseudo-$R^2 = .05$ in model 9). These results confirm support for Hypothesis 3.

Results in model 10 further support this conclusion. Model 10 includes all study variables. Despite the inclusion of all study variables in the regression, the three variables that demonstrate significance in model 8 also demonstrate significance in model

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10: HD Profitability, SD Profitability, and HD EPS Change. Moreover, these three β_1

coefficients are larger in model 10 than in model 8. These results confirm partial support

for Hypothesis 3, that the more aspirations a firm achieves, the more enhancement it uses.

Analysis of Blame

   This dissertation conducts the same analysis of change in Blame that was performed

above with change in Enhancement. Again, it conducts its primary analysis on a trimmed

sample of letters that contain 5 or more attributions and on firms with non-extreme

performance. It applies the same nine models used above to this analysis. Model 1

contains only control variables. Model 2 tests historical aspirations in relation to

profitability. Model 3 tests social aspirations in relation to profitability. Model 4 tests

historical aspirations in relation to EPS Change. Model 5 tests social aspirations in

relation to EPS Change. Model 6 tests historical aspirations in relation to Revenue

Change. Model 7 tests social aspirations in relation to Revenue Change. Model 8 tests

the cumulative effect of achieving multiple performance aspirations. Model 9 tests the

cumulative effect of the difference between multiple measures of actual and aspired

performance. And, model 10 combines all variables used in this study as a robustness

check for model 8. Table 56 presents the results of this analysis on change in use of

Blame.

Table 56: Within-Firm Analysis of Blaming Attribution - Primary Sample

Model	(1) Controls	(2) Historical Profitability	(3) Social Profitability	(4) Historical EPS	(5) Social EPS	(6) Historical Revenue	(7) Social Revenue	(8) Combined Dichotomous	(9) Combined Continuous	(10) Combined All
B_1 - HD Profitability		-0.153***						-0.115***		-0.110***
		(0.024)						(0.028)		(0.027)
B_2 - HC Profitability		-0.179							-0.236	-0.012
		(0.156)							(0.242)	(0.242)
B_3 - HD*HC Profitability		0.051								-0.096
		(0.170)								(0.211)
B_1 - SD Profitability			-0.104***					-0.075**		-0.082**
			(0.039)					(0.032)		(0.036)
B_2 - SC Profitability			-0.608***						-0.535	-0.116
			(0.217)						(0.344)	(0.326)
B_3 - SD*SC Profitability			0.355							0.514
			(0.300)							(0.313)
B1 - HD EPS Change				-0.118***				-0.045**		-0.079***
				-0.021				-0.021		-0.023
B2 - HC EPS Change				-0.002					-0.009	0.007
				(0.002)					(0.006)	(0.007)
B3 - HD*HC EPS Change				-0.001						0.005
				(0.003)						(0.005)
B1 - SD EPS Change					-0.106***			-0.015		0.014
					(0.024)			(0.026)		(0.028)
B2 - SC EPS Change					-0.024**				0.009	-0.007
					(0.011)				(0.007)	(0.008)
B3 - SD*SC EPS Change					-0.003					-0.004
					(0.014)					(0.006)
B1 - HD Revenue Change						-0.073**		-0.0349*		-0.063**
						(0.029)		(0.021)		(0.028)
B2 - HC Revenue Change						0.058			0.058	0.183**
						(0.079)			(0.073)	(0.087)
B3 - HD*HC Revenue Change						0.076				0.022
						(0.078)				(0.076)
B1 - SD Revenue Change							-0.034	-0.039		-0.023
							(0.037)	(0.016)		(0.030)
B2 - SC Revenue Change							-0.276**		-0.227**	-0.197*
							(0.146)		(0.115)	(0.112)
B3 - SD* SC Revenue Change							0.184			0.025
							(0.164)			(0.141)
$B_{4.1}$ - CEO	0.008	0.025	-0.031	-0.002	-0.012	-0.002	-0.019	-0.016	-0.028	-0.007
	(0.058)	(0.051)	(0.055)	(0.054)	(0.054)	(0.058)	(0.058)	(0.049)	(0.056)	(0.050)
$B_{4.2}$ - Acquisition	0.013	-0.009	0.012	0.003	0.023	0.010	0.015	-0.005	-0.004	-0.002
	(0.028)	(0.025)	(0.027)	(0.026)	(0.027)	(0.028)	(0.028)	(0.023)	(0.027)	(0.024)
Constant	0.057***	0.019	0.057***	0.038**	0.023**	0.021	0.051***	0.012	0.053***	0.010
	(0.017)	(0.017)	(0.017)	(0.018)	(0.040)	(0.023)	(0.019)	(0.017)	(0.018)	(0.023)
Observations	215	215	215	215	215	215	215	215	215	215
R^2	0.001	0.243	0.120	0.192	0.199	0.043	0.060	0.314	0.140	0.370

*** $p<.01$, ** $p<.05$, * $p<.1$

Dichotomous Performance Assessment

Tests of models 2-7 in Table 56 consistently show a significant relationship between aspired performance and use of Blame. Five of the six coefficients of β_1 are negative and significant: only in model 7, SD Revenue Change, is coefficient β_1 not significant. In models 2-5, β_1 is significant at the .01 level; in model 6, HD Revenue Change is

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significant the .05 level. Significance in five of the six models indicates that a change in firms' achievement of a performance aspiration generally corresponds with a change in firms' use of blame. The findings confirm hypothesis 2, that when a firm fails to achieve a performance aspiration it uses more blame.

The size of the coefficient for β_1 in each model indicates the extent to which firms increase their use of blame when they fail to achieve a specific performance aspiration. Comparing these coefficients in Table 56 shows that failing to achieve historical aspirations in relation to profitability has the greatest influence on firms' use of blame. When firms fail to achieve HD Profitability, they increase their use of Blame by 15.3%. When firms fail to achieve HD EPS Change, they increase their use of Blame by 11.8%. When firms fail to achieve SD EPS Change, they increase their use of Blame by 10.6%. When firms fail to achieve SD Profitability, they increase their use of Blame by 10.4%. When firms fail to achieve HD Revenue Change, they increase their use of Blame by 7.3%.

The R^2 values in Table 56 indicate how well each model explains the distribution of the dependent variable, change in Blame. The study's control variables explain less than 1% of change in firms' use of Blame (model 1, $R^2 = .006$). Historical aspiration relative to Profitability provides the best explanation of change in firm's use of Blame (model 2, $R^2 = .253$). Social aspiration relative to EPS Change provides the second best explanation of change in firms' use of Blame (model 4, $R^2 = .199$). Historical aspiration in relation to EPS Change provides the third best explanation of change in firms' use of Blame (model 4, $R^2 = .192$). Social aspiration relative to Profitability provides the fourth best explanation of change in firms' use of Blame (model 3, $R^2 = .12$). Social aspiration

in relation to Revenue Change provides the fifth best explanation of change in firm's use of Blame (model 7, $R^2 = .060$). And, historical aspiration in relation to Revenue Change provides the least explanation of change in firms' use of Blame (model 6, $R_2 = .043$).

