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An Investigation into Managers' Language Use in Earnings Press Releases

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AN INVESTIGATION INTO MANAGERS' LANGUAGE USE
IN EARNINGS PRESS RELEASES

A Dissertation Presented

by

TRACEY JEAN RILEY

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

February 2011

Isenberg School of Management

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TRACEY JEAN RILEY

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DEDICATION

To My Family

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My deepest gratitude goes to my chair and advisor, Ray Pfeiffer, who fought for me despite the many hurdles and challenges. His belief in me helped move me forward and his support was invaluable during my years in the doctoral program.

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ABSTRACT

AN INVESTIGATION INTO MANAGERS' LANGUAGE USE
IN EARNINGS PRESS RELEASES

FEBRUARY 2011

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For years, researchers have examined financial data in corporate earnings announcements and their influence on market participants. More recently, a body of research has been developing recognizing the impact of narrative disclosures and managers' deliberate language choices. However, no prior studies have investigated those language choices of managers which are likely *unintentional* in composing such narratives; language choices which – as previous research has revealed – escape conscious access. Using an empirically-grounded model which systematically classifies different predicates, I examined whether managers use systematic patterns of language when construing the earnings press release in a likely unintentional effort to channel or direct readers' attention. I found that managers write positive information using a more concrete construal than negative information. Additionally, I used experimental data to examine whether these systematic differences lead to different perceptions of the company and its value as an investment alternative. Nonprofessional investors performed an analysis of an earnings press release where I manipulated the valence of the narrative

as positive or negative and the construal of the narrative as abstract or concrete. I found that these manipulations had an interactive influence on investment decisions. Specifically, investors were least likely to invest when a negatively valenced narrative was written concretely. I also found that the influence of the narrative on the investment decision was direct and not the result of the narrative influencing the investors' focus of attention on the accompanying financial statements. Additionally, I tested whether the investor judgments were due to intentional cognitive effects and found that the influence of the narrative on the investment decision was not conscious on the part of the investor. Lastly, I conducted an analysis of archival data to examine the relationship between managers' language use in forward-looking statements of the earnings press release and future firm performance and the extent to which the market responds to these linguistic clues. Results from the analysis suggest that construal is predictive of future firm performance and the market is incorporating this into pricing for firms that meet or beat earnings expectations.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	v
ABSTRACT	vii
LIST OF TABLES	xii
LIST OF FIGURES	xiii
CHAPTER	
1. INTRODUCTION	1
2. MANAGERS’ LINGUISTIC CONSTRUAL WHEN DISCUSSING POSITIVE VERSUS NEGATIVE NEWS IN THE EARNINGS PRESS RELEASE	10
Introduction	10
Literature Review and Hypothesis Development	12
Accounting Narrative Research	12
The Linguistic Category Model	18
Data and Sample Selection	23
Results	25
Descriptive Statistics	25
Empirical Results	26
Additional Analyses	26
Discussion	27
3. AN INVESTIGATION INTO INVESTOR RESPONSE TO THE LEVEL OF LINGUISTIC CONSTRUAL IN THE EARNINGS PRESS RELEASE	29
Introduction	29

Literature Review and Hypotheses Development	33
Investor Response to Accounting Narratives	33
The Linguistic Category Model	37
Hypotheses Development	40
Methodology	46
Participants	46
Overview of the Experiment	47
Development of the Instrument	48
Pretesting of the Instrument	50
Experimental Procedures	51
Results	53
Influence on Investment Decisions	53
Influence on Cognitive Processing	55
Determination of Intentionality of Reliance on Construal	57
Discussion	58
4. INSIGHT OFFERED FROM MANAGERS' UNCONSCIOUS LINGUISTIC CHOICES WITHIN THE FORWARD-LOOKING STATEMENTS OF THE EARNINGS PRESS RELEASE	60
Introduction	60
Literature Review and Hypotheses Development	63
Predictive Value of Accounting Narratives	63
The Linguistic Category Model: The Communicator	65
Investor Response to Accounting Narratives	68
The Linguistic Category Model: The Message Recipient	70

Hypotheses	72
Data and Sample Selection	73
Sample and Variable Definitions	73
LCM Coding and Valence	75
Results	76
Descriptive Statistics	76
Test of Hypothesis 4	76
Test of Hypothesis 5	77
Test of Hypothesis 6: Short-Window Event Study	78
Discussion	79
5. CONCLUSION	81
Limitations and Future Research	83
APPENDICES	102
A. RESEARCH INSTRUMENT	102
B. EXCERPTS FROM EARNINGS PRESS RELEASES	123
BIBLIOGRAPHY	124

LIST OF TABLES

Table		Page
1	Classification Criteria for the Linguistic Category Model (LCM)	87
2	Correlations Among Overall LCM of Entire Press Release and Various Firm Performance Measures	88
3	LCM Comparisons of Various Types of Statements in the Earnings Press Release	90
4	The Effect of Linguistic Construal and Narrative Valence on the Investment Decision	91
5	Descriptive Statistics	93
6	Correlations Among Regression Variables	96
7	Hypothesis 4	99
8	Hypothesis 5	100
9	Hypothesis 6	101

LIST OF FIGURES

Figure	Page
1 Prediction of Investor Judgments of Likelihood Company Will Have Improved Performance in the Next Quarter	85
2 Causal Model of Linguistic Construal and Attentional Focus on Investor Judgment	86

CHAPTER 1

INTRODUCTION

For over forty years researchers have examined corporate earnings announcements and their influence on the market. However, most have focused on the quantitative, financial data in these announcements (e.g., Ball and Brown, 1968; Bhattacharya, Black, Christensen, and Merge, 2007; Francis, Schipper, and Vincent, 2002). Over the last few years, a body of research has been developing which recognizes the impact of the non-quantitative, verbal accounting narratives, such as earnings press releases (Davis, Piger, and Sedor, 2008; Henry, 2006), media news articles (Tetlock, 2007; Tetlock, Saar-Tsechansky, and Macskassy, 2008), Management's Discussion and Analysis (MD&A; Feldman, Govindaraj, Livnat, and Segal, 2008), the President's Letter (Yuthas, Rogers, and Dillard, 2002), and conference calls (Matsumoto, Pronk, and Roelofsen, 2006) (for a review, see Merkl-Davies and Brennan, 2007).