These results support hypothesis 2, that a when a firm fails to achieve an aspiration, it uses more Blame than when it achieves an aspiration.

Continuous Performance Assessment

Tests of models 2-7 show partial support for the relationship between change in the difference between actual and aspired performance and change in firms' use of Blame. Coefficient β_2 is significant in three models: it is significant at the .01 level in model 3 (SC Profitability), at the .05 level in model 5 (SC EPS Change), and at the .05 level in model 7 (SC Revenue Change). It is notable that coefficient β_2 is significant in relation to all three social aspirations but not in relation to any of the historical aspirations.

Coefficients can only be compared between models when the variables to which they relate have the same scale. This dissertation standardizes each coefficient by multiplying it by the standard deviation for each measure. Table 57 presents these standardized coefficients.

These results indicate that Change in SC EPS Change has the greatest influence on firms' use of blame. A decrease in EPS Change of 5.32 (one standard deviation) is expected to occur with a 12.8% increase in blame.

Table 57: Standardization of β_2 Coefficients for Change in Blame

		Model 2 HC Profit	Model 3 SC Profit	Model 4 HC-EPS Change	Model 5 SC EPS Change	Model 6 HC - EPS Change	Model 7 SC Rev. Increase
β_2	Upper Bound	0.13	-0.18	0.00	0.00	0.21	0.01
	Average	-0.18	-0.61	0.00	-0.02	0.06	-0.28
	Lower Bound	-0.48	-1.03	-0.01	-0.05	-0.10	-0.56
	Standard Deviation	0.12	0.12	5.32	5.32	0.21	0.21
Effect Size	Upper Bound	2%	-2%	1%	-1%	4%	0%
	Average	-2%	-7%	-1%	-13%	1%	-6%
	Lower Bound	-6%	-12%	-3%	-24%	-2%	-12%

<u>Combined Models</u>

As described previously, models 8, 9, and 10 combine multiple measures of performance in a single regression analysis. Model 8 analyzes dichotomous assessment of all six performance measures. In model 8, if coefficients on individual performance aspirations demonstrate statistical significance, then the effect of achieving that aspiration has a cumulative relationship with firms' use of Blame. Tests of model 8 in Table 57 show that four of the six β_1 coefficients are negative and significant. Coefficient β_1 is significant at the .01 level in HD Profitability. It is significant at the .05 level in SD Profitability and SD Revenue Change. It is significant at the .1 level in HD Revenue Change. Each coefficient β_1 in model 8 is smaller than the corresponding coefficient in models 2-7. This smaller size is expected due to collinearity in model 8. Model 8's R^2 value confirms the cumulative effect of achieving multiple aspirations ($R^2 = .314$). Model 8's R^2 value is higher than the R^2 value in models 2-7 that test single measures of

performance. These results provide strong partial support for hypothesis 4, that the fewer aspirations a firm achieves, the more Blame it uses.

Model 9 provides a robustness check for model 9. Model 9 tests the cumulative effect of multiple continuous assessments of performance. It assesses whether the effect of these continuous measures is also cumulative. In model 9, only one performance measure is significant: SC Revenue Change is significant at the .05 level. Model 9 provides valuable contrast with model 8. In comparison, model 8 has more variables that are negative and significant (four in model 8 versus one in model 9) and model 8 explains a greater proportion of the variance in firms' use of blame (Pseudo-R^2 =.314 in model 8 vs. Pseudo-R^2 = .140 in model 9). These results confirm support for Hypothesis 4, that the fewer aspirations a firm achieves, the more blame it uses.

Model 10 also provides a robustness check for model 8. As model 8 excludes measures of the difference between actual and aspired performance, it is possible that this absence influences the significance of coefficients. Model 10 includes all variable used in this study to assess the magnitude of coefficients β_1 in the presence of other study variables. The results in model 10 show that all four variables that were negative and significant in model 8 are also negative and significant in model 10: HD Profitability, SD Profitability, and HD EPS Change. In addition, in model 10, HD Revenue Change is also significant. These results in model 10 confirm the significance of the cumulative effect of dichotomous assessments of performance on firms' use of Blame. These results confirm support for Hypothesis 4, that the more performance aspirations a firm fails to achieve, the more Blame it uses to describe its performance.

Control Variables

Changes in control variables in this analysis show no correlation with changes in Blame. $B_{4.1}$ is insignificant, indicating that changes in sample firms' CEO demonstrate no significant correlation with changes in blame. $\beta_{4.2}$ is also insignificant, indicating that changes in sample firms' acquisitions demonstrate no significant correlation with changes in Blame.

Robustness Check

As discussed in the methods section, this dissertation conducts a robustness check for all regression analyses. This robustness check of within firm analysis uses the same equations and the same ten models as the analysis presented in Table 57. Due to the inclusion of firms with letters that contain fewer than 5 attributions, the R^2 values in the robustness check are expected to be lower than they were in the initial analysis in Table 57. In addition, due to the inclusion of firms with extreme measures of performance, coefficients β_1, β_2, and β_3 are expected to be larger in the robustness check than they were in the initial analysis in Table 44. Table 58 presents the results of this robustness check.

The robustness check for change in Blame largely confirms the findings of the initial analysis. First, it confirms the relationship between change in achievement of aspirations and change in Blame. In the robustness check, coefficient β_1 is negative and significant in each model from 2-7. In all six models, β_1 is significant at the .01 level. This confirms support for Hypothesis 4, that when a firm fails to achieve an aspiration, it uses more blame than when it achieves an aspiration.

Table 58: Within-Firm Analysis of Blaming Attribution - Full Sample

Model	(1) Controls	(2) Historical Profitability	(3) Social Profitability	(4) Historical EPS	(5) Social EPS	(6) Historical Revenue	(7) Social Revenue	(8) Combined Dichotomous	(9) Combined Continuous	(10) Combined All
B_1 - HD Profitability		-0.181***						-0.120***		-0.125***
		(0.018)						(0.024)		(0.024)
B_2 - HC Profitability		0.005							0.010	0.017
		(0.009)							(0.019)	(0.018)
B_3 - HD*HC Profitability		-0.004							-0.009	-0.032
		(0.010)							(0.020)	(0.026)
B_1 - SD Profitability			-0.094***					-0.032		-0.040
			(0.030)					(0.027)		(0.028)
B_2 - SC Profitability			-0.002						-0.039	0.027
			(0.005)						(0.029)	(0.031)
B_3 - SD*SC Profitability			0.012						-0.034	0.138
			(0.117)						(0.032)	(0.137)
B1 - HD EPS Change				-0.130***				-0.051***		-0.067***
				(0.016)				(0.018)		(0.020)
B2 - HC EPS Change				0.000					0.000	0.003
				(0.001)					(0.001)	(0.002)
B3 - HD*HC EPS Change				-0.001					-0.002	-0.002
				(0.001)					(0.001)	(0.002)
B1 - SD EPS Change					-0.136***			-0.017		-0.017
					(0.017)			(0.022)		(0.023)
B2 - SC EPS Change					0.000				-0.131***	0.003
					(0.001)				(0.018)	(0.027)
B3 - SD*SC EPS Change					-0.003				0.011	0.001
					(0.003)				(0.025)	(0.004)
B1 - HD Revenue Change						-0.092***		-0.045**		-0.049**
						(0.019)		(0.018)		(0.020)
B2 - HC Revenue Change						0.010			-0.020	0.002
						(0.016)			(0.021)	(0.027)
B3 - HD*HC Revenue Change						0.005			-0.026	0.017
						(0.017)			(0.032)	(0.034)
B1 - SD Revenue Change							-0.086***	-0.031		-0.041*
							(0.023)	(0.022)		(0.024)
B2 - SC Revenue Change							-0.001		-0.028	0.035
							(0.021)		(0.051)	(0.057)
B3 - SD* SC Revenue Change							0.034		0.061	-0.003
							(0.047)		(0.073)	(0.071)
$B_{4.1}$ - CEO	-0.093**	-0.079**	-0.061**	-0.075**	-0.072**	-0.094**	-0.089**	-0.055*	-0.068*	-0.051
	(0.040)	(0.036)	(0.037)	(0.038)	(0.035)	(0.039)	(0.040)	(0.033)	(0.036)	(0.034)
$B_{4.2}$ - Acquisition	0.000	-0.006	-0.001	-0.002	0.000	0.005	0.006	-0.002	0.004	0.004
	(0.022)	(0.020)	(0.022)	(0.020)	(0.020)	(0.021)	(0.022)	(0.019)	(0.021)	(0.019)
Constant	0.054**	0.023	0.035**	0.033	0.034**	0.026	0.049**	-0.009	0.037*	-0.012
	(0.022)	(0.020)	(0.014)	(0.022)	(0.014)	(0.023)	(0.022)	(0.014)	(0.021)	(0.016)
Observations	433	433	433	432	433	433	433	433	432	432
Pseudo-R^2	0.012	0.210	0.033	0.154	0.145	0.065	0.047	0.260	0.160	0.277

*** p<.01, ** p<.05, * p<.1

This robustness check provides no confirmation of a significant relationship between change in the difference between actual and aspired performance and change in firms' use of Blame. Coefficient β_1 is insignificant in each model from 2-7. As coefficient β_2 is insignificant, the interaction term between β_1 and β_2 is of little interest. However, it is notable that β_3 is also insignificant in each model from 2-7. These results fail to confirm

support for hypotheses 6a and 6b, that the difference between a firm's actual and aspired performance shows no correlation with changes in a firm's use of blame.

Third, the robustness check confirms that failure to achieve multiple performance aspirations correlates with cumulatively higher amounts of blame. In model 8, three of the β_1 coefficients are negative and significant: HD Profitability, HD EPS Change, and HD Revenue Change. In addition, the R^2 value in model 8 demonstrates the cumulative effect of achieving multiple aspired performance levels. The R^2 value of .260 in model 8 is higher than the R^2 values for any model from 2-7.

The results in model 9 provide counterpoint to those in model 8. Model 9 shows little significant relationship between changes in multiple continuous measures of performance and changes in firms' use of Blame to describe performance. Only SC EPS Change is significant. The lack of explanatory power from combining multiple measures of the difference between actual and aspired performance in model 9 makes clear the explanatory power of model 8.

Finally, the results in model 10 further confirm the cumulative nature of achieving multiple aspired performance levels on Blame. The same 3 coefficients that demonstrate significance in model 8 also demonstrate significance in model 10. This result further confirms that when a firm fails to achieve more aspirations it uses more Blame. These results in models 8, 9, and 10 confirm support for hypothesis 4, that the more aspirations a firm fails to achieve, the more Blame it uses.

Conclusions from Within-Firm Analysis

The within-firm analysis presented above consistently demonstrates numerous significant relationships between firms' performance relative to aspirations and firms' causal descriptions of performance. First, within-firm analysis demonstrates a significant relationship between achievement of a single performance aspiration and causal descriptions of performance. In support of Hypothesis 1, when firms achieve performance aspirations, they use more Enhancement than when they fail to achieve performance aspirations. In support of Hypothesis 2, when firms fail to achieve performance aspirations, they use more Blame than when they achieve performance aspirations. These relationships hold for Enhancement and Blame in five of the six models. Firms' use of Enhancement and Blame reflects whether or not they have achieved aspired performance levels.

Second, within-firm analysis consistently demonstrates a significant relationship between achievement of multiple performance aspirations and use of Enhancement and Blame. In support of Hypothesis 3, four of the six dichotomous assessments of performance were significant when tested simultaneously. In other words, firms that achieved multiple aspirations used more enhancement than firms that achieved fewer aspirations. In support of Hypothesis 4, four of the six dichotomous assessments of performance were significant when tested simultaneously. In other words, firms that achieve many aspirations used less Blame than firms that achieved fewer aspirations. These results indicate that firms' use of Enhancement and Blame reflects the number of aspirations that they achieve.

Third, within-firm analysis reveals a relationship between the difference between actual and aspired performance and causal descriptions of performance. In support of Hypothesis 5a, when firms increased the positive difference between their actual and aspired performance, they used more Enhancement. In support of Hypothesis 5b, when firms increase the negative difference between their actual and aspired performance, they use less Enhancement. Four of six continuous measures of performance demonstrate significance. This analysis supports a similar relationship between Blame and the difference between firms' actual and aspired performance. As the positive difference between firms' actual and aspired performance increased, they used less Blame. As the negative difference between firms' actual and aspired performance increased, firms used more Blame. Three of six measures of the difference between actual and aspired performance demonstrated significance.

In conclusion, the above within-firm analysis provides support for hypotheses 1 & 2, that achievement of a single aspiration is related to attribution, and for hypotheses 3 & 4, that achievement of multiple aspirations is related to attribution. This analysis also finds support for hypotheses 5 & 6, that the difference between firms' actual and aspired performance correlates with firms' use of enhancement.

Summary of Findings

The above empirical analysis tests the relationship between firm attribution and performance related to aspiration. It used six hypotheses to answer three questions about the relationship between performance and attribution: 1) Do firms that achieve an aspiration use attribution differently than firms that fail to do so? 2) Do firms that achieve

many aspirations use attribution differently than firms that achieve fewer aspirations? 3) Does the difference between a firm's actual and aspired performance correlate with the way firms use attribution. To investigate these questions, this dissertation gathered data on three performance metrics (Profitability, EPS Change, and Revenue Change) and applied two mental models of performance assessment (dichotomous and continuous) to each metric to create 6 performance aspirations. With these six performance aspirations, this dissertation conducted two types of analysis (between-firm analysis and within-firm analysis) to determine whether a significant relationship exists between each of these six performance aspirations and the two most common types of attribution (Enhancement and Blame). This analysis provides partial support for all six of this dissertation's hypotheses. This summary reviews the general support received by all six hypotheses. It also analyzes patterns in this support, identifying the relationships that were most consistently significant.