Managers use narrative disclosures to communicate information to investors and increase investors' comprehension of simultaneously released numerical disclosures (Davis et al., 2008; Henry, 2006; Krische, 2005). There are currently two schools of thought regarding management narrative disclosures. The *information perspective* suggests managers issue narrative disclosures to reduce information asymmetries between management and investors. The *opportunistic perspective* suggests managers issue narrative disclosures as a form of impression management with the *conscious* and *deliberate* intent of manipulating investors' perceptions and decisions (Merkl-Davies and

Brennan, 2007). Note that both perspectives assume intentional behavior on the part of managers.

This dissertation introduces a third and novel perspective - the possibility that managers have motives which may *unconsciously* influence their language usage. While managers have motives that drive their general explicit language strategies (i.e., information and opportunistic strategies), these motives have another influence that escapes their conscious access, namely how they *use* language. The important point about this is that there are two types of motives which can actually clash. The currently studied, explicitly goal-driven strategies concern how to keep investors informed or how to “blind” them to one’s positive news. These strategies are likely to drive the meaning of the narrative. The implicit strategies, thoughts, and beliefs (e.g., personal goals and motivations; managers’ private knowledge of the future), however, are likely to drive unconscious predicate selection (Semin, 2006). The interesting thing about the implicit influence upon language is that it can help detect other factors that the manager wants to conceal in the explicit message (e.g., that the future may not be as positive as the manager is suggesting). Managers’ implicit language use may reveal these hidden thoughts which they would like to gloss over.

To date, the research concerning managers’ strategic language use has not examined: (1) the properties of managers’ distinctive linguistic tendencies which existing research suggests are *unintentional* and *unconscious* (Semin and Fiedler, 1988); (2) whether and how these linguistic choices that escape conscious access influence investors’ cognitive processing and decision making; or (3) whether management’s linguistic choices are predictive of the future of the firm and whether financial statement

users infer managers' expectations regarding the future of the company from their unconscious language usage. This dissertation fills those voids.

The three studies in this dissertation furnish a unique and in-depth look at the types of language corporate managers use in construing an accounting narrative. I analyze narratives using the Linguistic Category Model (LCM; Semin, 2000; Semin & Fiedler, 1988, 1991). Although there exists a well-established body of research that uses the LCM within the context of intergroup relations and social stereotyping, this is the first study to apply the LCM in a business context.

The Linguistic Category Model (LCM) is an empirically-grounded classification of the predicates in language. The different linguistic classes are categorized on the basis of conceptual and linguistic criteria established by Semin and Fiedler (1988). In this model, verbs are classified into two broad groups, namely *verbs of state* and *verbs of action*. The former (*State Verbs, SV*) consists of verbs that refer to invisible states, such as "to respect," "to hate," "to dislike," and "to believe," identifying specific affective or mental states that are felt or experienced. They cannot be objectively verified (e.g., "John *hates* Dave"; "our company *values* advertising").

The latter (*Action Verbs, AV*) consists of verbs describing activities with a clear beginning and end. These verbs can be subdivided into three separate categories with distinct characteristics. Verbs in the first category, *Descriptive Action Verbs (DAV)*, have the unusual quality of mapping the action directly and retaining an unambiguous perceptual feature of the action. Examples would be "to lick," "to kick," and "to pick," involving respectively references to very specific actions involving the mouth, foot, and hand. Generally, these terms have no evaluative meaning but can acquire such in specific

contexts (e.g., “John *pushed* Dave under an oncoming bus” versus “John *pushed* Dave away from an oncoming bus which Dave had not seen”). DAVs maintain a reference to a specific event, behavior, or action; highlight intentionality; and reference verifiable facts (e.g., “John *pushed* Dave”; “we *e-mail* our promotions”). Their function is to draw attention to the situated features of the behavior or event and to the voluntary and intentional responsibility of the actor for the action.

The second action verb category is *Interpretive Action Verbs (IAV)*. These also refer to actions with a clear beginning and end; however, these verbs subsume a large range of different actions. For instance, “to cheat” is a verb that can refer to a wide range of different behaviors, as can the verb “to help.” The direct perceptual correspondence between verb and action is lost in this category. While similar to DAVs in that they describe an event or behavior, these verbs provide an interpretation of the event (e.g., “John *hurts* Dave”; “we *advertise*”). They also highlight intentionality, personal responsibility, and voluntary control of actions.

Finally, the third category, *State Action Verbs (SAV)* refers to the affective consequences of actions, such as “to amaze,” “to thrill,” “to stun,” and “to surprise,” but conceals the nature of the action that led to the emotional experience of the other. These verbs describe their emotional consequences (e.g., “Dave bored me to death”) but with reasons that can be easily specified (e.g., “with his lecture”). There is a difference in this respect between SAVs and State Verbs. With SVs, it is perfectly possible to say “I like him very much, but I really cannot explain why.”

The final category describes attributes of persons. This category includes *adjectives (ADJ)*, which describe qualifiers (friendly, aggressive, helpful, etc.), as well as

nouns (NOUN), such as thief, father, or athlete. These refer to specific qualities or characteristics of the object of the behavior and show no reference to context (e.g., “John is *aggressive*”; “we are *aggressive* advertisers”). They represent abstract categories describing overarching principles and goals.

One distinctive feature on which these categories vary systematically is the dimension of abstractness – concreteness, with DAV being the most concrete category and ADJ being the most abstract. All are valid representations of the very same behavior or event, however when the representation is at an abstract level, previous research finds that the behavior, event, or characteristic is *perceived as* less verifiable by an observer, more likely to be disputed, less informative about the context or situation and more representative of broad aspirations and overarching principles and goals of the actor (e.g., we are aggressive advertisers). The opposite is true of concrete construals, which draw attention to the situated, incidental factors contributing to the actor’s action. Concrete construals represent detail, highlight intentionality, and reference verifiable facts (e.g., we email our promotions) (Fiedler, 2008; see also Semin and Fiedler, 1988). See Table 1 for classification criteria for the LCM.

The use of predicates in representing an event has been shown in research in a number of different areas to escape conscious access (e.g., Maass, 1999; Franco and Maass, 1999) for both producers and listeners. It also constitutes an ‘implicit’ measure of a communicator’s bias in reporting and representing events¹.

¹ As an example of the LCM representing an unconscious effect, I refer the reader to Franco and Maass (1999). In this study, Catholic participants were given both explicit (reward allocation) and implicit (LCM) measures of prejudice for outgroup members that were either normatively protected against discrimination (Jews) or not normatively protected against discrimination (Islamic Fundamentalists). Based on their assumption that people do not consciously reflect on and are unaware of subtle variations in language abstraction, they hypothesized and found that the implicit and explicit measures yielded similar results when there was no normative pressure against expressing prejudice (i.e., participants were not afraid to

While a communicator's linguistic choices when describing a behavior or event may be unconscious, such implicit linguistic choices serve the function of channeling or directing recipients' attention to aspects of the same reality that advantage the communicators' intention. What the LCM can do is specify to which aspect of a reality the communicator wants to draw attention. For example, use of a DAV draws attention to the action, whereas a SV draws attention to internal states and ADJ to the internal properties or characteristics of the person. Thus, by providing a systematic categorization of predicates, the LCM facilitates the systematic examination of how people in general, and in this dissertation how managers in particular, use specific predicates over others in achieving their implicit goals. Such an application of the LCM can furnish insights into the motivations of managers by revealing systematic differences in how they compose public announcements of their companies' states.

Insight into how managers use language strategically is provided by earlier research using the LCM. This research has revealed that people use different classes of verbs and adjectives when describing positive and negative behaviors and events (Semin, 2008) and that such language use, which is strategic in terms of shaping the inferences others make (Wigboldus, Semin and Spears, 2000), escapes conscious access (Franco and Maass, 1996). Therefore, the language used by managers in their narratives of their company may also be modulated systematically in a way that it escapes conscious access, given that managers have incentives to shape impressions of firm performance and prospects, safeguard their reputation, and obtain social benefits by gaining the approval

express prejudice against the Islamic Fundamentalists and both measures exhibit this prejudice). However, when normative pressure against prejudice existed, the LCM (implicit measure) and explicit measure yielded different results. Here, participants were motivated to inhibit prejudice and were only able to do so through the explicit measures. This verified that participants found it difficult to monitor their language abstraction, confirming its unconscious effect.

of internal and external parties (Campbell and Beck, 2004; Merkl-Davies and Brennan, 2007). These systematic biases in language use may also reveal motives of which the managers themselves are unaware. Research using the LCM has also found that the language use of the communicator influences the thoughts and cognitive processes of the recipient (Wigboldus et al., 2000). Therefore, the language used by managers may influence the decision making processes of investors.

In this paper, I suggest that managers unintentionally choose different predicate classes when discussing the state of the firm in an unconscious effort to direct investors' attention to aspects of the firm's state which advantage the manager². More precisely, I hypothesize that managers will use more concrete (abstract) predicates when describing positive (negative) information. This would be done in an unconscious effort to represent positive (negative) events performed by the company such that the perception is they are more (less) informative and more (less) verifiable and that the situation was (was not) intentional of management. Additionally, I posit that investors will be systematically influenced by this linguistic construal and the valence of the narrative. Specifically, I predict that for a concretely written narrative, positively valenced writing will lead to a more positive investment decision than negatively valenced writing. Alternatively, for an abstractly written narrative, there will be little difference in investment decisions between positively and negatively valenced writing.

In addition to analyzing narratives discussing past performance, I will also analyze forward-looking statements and, drawing upon the Linguistic Expectancy Bias

² Research using the LCM has shown that a communicator's choice of predicate class escapes conscious access. While the research design of this paper does not specifically test intentionality, the implicit assumption based on prior research is that the relation between language (as classified by the LCM) and firm performance is nonstrategic and unintentional.

(LEB), predict that managers writing forward-looking statements write more abstractly (concretely) if their expectation is that good news is (is not) persistent. Also, I investigate whether the market will respond to these differences.