General Support for Hypotheses

All six hypotheses were generally supported in both descriptive analysis and regression analysis. Table 59 presents a tally of the number of variables that demonstrated significance in regression analysis. Table 59 organizes variables in relation to the three questions that this dissertation asks about the relationship between firm aspiration and firm attribution. 1) Does firm attribution change with achievement of a single aspiration? 2) Does firm attribution change with achievement of multiple aspirations? 3) Does firm attribution change when the difference between actual and aspired performance changes? This dissertation tests each question in four empirical

analyses: 2 types of attribution (Enhancement & Blame) * 2 types of analysis (between-firm analysis and within-firm analysis). As a result, each question can receive support from a total of 24 empirical tests.

Table 59: Number of Significant Relationships for Each Aspiration

Hypothesis	Cross Firm Analysis		Fixed Firm Analysis		Total
	Enhancement	Blame	Enhancement	Blame	
H1 & H2: Single Aspiration	4	5	5	5	19
H3 & H4: Multiple Aspirations	6	5	4	4	19
H5 & H6: Actual minus Aspired	4	4	4	3	15
Total	14	14	13	12	53

Hypothesis 1 and 2 tested whether firms that achieve an aspiration use more Enhancement and less Blame than firms that fail to achieve that same aspiration. By demonstrating support in 19 tests, this dissertation shows that firms change their use of Enhancement and Blame in relation to achievement of a single dichotomous aspiration. Hypotheses 3 and 4 tested whether firms that achieve numerous aspirations use more Enhancement and less Blame than firms that achieve fewer aspirations. By demonstrating support in 19 tests, this dissertation shows that firms change their use of Enhancement and Blame in relation to achievement of multiple dichotomous aspirations. Hypotheses 5 and 6 tested whether the difference between actual and aspired performance corresponds with the amount of Enhancement and Blame in firms' explanations of performance. By demonstrating support in 15 tests, this dissertation shows that firms change their use of Enhancement and Blame in relation to the difference

between actual and aspired performance. These results provide general support for each of the six hypotheses.

In addition to showing consistent support for all six hypotheses, Table 59 shows two clear contrasts. First, Hypotheses 5 & 6 received less consistent support than Hypotheses 1-4. This reduced level of support could indicate that dichotomous performance assessment plays a larger role than continuous performance assessment in how firms assess their performance. This reduced level of support could also result from the empirical testing performed. Tests of continuous performance assessment are more nuanced and could fail due to errors in measurement, such as the "chunky" and non-normal nature of the distribution of the dependent variables, Enhancement and Blame, discussed above.

Second, Table 59 reveals that between-firm analysis generated marginally weaker support than between-firm analysis. This difference likely results from the different number of observations in each analysis. Between-firm analysis was conducted on 562 observations while within-firm analysis was conducted on 215 observations.

In sum, empirical analysis generally supported all six hypotheses. Differences in levels of support could result from technical challenges in empirical analysis.

Patterns of Support

In addition to the general support that empirical analysis demonstrated for this dissertation's six hypotheses, this results also produced distinct trends: some measures of performance consistently demonstrated a significant relationship with firms' use of

Enhancement and Blame while others did not. These patterns could reveal subtleties in the ways organizations assess their performance.

To identify patterns of support, Table 59 summarizes the significance of each of the six performance aspirations for each of the six hypotheses. Like Table 59, Table 60 groups results by the three concepts that this dissertation tests: single dichotomous aspirations, multiple dichotomous aspirations, and the difference between actual and aspired performance. However, Table 60 presents more detail by breaking out the significance for each of the six individual aspirations.

Table 60 reveals two trends. First, when assessing current performance in relation to past performance, firms assess their performance like high jumpers. In other words, firms use dichotomous performance assessment with historical performance aspirations. In tests of dichotomous performance assessment (Hypotheses 1-4), all three historical performance aspirations demonstrate significance (HD Profitability, HD EPS Change, and HD Revenue Change) in all four types of analysis. In contrast, in tests of continuous performance assessment (Hypotheses 5 & 6), two of the three measures of historical aspirations demonstrate no significance: HC Revenue Change and HC EPS Change demonstrate no significance in tests of Hypotheses 5 & 6. In addition, the third historical performance measure, HC Profitability, demonstrates inconsistent significance in tests of Hypotheses 5 & 6: it is only significant in three of the four tests. The contrast between the consistent significance of historical aspirations in dichotomous performance assessments (Hypotheses 1-4) and their lack of significance in continuous performance assessments indicates that firms use dichotomous performance assessment selectively. Firms consistently use dichotomous performance assessment with historical performance.

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Table 60: Significance of Individual Regression Analyses

	Between-firm Analysis		Within-firm Analysis	
	Enhancement	Blame	Enhancement	Blame
H1 & H2: Single Aspiration				
HD Profitability	***	***	***	***
SD Profitability		***	***	***
HD EPS Change	***	***	***	***
SD EPS Change	***	***	***	***
HD Revenue Change	***	***	**	**
SD Revenue Change				
H3 & H4: Multiple Aspirations				
HD Profitability	***	***	***	***
SD Profitability	***	***	***	**
HD EPS Change	***	***	***	**
SD EPS Change	*			
HD Revenue Change	*	***	*	*
SD Revenue Change	***	**		
H5 & H6: Actual minus Aspired				
HC Profitability	***	**	**	
SC Profitability	***	***	***	***
HC EPS Change				
SC EPS Change	***	***	**	**
HC Revenue Change				
SC Revenue Change	***	***	**	**

***<.01; **<.05; *<.10

They do not consistently use continuous performance assessment with historical performance. When assessing their current performance in relation to past performance, firms think like high jumpers: if firms reach their historical performance aspiration, they deem their performance a success and pay little to no attention to the extent by which they surpassed their historical performance aspiration.

Second, when assessing their performance against that of peers, firms assess their performance like golfers. In other words, firms use continuous performance assessment

with social performance aspirations. In tests of continuous assessment of performance (Hypotheses 5 & 6), all three measures of performance demonstrate significance in all tests when assessed in relation to social aspirations (SC Profitability, SC EPS Change, and SC Revenue Change). In contrast, in tests of dichotomous assessment of performance (Hypotheses 1-4), social aspirations demonstrated inconsistent significance: SD Profitability demonstrates no significance in one of four tests of single aspirations (Hypothesis 1 & 2); SD EPS Change demonstrates no significance in three of the four tests of multiple aspirations (Hypotheses 3 &4); SD Revenue Change demonstrates no significance in four out of four tests of single aspirations (Hypotheses 1 & 2) and fails to demonstrate significance in two out of four tests of multiple aspirations (Hypotheses 3 & 4). In sum, every test that fails to demonstrate significance in the analysis of dichotomous performance assessment (Hypotheses 1-4) occurs in relation to social aspirations. In contrast, social aspirations demonstrate significance in every test of continuous performance assessment (Hypotheses 5 &6). When assessing performance in relation to that of their peers, firms think like golfers: firms use different amounts of enhancement and blame in relation to the difference between their actual and aspired performance.