My main objective in this paper is to document that managers may use implicit language strategies which can be revealed by analyzing their narratives with the LCM. The prospect that an investor's decision may be impacted by a linguistic strategy which has been shown to escape the conscious access of both the recipient (investor) and the communicator (manager) is very important and may help in firm valuation (e.g., through gaining insight into managers' privately-held information) and regulation setting (e.g., plain English disclosures). A secondary objective in this paper is to support the validation of the LCM's use in a business context. None of the above issues have been addressed by previous research.

To examine these issues, I report the findings of three studies examining the general issue of managers' language use in narratives to uncover the information that systematic differences in language reveals about managerial motivations. The first study is an archival test that addresses whether managers use different linguistic construals when discussing positive financial results in contrast to negative financial results. Results show that managers write more concretely when the narrative is positive than when it is negative, which suggests that managers are motivated to represent positive events such that the perception is the situation was due to intentional actions of management.

The second study is an experiment that investigates whether these systematic differences lead to different perceptions of the company and its value as an investment

alternative. Nonprofessional investors performed an analysis of an earnings press release where I manipulated the valence of the narrative as positive or negative and the construal of the narrative as abstract or concrete. I found that these manipulations had an interactive influence on investment decisions such that investors were least likely to invest when a negatively valenced narrative was written concretely. I also examined the effect of systematic differences in language use on nonprofessional investors' cognitive decision processes. Specifically, I examine whether construal in the qualitative narrative causes investors to focus their attention on different accounting numbers in the quantitative financial statements, thereby leading to different perceptions of the company and its value as an investment alternative. I found that the influence of the narrative on the investment decision was direct and not the result of the narrative influencing the investors' focus of attention of the accompanying financial statements. Additionally, I tested whether the investor judgments were due to intentional cognitive effects. Results suggest the influence of the narrative on the investment decision was outside of investors' conscious awareness.

The final study explores whether managers' privately held expectations concerning their company can be inferred from their linguistic construal in the forward-looking statements of actual earnings press releases and whether investors respond to these linguistic differences. Results suggest an association between construal and future ROA and that investors incorporate this association into stock prices, but only for firms that meet or beat earnings expectations. The next three chapters present each of these studies in turn.

CHAPTER 2

MANAGERS' LINGUISTIC CONSTRUAL WHEN DISCUSSING POSITIVE VERSUS NEGATIVE NEWS IN THE EARNINGS PRESS RELEASE

Introduction

Extant research investigates whether managers use differential strategies when describing positive versus negative news in their accounting narratives. The so-called “impression management” literature explores whether corporate executives manage impressions through either obfuscation of bad news or through attributional framing. The obfuscation hypothesis suggests that making bad news less readable strains readers’ cognitive processes and leads to lower comprehension of the news. Results testing the obfuscation hypothesis find moderate support (Clatworthy and Jones, 2001; Courtis, 2004).

In contrast, there is considerable research on accounting narratives that has revealed support for the presence of attributional framing (e.g., Abrahamson and Park, 1994; Aerts, 1994, 2001, 2005; Baginski, Hassell, and Kimbrough, 2004; Bettman and Weitz, 1983; Clatworthy and Jones, 2003; Jones and Shoemaker, 1994; Salancik and Meindl, 1984; Staw, McKechnie, and Puffer, 1983; Wagner and Gooding, 1997). These studies show the tendency of managers in their narratives to develop verbal coping strategies which attribute positive outcomes to the actions of company management and negative outcomes to external or chance factors such as governmental influences or extreme weather. The assumption in most of the research is that these impression

management strategies are *deliberate* and *conscious* (Abrahamson and Park, 1994; Bowen, Davis, and Matsumoto, 2005; Staw et al., 1983).

While previous accounting research suggests that management consciously uses language strategically when discussing positive versus negative information, such research has not explored more subtle linguistic strategies that could escape conscious access by the communicator, or for that matter the audience. One possible avenue for this exploration is offered by the Linguistic Category Model (LCM, Semin & Fiedler, 1988). The focus of the current research is to identify if language use by management resorts to subtle and likely unconscious strategies when describing positive versus negative news in their accounting narratives.

According to the LCM, more concrete terms (descriptive action verbs; DAVs) can be used to highlight intentionality for events and outcomes and to represent detail and reference verifiable facts. Given this, one would expect that positive information about the company would be described by managers with more concrete predicates than negative information in an effort to suggest intentionality for positive outcomes. In contrast, less concrete terms such as state verbs (SVs) highlight unintended reactions to uncontrollable and external forces, which managers would be more likely to use when describing negative outcomes in an effort to externalize those negative outcomes.

It may seem an obvious strategy for managers to write positive news in easy-to-read language and negative news in difficult and technical terminology, or for managers to attribute positive outcomes to actions within the company and negative outcomes to actions external to the company. However, managers have motivation to shape outsiders' perceptions of firm performance without being so obvious as to lose legitimacy or risk

litigation. It is interesting, therefore, that accounting research has not analyzed the subtle and unconscious linguistic usage of managers as a tool for assessing motivations. Maass, Salvi, Arcuri, and Semin (1989) found that people are motivated by their vested interests to use language which differentially describes positive and negative behaviors of their in-group and out-group members. This Linguistic Intergroup Bias (LIB) has been demonstrated in many settings such as rival high schools (Arcuri, Maass, and Portelli, 1993), gender (Fiedler, Semin, and Finkenauer, 1993), Northern versus Southern Italians (Maass, Milesi, Zabbini, and Stahlberg, 1995), and in mass media reports (Maass, Corvino, and Arcuri, 1994). This bias in language use has been shown to be difficult to inhibit or alter and the consensus in the literature is that communicators are therefore choosing these predicate classes without explicit intent or conscious awareness (Douglas and Sutton, 2003; Franco and Maass, 1996).

Given managements' incentives to subtly shape impressions of the firm, I hypothesize that they will describe positive information with more concrete predicates and negative information with fewer concrete predicates. To investigate this hypothesis, I examined quarterly earnings press releases of randomly selected publicly traded companies and results of this analysis support my hypothesis. Before describing this investigation, I shall first provide an overview of the relevant literature.

Literature Review and Hypothesis Development

Accounting Narrative Research

In 1952, the study of accounting narratives began with Pashalian and Crissy who conducted readability studies. Readability studies perform a syntactic analysis to assess the cognitive difficulty of written passages. These studies apply readability measurement

techniques, such as the Flesch Reading Ease Formula (e.g., Smith and Smith, 1971; Soper and Dolphin, 1964), the Dale-Chall Formula (e.g., Smith and Smith, 1971), the Cloze Readability Procedure (e.g., Adelberg, 1979, 1982; Smith and Taffler, 1992), or the Accounting Syntactic Complexity Formula (e.g., Adelberg, 1983). The use of some of these formulas in an accounting context has been questioned because they do not consider factors such as the motivation and education of the intended audience (Courtis, 2004; Smith and Taffler, 1992) or level of abstraction of the narrative (Dryer, 1984). Also, the Flesch Formula, for example, was designed to study reading comprehension of children and has not been validated on adults (Courtis, 2004). Nonetheless, their use in accounting narratives is popular and the consensus in the accounting readability literature is that annual reports are syntactically complex and therefore considered *difficult* to *very difficult* to read (Jones and Shoemaker, 1994). Also, different narratives have been found to have differing degrees of difficulty. For example, in Canadian annual reports Courtis (1986) found that footnotes are more complex than the Chairman's Address³. In US annual reports, Schroeder and Gibson (1990) found that the footnotes and the MD&A were significantly more complex and difficult than the President's Letter.

Based on results of these readability studies, Courtis (1998, 2002, 2004) sought to explore whether corporate managers attempt to obfuscate bad news as a form of impression management. His contention was that by making bad news less readable, it would strain the readers' cognitive processes and lead to lower comprehension of the news. Courtis (1998) found that the Chairman's Statements of companies with high press exposure were more difficult to read than those of companies with low press exposure. He also investigated whether reading difficulty varied within the Chairman's Statement

³ The Chairman's Address is the Canadian equivalent to the US President's Letter.

and found the middle 100-words to be the most difficult passage. However, in 2004 he found evidence that ending passages showed more obfuscation, conflicting his own original finding and leading him to call for more research.

Clatworthy and Jones (2001) extended Courtis' research by studying Chairman's Statements of profitable and unprofitable UK firms and testing for a relationship between obfuscation within certain locations (beginning, middle, or end) and the themes discussed in those locations. Using content analysis they coded and recognized 11 major themes within the statements and found that different sections had significantly different themes. Specifically, the first section is more likely to discuss an overview of past results, the middle section is a more detailed discussion of operations, and the last section is more likely to discuss the future. While they found that profitable companies have a more easily read first section than unprofitable companies, they concluded that their results were not strong enough to support an overall obfuscation hypothesis.

Courtis (2004) tested the annual reports, interim reports, and prospectuses of companies on the Hong Kong Stock Exchange during 1997 looking for the simultaneous existence of two proxies for obfuscation: (1) a low Flesch reading score, and (2) high variability such that reading difficulty varies within the same passage. From a sample of obfuscating and non-obfuscating companies that was matched based on directional change in profitability, he found a weak association between bad news and obfuscation and no association between firm age or firm complexity (as proxied by number of voluntary narrative disclosures) and obfuscation.

Subramanian, Insley, and Blackwell (1993) randomly selected 200-word sections from 60 annual reports and analyzed them with software. They found that the reports of

companies with a net profit were easier to read and used significantly less jargon (i.e., vocabulary known only to professionals) or modifiers (i.e., adjectives or adverbs which, when used excessively, can make writing difficult to understand) than the reports of companies with a net loss. Overall, they determined that a reader would need a 10th grade education to understand the narratives of the profitable companies yet four years of additional education to understand the narratives of the unprofitable companies. In summary, there is moderate support in the literature that managers obfuscate bad news by making the passages more difficult to read, and the consensus is that this obfuscation is intentional.

In October 1998 the SEC issued the plain English rule in an attempt to ensure financial disclosures are accessible to the average investor by being free of legal jargon and obtuse language. While the rule only pertains to prospectuses, the SEC strongly encourages firms to apply this rule in all their shareholder communications. To test whether firms have been adopting the plain English guidelines in other filings, Loughran and McDonald (2008) analyzed 10-Ks over 1994-2006. They found that the plain English rule has improved the readability of these disclosures over time and that these improved 10-Ks are more informative to the market. This result is consistent with the conjecture that obfuscation in previous narratives was intentional.

Aside from obfuscation research, numerous other researchers found support for managers engaging in attributional framing, which is the tendency to attribute positive outcomes to actions within the company and negative outcomes to actions external to the company (e.g., the government or the weather) in an effort to influence readers' perception of good versus bad news. For example, Bettman and Weitz (1983) examined

President's Letters and found that approximately 60% of favorable outcomes versus 27% of unfavorable outcomes were attributed internally. Clatworthy and Jones (2003) examined the Chairman's Narratives⁴ of the top and bottom performing UK companies and found that both groups gave internal causes for good news and external causes for bad news. Deegan and Gordon (1996) reviewed the accounting narratives of Australian corporate reports and found that companies stress the positive aspects of environmental disclosure, as opposed to the negative aspects. And Clatworthy and Jones' (2006) study of Chairman's Narratives in the UK found an association between firms' underlying financial results and managers' propensity to associate themselves with those results.