This analysis also provides a measure of effect size for significant variables. Regression coefficients in within-firm analysis provide this measure of effect size. As this dissertation uses OLS regression to conduct within-firm analysis, these coefficients have been calculated to scale, allowing coefficients to be standardized and compared across models. In contrast, this dissertation uses Tobit in its between-firm analysis. Tobit analysis operates an on arbitrary scale which prevents comparison of coefficients

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across different tests (Kennedy, 2003). Table 61 presents the effect size of each aspiration. These effect sizes all operate on the same scale. In Hypotheses 1-4 each coefficient operates on a dichotomous scale (0/1). Firms either achieve the aspiration in question or they do not. In Hypotheses 5 & 6, coefficients have been standardized to represent the difference in firms' use of Enhancement and Blame that corresponds with a one standard-deviation change in a given measure of performance.

Table 61 suggests that, with the exception of SC EPS Change, the dichotomous assessments of performance tested in Hypotheses 1 & 2 have larger effect sizes than the continuous assessments of performance in hypotheses 5 & 6. However, the continuous assessments of performance in hypotheses 5 & 6 are calculated for one standard deviation of change in performance. As a firm's performance can change by more than one standard deviation, the effect size of the continuous assessments of performance could be a multiple of the percentages in Table 61. For example if a firm's profitability increased by four standard deviations, it would decrease its use of enhancement by 10% as a result of failing to achieve its performance aspiration and by 20% (4 standard deviations x 5% per standard deviation) as a result of the extent by which it failed to achieve its performance aspiration. However, few firms experienced large drops in their profitability: only three firms in the primary sample experienced a drop of four standard deviations in profitability; fewer than 43 firms (20%) experienced a drop in profitability of more than one standard deviation. As a result, for the vast majority of firms, dichotomous assessment of performance has a stronger correlation with firms' use of Enhancement and Blame than continuous assessment of performance. However, for the minority of firms with dramatic changes in performance, the change in the firms' use of

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Table 61: Effect of Performance Aspirations on Firms' Use of Attribution

| Aspiration	Enhancement				Blame		
	Low	Med	High		Low	Med	High
H1 & H2: Single Aspiration							
HD Profitability	13%	19%	25%		-20%	-15%	-10%
SD Profitability	5%	15%	25%		-18%	-10%	-2%
HD EPS Change	12%	17%	22%		-16%	-12%	-8%
SD EPS Change	9%	15%	21%		-16%	-11%	-6%
HD Revenue Change	1%	9%	17%		-13%	-7%	-1%
SD Revenue Change	-5%	5%	15%		-16%	-9%	-1%
H3 & H4: Multiple Aspirations							
HD Profitability	3%	11%	18%		-17%	-12%	-6%
SD Profitability	5%	13%	21%		-14%	-8%	-1%
HD EPS Change	3%	9%	14%		-9%	-5%	0%
SD EPS Change	-2%	4%	11%		-7%	-2%	4%
HD Revenue Change	-1%	5%	10%		-8%	-3%	1%
SD Revenue Change	-3%	4%	11%		-7%	-4%	-1%
H5 & H6: Actual minus Aspired							
HC Profitability	1%	6%	11%		-6%	-2%	2%
SC Profitability	3%	10%	17%		-12%	-7%	-2%
HC EPS Change	-2%	2%	5%		-3%	-1%	1%
SC EPS Change	5%	19%	34%		-24%	-13%	-1%
HC Revenue Change	-4%	0%	5%		-2%	1%	4%
SC Revenue Change	1%	12%	24%		-12%	-6%	0%

Enhancement and Blame in relation to the difference between actual and aspired

performance could have a larger effect.

Combined with the finding presented above, that firms generally use dichotomous

performance assessment with historical measures of performance and continuous

performance assessment with historical measures of performance, the effect sizes in Table 61 can be used to estimate how a firm's use of enhancement and blame change in relation to changes in a specific performance measure. For example, if a firm's Profitability rose above historical aspiration, it would be expected to increase its use of Enhancement by 19% (the coefficient for HD Profitability in Hypothesis 1). In addition, for each additional increase in Profitability of .08 (one standard deviation), a firm would be expected to increase its use of Enhancement by 7% (the coefficient for SC Profitability in Hypothesis 5). Similarly, if a firm's Profitability rose above historical aspiration, it would be expected to decrease its use of blame by 15% (the coefficient for HD Profitability in Hypothesis 2). In addition, for each decrease in Profitability of .08 (one standard deviation), a firm would be expected to increase its use of blame by 5% (the coefficient for SC Profitability for Hypothesis 6). Figure 19 presents the expected change in a firm's use of Enhancement and Blame in relation to changes in its Profitability.

In sum, empirical analysis provides general support for all six of this dissertation's hypotheses. In addition, it indicates that firms use dichotomous assessment with historical aspirations and continuous assessment with social aspirations. Chapter IV discusses the meaning of these findings.