D'Aveni and MacMillan (1990) investigated the narratives of firms in financial crisis. Specifically, they compared letters to shareholders of firms that subsequently failed with those that survived. They found that surviving firms discussed both external and internal causes of financial results, while failing firms focused only on external causes. Baginski, Hassell, and Hillison (2000) investigated earnings forecasts and found that when forecast news was good (bad), the attribution was more likely to be internal (external). Baginski et al. (2004) reviewed management forecasts and found that attributions were more common from managers of larger companies, for forecasts issued over shorter horizons, and for bad news forecasts.

Aerts (2005) questioned whether the attributional bias in accounting narratives was the result of purposive and opportunistic impression management or a cognitive informational process. The impression management view suggests that managers modify their verbal behavior to reflect changing conditions. The cognitive view contends that self-serving attributions occur simply because the information is more salient to the

⁴ The Chairman's Narrative is the British equivalent to the US President's Letter.

manager. In other words, managers expect they will make and succeed with favorable plans; therefore, when this occurs they are more likely to attribute it to internal reasons. Similarly, unexpected negative outcomes are thought to be the result of external causes, so when they occur they are more likely attributed to external reasons. Results of Aerts' study suggest a motivational interpretation (i.e., impression management) since listed companies offer more attributional explanations than unlisted companies, and financial downturns lead to more attributional explanations than financial upturns.

Along similar lines and most closely related to the current work is that of Thomas (1997) and Clatworthy and Jones (2006). Thomas (1997) investigated the President's Letters of a series of firms over five years of declining profitability. As profitability declines, use of the active voice becomes replaced with use of the passive voice. This is because active verbs are associated with success and passive verbs tend to distance a writer from the message. In addition, use of the pronoun "we" decreases as profitability declines, again likely in an attempt to distance the writer from the message. Clatworthy and Jones (2006) also counted the number of personal references (e.g., "I," "me") and number of passive sentences in the Chairman's Statement and found that profitable companies use statistically more personal references than nonprofitable companies and use marginally fewer passive sentences.

Impression management studies in accounting have implicitly assumed that the strategies were *conscious* (Merkl-Davies and Brennan, 2007). The above studies provide evidence consistent with managers' choice of linguistic structures being associated with managements' intentional attempt to distance itself from responsibility for the bad news; that is, the more negative the news, the more likely the linguistic choices will imply an

objective situation not attributable to actions of the company. In other words, managers intentionally attempt to manage the impressions of corporate document users. What the existing studies have overlooked is the specific issue I am examining here, namely the implicit choice of linguistic categories in the formulation of managers' messages.

Managers are likely motivated to influence the readers of their accounting narratives due to their incentives to maintain high stock prices, obtain financing, attract high quality employees, or safeguard their own reputation. In order to influence readers, the narratives must be credible and accurate (Merkl-Davies and Brennan, 2007).

Managers must also be careful to avoid being so transparent in their impression management techniques that audiences discount the self-promotion as sugar-coating or hype (Aerts, 2005). Using the Linguistic Category Model (LCM), the literature on the social psychology of language has shown that a communicator's linguistic choices when describing a behavior or event *may escape conscious access*, yet the systematic use of linguistic categories is also "designed" to channel or direct the recipient's attention to different aspects of reality, while also escaping the conscious access of the recipient.

The Linguistic Category Model

The LCM has been widely used in studies of the Linguistic Intergroup Bias (LIB; Maass et al., 1989). The LIB has found that abstract terms (i.e., adjectives) are more commonly used for positive ingroup and negative outgroup behaviors while concrete terms are more commonly used for negative ingroup and positive outgroup behaviors, likely in a motivational attempt to be ingroup-serving. Suggesting a cognitive reason for this bias, the term Linguistic Expectancy Bias (LEB) was coined (Wigboldus et al.,

2000). The LEB states that more abstract terms are used when the behavior being described is expected rather than unexpected.

While there are numerous studies in social psychology which provide evidence of the use of this unconscious linguistic strategy (for a review, see Fiedler, 2008; Semin, 2008), few studies have provided evidence outside the stereotype literature and none to my knowledge have used the LCM to study corporate narratives despite evidence from accounting research that corporate narratives have the power to influence analysts' and investors' decisions (e.g., Davis et al., 2008).

The following studies move the research using the LCM outside of the social relations (i.e., ingroup versus outgroup) research and provide evidence that differences in linguistic abstraction appear even when group membership is irrelevant, such as when a communicator is “focused on *creating* a subjective reality for others” (Rubini and Sigall, 2002).

Schmid and Fiedler (1996) used the LCM to analyze the transcripts from the Nuremberg trials and found significant differences in the linguistic categories used by the defense and prosecution when discussing positive versus negative aspects of the defendants. As a follow-up, Schmid and Fiedler (1998) performed an experiment where they asked lawyers in training and lay attorneys to prepare closing speeches for two different cases. One speech was for the defense and the other for the prosecution. The experimenters used four different cases which manipulated severity of the defense at severe and mild and type of aggression at reactive and instrumental. The speeches of the participants were coded as to the subject of the sentence (accused, victim, witness), the valence of the utterance (positive, negative, neutral), and also using the LCM. They

found that participants used distinctly different linguistic strategies when discussing the defendant versus the victim. For example, when defense attorneys describe the victim they use numerous negative action verbs which imply causality and intentionality, while the prosecution does not. Defense attorneys also use more negative adjectives when describing the victim while prosecutors use more negative adjectives when describing the defendant.

Watson and Gallois (2002) used the LCM in the context of the health profession. They asked patients to describe a satisfactory or unsatisfactory experience with a hospital health professional and coded these descriptions using the LCM. They found that when the experience was unsatisfactory, patients described the health professional as more likely to use concrete, situation-specific, negative terms when speaking about the patient. However, when the experience was satisfactory, patients described the health professionals as more likely to use abstract terms when speaking about the patient.

Rubini and Menegatti (2008) used the LCM to examine the job candidate reports of university personnel hiring committees. They found an interaction between selection decision (hired versus rejected) and valence (positive versus negative comments) such that positive (negative) comments used to describe selected job candidates were more abstract (concrete) than those used to describe rejected candidates.

Using the LCM in the domain of self-presentation and impression management, Rubini and Sigall (2002) did an experiment in a political context. They investigated the language used by participants when expressing their political intentions, attitudes, behaviors, and opinions to audiences that either share their political opinions or are mixed. Results indicate that when the audience was similar participants used more

abstract language, likely in an effort to convey that their attitudes and behaviors are situationally and temporally enduring. In contrast, when the audience was mixed participants used more concrete language, likely in an effort to convey their opinions as transitory and situation-dependent.

The domain of self-presentation and impression management is relevant to the current study's investigation of corporate narratives. What makes the LCM interesting in an accounting narrative context is that it furnishes an insight into how the use of different predicates for the very same event (while constituting *valid representations of the event*) can nevertheless lead to different *perceptions* (e.g., perceptions of verifiability, informativeness, and personal responsibility). Whereas a person describing a positive or negative event concerning an ingroup or outgroup member may have a social motivation to represent that event in a certain way, so too does a corporate manager have a social motivation to represent positive and negative events within the company in a certain way so as to shape impressions of firm performance and prospects, safeguard their reputation, and gain the approval of internal and external parties (Campbell and Beck, 2004; Merkl-Davies and Brennan, 2007). Intuitively, one can conclude that managers would want to represent positive (negative) events performed by the company such that *the perception* is they are more (less) informative and more (less) verifiable and that the situation was (was not) intentional of management. It is important to note that the information provided isn't necessarily more or less informative, verifiable, or intentional; it is simply the perception that the linguistic construal creates.

Consider the following excerpt from Hospira's May 9, 2007, earnings press release: "The improvement in adjusted gross margin *was attributable primarily to* better

product mix in Hospira's legacy business, the inclusion of Mayne Pharma in consolidated results, and a \$4.6 million benefit from an insurance settlement *relating to* a business interruption at a Hospira facility during 2004. Partially offsetting these factors were lower production volumes and the related impact on manufacturing activity, as well as higher freight and distribution costs, mainly in the International segment.”

In the above excerpt, verbs describing positive results are italicized while adjectives describing negative results are underlined. It is clear that neither of the explanations (for positive or negative results) is more concrete or specific. In other words, Hospira says that adjusted gross margin went up due to a better product mix and an insurance settlement, and they say that offsetting that increase was lower production volumes and specific higher costs. It is also clear that neither example is more or less verifiable. It is just as easy to verify an increased gross margin as it is to verify higher expenses; one can simply read the comparative income statements. It is not difficult to argue that neither of these examples is more or less difficult to read: neither uses more accounting-related jargon, the bad news is not blamed on events nor situations external to the company, neither makes more use of the words “we” or “us”, and both are written in active voice. Yet the above-mentioned research provides the theory for managers using different construal for news of different valence, and this example provides an indication that it occurs and suggests the incremental value of using the LCM to investigate corporate narratives.

Although several studies have examined the conscious linguistic choices of managers, no prior study has specifically analyzed the linguistic choices within accounting narratives that are very likely unconscious. Studies in the social linguistic

literature using the LCM have demonstrated that communicators are not always aware of the prejudices within their narratives. Overall, the empirical support in that literature is for social motivations leading to the *unconscious* choice of different predicate classes in an effort to channel or direct a recipient's attention to different aspects of the same reality. Similarity in logic would suggest managers may be influenced by the social pressures to shape impressions of the firm and themselves. This study uses the LCM to investigate whether managers use different linguistic construal for news of different valence, with the following specific hypothesis:

H₁: Narratives describing positive financial results will have more concrete linguistic construal than narratives describing negative financial results.

Data and Sample Selection

The sample in this study includes the narrative sections of 553 quarterly earnings press releases of fifty one randomly selected S&P 500 publicly traded companies between the years 2002 and 2004⁵. The sample includes only companies whose earnings press release is available on Lexis-Nexis and published by PR Newswire or BusinessWire.

I use the Linguistic Category Model (LCM; Semin and Fielder, 1988) to code the earnings press releases. The LCM is concerned with the functional properties of word classes, rather than with word meanings. This model distinguishes between four levels of predicate classes: description action verbs (DAV) which convey a description of an observable action; interpretative action verbs (IAV) which refer to a general class of

⁵ Due to having to hand-code the press releases, the sample had to be limited. The firm years were chosen because they cover recession through recovery and therefore were expected to provide the variability in positive and negative news needed for the analyses. All firms were listed on the S&P 500 on September 24, 2009.

behaviors and do not preserve the perceptual features of an event; state verbs (SV) which describe an emotional state; and adjectives (ADJ) which describe a trait of the subject of the behavior with no reference to context⁶.