Figure 19: Change in Enhancement and Blame with Changes in Profitability
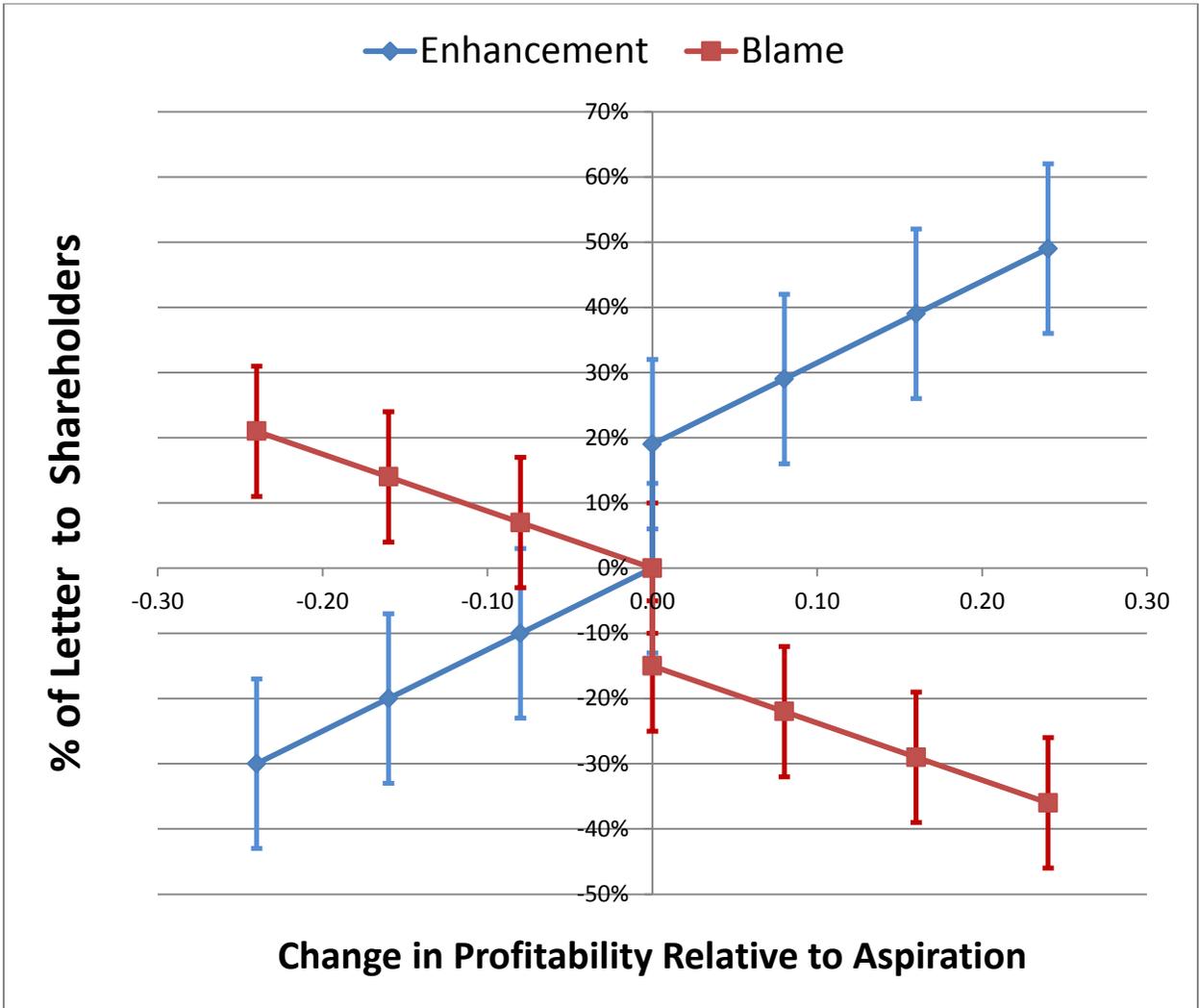
CHAPTER VI

CONCLUSION

<u>Dissertation Summary</u>

One of organizational scholars' key achievements in the 20th century was
establishing that organizations matter: "We cannot assume that a rational manager can
treat the organization as a simple instrument in his dealings with the external world"
(Cyert & March, 1963, p. 205). Rather, organizations compensate for individuals'
limitations in decision making (Cyert & March, 1963). Over the past half-century,
organizational scholars have greatly expanded our understanding of how individuals act
in organizations, the environments around organizations, and the importance of resources
in organizations, but have said little about organizations themselves (King et al., 2009).
Recent studies propose that scholars can advance our understanding of organizations
themselves by borrowing theories of behavior developed at the level of the individual and
applying them at the level of the organization. Importing theories across levels requires
care, especially in empirical research (King et al., 2009). Individuals and organizations
operate in different contexts and failure to conceptualize the context in which
organizations operate may not only obfuscate empirical relationships but also
anthropomorphize the organization, making it more difficult to understand (Andersen,
2008).

This dissertation furthers our understanding of organizational behavior by examining
how organizations assess their performance and generate causal attributions of their
performance. Scholars have previously studied organizational attribution by borrowing

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behavioral theories developed at the level of the individual and applying them at the level of the firm. However, these studies suffer from the shortcomings described above by King, Felin, and Whetten (2009): poor conceptualization of context around key variables at the level of the organization. Even though studies of the relationship between performance and attribution at the level of the individual had repeatedly demonstrated a robust relationship, this conceptual shortcoming prevented scholars from revealing a similar relationship at the level of the organization. In contrast, this dissertation creates a new model of attribution at the level of the organization by adding aspiration theory to its theoretical model. With the addition of aspiration theory, this dissertation reveals a relationship between attribution and firm performance in relation to aspiration.

This new model and the relationship that it reveals make six contributions to our understanding of organizations. First, this dissertation adds breadth to aspiration theory. Over the past few decades, scholars have demonstrated that aspirations play a role in explaining numerous firm behaviors, including risk taking (Bromiley, 1991; Fiegenbaum & Thomas, 1988), innovation (Greve, 1998, 2003; Levinthal & March, 1981), and learning (J. A. C. Baum & Dahlin, 2007). This dissertation extends aspiration theory into a new domain, causal attribution, and demonstrates that aspiration plays an important role in understanding organizations' formulation of causal explanations of performance.

Second, this dissertation has refined aspiration theory. Prior studies of organizational aspirations have examined behaviors that require time and resources to change, such as partnering (J. A. C. Baum & Dahlin, 2007), factory expansion (Audia & Greve, 2006), accidents (J. A. C. Baum & Dahlin, 2007), and strategic persistence (Audia et al., 2000). In contrast, attributions in firms' public descriptions of performance can be changed very

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quickly at little to no cost. As a result, attribution represents a very sensitive measure of firm behavior in relation to achievement of aspirations and has permitted this dissertation to examine some of the finer points of how firms use aspiration in performance assessment. This dissertation empirically demonstrates that firms assess their performance in relation to both historical aspirations and social aspirations. It shows that firms make different attributions when they achieve historical and social aspirations. This confirms Greve's (1998) argument that firms maintain distinct aspirations for each reference point. Furthermore, this dissertation demonstrates that in relation to their historical aspiration, firms assess their performance like high jumpers with dichotomous assessments of performance. This dissertation also demonstrates that in relation to their social aspirations, firms assess their performance like golfers with a performance assessment that accounts for the extent by which they surpassed or fell short of aspiration. These pairings, assessing social aspiration on a continuous scale and historic aspiration on a dichotomous scale, can be understood through the salience of data. Firms construct historic aspirations from specific, salient, and available performance data. Investors receive a firm's letter to shareholders as part of the corporate annual report, which contains measures of that firm's current and past financial performance. Furthermore, when investors access a firm's financial data through other sources (such as the internet), these sources also present both current and past financial data. Consequently comparisons between a firm's current and past performance are readily available, uniform, and rather easy to interpret, allowing investors to easily assess whether a firm has achieved its historical aspiration.

In contrast, investors have less access to clear, uniform, easy to interpret data on the performance of a firm's peers. A firm's corporate annual report does not include such information, nor do many other sources of information on a firm's performance. Furthermore, those sources that provide information on a firm's peers typically provide it on a separate webpage or a separate subsection of a printed report. Finally, performance data on a firms' industry is typically incomplete. Although investors can readily find information on an industry's average earnings, far fewer sources provide information on average industry sales or average industry profitability. Consequently, data on the performance of a firm's peers is less readily available to investors than historic performance data.

Finally, this dissertation demonstrates that achievement of multiple aspirations influences a firm's performance assessment: the more aspirations a firm achieves the higher it rates its performance. These findings increase both the breadth and depth of aspiration theory.

Third, this dissertation furthers attribution theory by revealing a parallel between causal explanations by firms and by individuals. In contrast with prior studies of firm attribution that failed to find a reliable relationship between firm attribution and firm performance, this dissertation reveals a consistent and robust relationship between firm attribution and firm performance in relation to aspiration. This dissertation suggests that identifying such a relationship requires not only careful conceptualization of firm performance in relation to aspirations, but also careful selection of performance measures (profitability, EPS change, or revenue change) and careful consideration of mental models of performance assessment (high-jumper like dichotomous assessment or golfer-

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like continuous assessment). Through vigilant consideration of these aspects of firms'

performance assessment, this dissertation convincingly disproves the findings of prior

studies of firm attribution: it demonstrates that firms that perform well describe their

performance with enhancing attributions and firms that perform poorly describe their

performance with blaming attributions. This dissertation reveals the relationship that

scholars have sought since 1983 (Bettman & Weitz, 1983). Furthermore, these findings

are consistent with attribution scholars' claim that image management drives firms' use of

attribution.

Fourth, this dissertation furthers the study of organizational image management. In

contrast to prior studies of organizational image management that adopt case study

methodologies to elicit anecdotal evidence, this study has analyzed data from a large

sample of firms operating in multiple industries. These data support generalization of

findings to a wider domain of formal organizations. The study's findings suggest that

when a firm's performance meets aspirations, the firm is likely to turn to enhancement in

explaining performance in order to improve its image. On the other hand, when a firm's

performance fails to meet aspirations, the firm is likely to defend its image by resorting to

blame. These results demonstrate that firms modify their image management strategies

in relation to their performance. It also shows that firms do not manage their image in

line with normative recommendations: that is, firms typically do not candidly

acknowledge and take responsibility for poor performance (Elsbach, 1994).

Although this dissertation does not collect data on the impact of a firm's attributions

on its image, its results suggest that a firm's attributions may improve its image. Prior

study suggests that firms that use enhancing attributions to tout their accomplishments

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have the greatest potential to enhance their image (Bettman & Weitz, 1983; Bowman, 1976; Clapham & Schwenk, 1991; Salancik & Meindl, 1984; Staw et al., 1983). However, this dissertation suggests that only when a firm achieves its performance aspirations does it have the credence to use enhancement. In contrast, firms that use enhancement independent of performance harm their image (Schwenk, 1990). Firms that don't achieve their aspirations must resort to blame to protect their image. In effect, achieving performance aspirations legitimizes a firm's enhancing attributions.

In addition, this dissertation provides insight on firm's motivations for image management. If a firm's top priority in image management were to protect the image of the management team, then achieving social aspiration would be more important than achieving historical aspiration. Regardless of historic aspiration, when a firm achieves social aspiration, its management has performed as well or better than other firms in its industry. In this scenario, firms would be expected to make greater changes in their use of enhancement and blame in relation to achievement and failure to achieve social aspirations.

In contrast, if a firm's top priority in image management were to retain current investors, then achieving historic aspiration is more important than achieving social aspiration. Current investors likely would continue to hold their stock in the company when it performs as well or better than it improved in the past. However, when the firm's performance drops, investors would experience disappointment and would have reason to seek more promising investments, even if this search requires them to invest in firms in different industries or even to invest in invest in a different asset class, such as bonds or money market accounts.

This dissertation's results show that firms generally make larger changes in their use of enhancement and blame in relation to historical aspirations rather than in relation to social aspirations. Firms changed blaming attributions more in relation to historic aspirations than in relation to social aspirations. In addition, firms changed enhancing attributions more in relation to two of the three historic aspirations than in relation to social aspirations. Only for profitability did firms change enhancing attributions more in relation to social aspiration than historic aspiration. This dissertation's findings suggest that firms manage their image primarily to retain current investors and that they place less importance on protecting the image of management.

Fifth, this dissertation furthers scholars' understanding of how to study organizations as social agents. It follows the prescription of organizational scholars who seek to revive the study of organizations as social agents (e.g. Gavetti et al., 2007; Heath & Sitkin, 2001; King et al., 2009; Whetten et al., 2009). These scholars recommend drawing on theories of individual behavior and carefully conceptualizing variables at the level of the organization to further our understanding of organizations. This dissertation confirms that carefully conceptualizing variables allows scholars to transfer theory from one level of analysis to another.

Finally, this dissertation provides guidance for practitioners. First, regulators can expect that firms' causal explanations of performance reflect their reported financial performance. Contrary to the claims of some studies (Walter Aerts, 2005; M. Clatworthy & Jones, 2003; M. A. Clatworthy & Jones, 2006), additional regulation is not necessary to require firms to provide causal explanations of performance that reflect their reported financial performance. Although these findings do not demonstrate that a firm's

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performance results from the causes to which a firm attributes its performance, it demonstrates that attributions correspond with financial performance. Second, these findings confirm what practitioners have long suspected, that firms use their communications with investors, including causal explanations of performance, to improve their image in investors' eyes. Investors are well advised to expect firms to engage in self-serving attribution and to believe that firms are more responsible for their failures and less responsible for their successes than they claim. Investors would be well served if firms identified more factors beyond the firms' control that contribute to their achievement of aspirations and more factors within the firms' control that contribute their failure to achieve aspirations.

Implications of Causality

This dissertation provides a strong indication that performance relative to aspiration levels influences firms' propensity to use enhancement and blame in their public descriptions of performance. Two separate empirical analyses were conducted: a between-firm analysis and a within-firm analysis. Each analysis found significant relationships between the aspiration-performance gap and the causal explanations that firms advance to describe their performances. Correlation, of course, does not imply causation. However, taken together these two empirical analyses mitigate the majority of possible confounds. Latent endogenous variables represent the greatest obstacle to establishing a causal relationship between firms' aspiration-performance gaps and their use of enhancement and blame. For example, both performance and firms' use of enhancement and blame could result from a "good firm effect". It is possible that better

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firms have higher performance, that better firms achieve their aspired performance levels, and that better firms consistently use enhancing attributions. This "good firm" effect would create a correlation between firm performance and firms' use of enhancement, independent from any actual causal relationship. This dissertation uses within-firm analysis to mitigate the "good firm" effect and any other potential latent endogenous variables.

Within-firm analysis does not, however, mitigate the influence of variables that change over time. Factors other than firm performance relative to aspirations that change over time could be the cause of firms' use of enhancement and blame. To mitigate the effects of variables that change over time, this dissertation conducts between-firm analysis with a set of control variables that includes year, firm age, firm size, CEO tenure, and industry. Results demonstrate that none of these control variables had a significant effect on firms' use of enhancement and blame in the within-firm analysis. As a result, this dissertation can conclude that none of these observed time-variant variables cause the relationship observed between firm performance relative to aspiration and to firms' use of enhancement and blame.

Limitations

Despite its accomplishments, this dissertation contains limitations. These limitations pertain to the dissertation's data and measures. This study's most significant limitation is limited data for within-firm analysis. First, as this dissertation collects data during only two years, it can calculate only one set of differences between the two years: the change from 2004 to 2005. Analyzing change over a single period prevents this dissertation

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from observing or controlling for any uncommon events that characterize firm

performance during this period. Adding more periods would allow this dissertation to

control for changes over time. Second, as was reported in Chapter IV, this dissertation's

within-firm analyses on a trimmed sample of firms with 5 or more attributions were

conducted on 215 firms and 430 letters to shareholders. This limited number of

observations reduces this dissertation's ability to detect nuance in empirical analysis and

its ability to demonstrate significant relationships. Collecting additional data and

conducting within-firm analysis on a larger sample that includes observations in multiple

years would significantly improve the reliability of relationships between variables.

This dissertation is also limited in its measures. It assumes that firms weight each

type of aspiration equally. However, it is possible that firms consider some aspirations

more important than others and make greater changes in their use of enhancement and

blame when firms achieve some aspirations rather than others.

Finally, this dissertation is limited by omissions in its dataset. This dissertation only

collects data on manufacturing firms. Service firms may use enhancement and blame

differently than manufacturing firms. In addition, this dissertation only collects data on

large firms. Small firms may use enhancement and blame differently than large firms.

Future Study

By establishing a relationship between performance relative to aspiration and firms'

use of enhancement and blame, this dissertation creates numerous opportunities for future

study. These opportunities include additional data collection, manipulation of

aspirations, examination of other types of firm attribution, studying the consequences of attribution, or studying additional aspects of attribution theory.

First, future studies can gather additional data in order to conduct more complete tests. Collecting data over multiple years would allow for more complete testing of within-firm analysis. Collecting data over multiple years would create a broader dataset, eliminating the possibility that conclusions drawn from the data reflect the idiosyncratic nature of a single period. Collecting data over multiple years would also provide additional data on each firm, creating an opportunity to investigate multiple aspects of firms' use of attribution. For example, it is possible that some firms use more enhancement than others regardless of their performance relative to aspirations. Or, it is possible that some firms change their attribution more dramatically than others, using enhancing attributions exclusively when they achieve aspirations and using defensive attributions exclusively when they fail to achieve aspirations. In addition, collecting data over multiple years would allow an analysis of the number of attributions firms use in their letters rather than the analysis of the proportion of attribution in this dissertation. Finally, collecting data over multiple years would provide a larger number of observations and facilitate more reliable analysis of the effects of different types of aspirations, such as social vs. historical aspirations or high jumper performance assessment vs. golfer performance assessment.

Second, future studies could investigate the reference points that firms use to create their social and historical aspiration points. These studies could calculate multiple possible historical aspirations by varying the weighting of performance in prior years. For example, this dissertation weighted the prior year (t-1) at 100% and all other years at

0%. However, future studies could test different weights, such as weighting the prior year (t-1) at 75%, two years prior (t-2) at 20%, and three years prior (t-3) at 5%. These studies could also calculate multiple possible peer groups by segmenting firms by size and by industry. For example, this dissertation divided firms by industry according to 2 digit SIC codes. Future studies could divide firms by industry according to 3 or 4 digit SIC codes or divide firms into multiple groups by size. The results of these studies would provide additional insight on how firms use information on their past performance and their competitors' performance to create performance aspirations. Third, future studies could investigate firms' use of different types of attribution. Do firms' use of self-criticism and blame also correlate with firm performance relative to aspiration? Such a study could elucidate how firms use these other types of attribution to manage their image.

Fourth, future studies could analyze the consequences of firm attribution. For example, how do investors respond to firms' use of enhancement and blame? It could be argued that, independent of performance, investors place additional value on firms that use enhancing attributions and create a more positive view of the firm's future. It could also be argued that, independent of performance, investors place additional value on firms that make internal attributions, creating a stronger sense that the firm is able to control its future performance. By measuring fluctuations in stock prices when explanations of earnings are released, such a study could analyze the effectiveness of different image management strategies.

Finally, future studies could investigate whether other aspects of attribution theory that have been developed at the level of the individual also apply at the level of the firm.

For example, at the level of the individual scholars have investigates the actor-observer asymmetry, that actors and observers predictably make different observations about the same event (Johns, 1999; Malle et al., 2007; Mezulis et al., 2004; Weary et al., 1989). As discussed above, actors typically take credit for good performance and blame poor performance on external factors. In contrast, observers often blame an actor for poor performance and give credit for good performance to environmental factors. Such a study could be conducted at the level of the organization by comparing explanations that firms provide for their performance and the explanation that analysts provide of firms' performance.

Conclusion

This dissertation began by asking how firms describe their performance. It has investigated this question by conceptualizing how firms assess their performance. Through empirical analysis of letters to shareholders of publicly traded manufacturing firms, it has revealed three things. First, it has revealed that firms use attribution to improve their image. In itself, this is not surprising. However, the manner in which firms use attribution is surprising. Firms do not avoid giving performance descriptions for fear these descriptions will harm their image (Schwenk, 1990). Firms do not only discuss their accomplishments to give an aura of success (Aerts, 2001). Firms do not consistently take credit for both success and failure to demonstrate symbolic leadership (Salancik and Meindl, 1984). Rather, in contrast to the body of prior research that concludes that attribution bears no relationship with performance (W. Aerts, 2001; M. Clatworthy & Jones, 2003; M. A. Clatworthy & Jones, 2006; Salancik & Meindl, 1984;

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Staw et al., 1983), this dissertation demonstrates that firms use attribution in exactly the same manner as individuals: firms take credit for good performance and blame poor performance on influences in their environment. Second, this dissertation has revealed that firms assess their performance in a dichotomous manner in relation to historical aspirations and in a continuous manner in relation to social aspirations. This use of different scales for social and historical performance is more nuanced than prior assessments of firm performance. Furthermore, this finding suggests that salience of information drives firm's assessment of performance: the availability of historical data leads firms to assess historical aspirations on a dichotomous scale. In contrast, the challenge in effecting a direct comparison with competitors leads firms to assess social aspirations on a continuous scale. Third, this dissertation demonstrates, that scholars can effectively import theory developed at the level of the individual to the level of the firm. This dissertation succeeded in importing attribution theory to the level of the firm by carefully analyzing the context around key variables, most notably by developing concepts of firm aspiration that provide context for this dissertation's independent variable, firm performance. With this finding, this dissertation furthers the rejuvenated tradition of studying organizations as social actors begun by Cyert and March (1963) in the *Behavioral Theory of the Firm*.

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