Using the LCM, I code each verb and adjective with the following interval rankings⁷: DAV = 1; IAV = 2; SV = 3; ADJ = 4. I compute the mean level of abstraction by adding the scores and dividing the total by the number of predicates coded. Thus, the mean level of abstraction varies between 1 (concrete construal) and 4 (abstract construal). Two independent coders blind to the hypothesis coded the earnings press releases. One coded all press releases and the other coded a random one-third of the press releases. Inter coder agreement is high (Cohen's Kappa coefficient = 0.733)⁸.

Each verb and adjective was also coded based on its valence (positive or negative) in context to the situation being described. Take for example the following excerpt from Hospira that was referenced earlier: “The improvement in adjusted gross margin *was attributable primarily to* better product mix in Hospira's legacy business, the inclusion of Mayne Pharma in consolidated results, and a \$4.6 million benefit from an insurance settlement *relating to* a business interruption at a Hospira facility during 2004. Partially offsetting these factors were lower production volumes and the related impact on manufacturing activity, as well as higher freight and distribution costs, mainly in the International segment.” The predicates in the first sentence are coded as positive while the predicates in the second sentence are coded as negative.

⁶ SAVs were coded as IAVs since, in the model, they have the same ordinal ranking as IAVs.

⁷ The assumption in the literature using the LCM is that the intervals between the variables are equally spaced. This is similar to the same assumption using a Likert scale labeled “strongly agree, agree, neutral, disagree, strongly disagree.”

⁸ According to Landis and Koch (1977), a coefficient between 0.41 and 0.60 is considered acceptable, and one between 0.61 and 0.80 is considered high.

In addition, each verb and adjective was also coded as to whether it referenced the company's internal results or the external environment and whether it referenced past results or future firm performance. The company description and "safe harbor" paragraphs were not coded, as those are standard paragraphs which do not speak to the financial results of the firm.

Results

Descriptive Statistics

Table 2 presents the correlation coefficients for the LCM and several firm statistics and performance measures. There is no significant correlation between LCM of the entire press release and firm size (as measured by the natural log of the market value of equity) (correlation coefficient = .012; p-value = .787). There is also no significant correlation between LCM and current performance measures such as EPS (correlation coefficient = -.021; p-value = .625); net income (loss) (correlation coefficient = .020; p-value = .645); and net sales turnover (correlation coefficient = -.029; p-value = .506). However, there are significant correlations between LCM and various variables which have been shown to be associated with future firm performance. For example, growth firms (those with higher book-to-market ratios) have earnings press releases which are written more concretely (correlation coefficient = -.160; p-value < .001). Yet, the higher a firm's ROA, asset turnover, and leverage, the more abstract the writing (all p's < .045).

Appendix B presents example texts from firms with highly concrete and highly abstract LCM scores.

Empirical Results

This study tests the hypothesis that narratives describing positive financial results will have more concrete linguistic construal than narratives describing negative financial results. To test this, a paired samples t-test was conducted, comparing the mean level of construal of the positive information with the mean level of construal of the negative information. As shown in Table 3, the paired samples t-test yielded a significant effect, $t = -8.090$; $p < .001$ indicating that the mean construal level of the positive information ($M = 2.71$; $SD = .226$) was significantly more concrete than the mean construal level of the negative information ($M = 2.90$; $SD = .480$).

Additional Analyses

In the narrative section of the earnings press release, managers often discuss events external to the company such as the economy or the weather. Since managers have no control over these events and therefore have no reason to shape investors' perception of these events, it's likely their language will be different than when discussing internal events. To test this, the data were also separated into that discussing information internal versus external to the company. As shown in Table 3, statements discussing internal information ($M = 2.501$; $SD = .197$) are statistically more concrete than statements discussing external information ($M = 3.501$; $SD = .628$) ($t = -35.051$; $p < .001$).

As a further test, I compared the positive and negative statements of various subgroups, as shown in Table 3. There are significant differences between positive and negative statements when management is discussing internal, future events ($t = -2.821$; $p = .005$) and internal, past events ($t = -2.828$; $p = .005$); however there are no significant differences between positive and negative statements when management is discussing

external, future events ($t = -1.068$; $p = .287$) and external, past events ($t = -1.124$; $p = .262$).

I also divided the data based on whether the statements were forward-looking versus discussing past results. There is no theoretical reason to expect managers to write these statements differently, and results support this. As shown in Table 3, there is no difference in construal between statements discussing the future ($M = 2.523$; $SD = .359$) and statements discussing the past ($M = 2.531$; $SD = .214$) ($t = -.451$; $p = .652$).

Discussion

These findings confirmed that managers writing about positive information are more likely to use a concrete linguistic construal than when writing about negative information. This result was expected due to managers' motives to shape outsiders' perceptions of firm performance. By writing positive information in a concrete construal, management can convey to narrative readers that the situation was attributable to deliberate actions of the company.

The analyses also discovered that this result holds only when the manager is writing about information internal to the company. When management is writing about external events, there is no significant difference in how positive and negative information is construed. This is likely due to the fact that management has no control over external events (such as the economy or the weather) and therefore has no motivation to shape investors' perceptions of these events. Given all external references are written more abstractly than internal references, management appears to be distancing itself from personal responsibility of all external events, whether positive or negative.

While this study cannot test whether differences in predicate use are unintentional on behalf of management, existing LCM research suggests they are. Also, for this to be an intentional, deliberate language choice, managers would have to have knowledge and understanding of the LCM and its influence on communication recipients. This is unlikely.

This study provides the first evidence that managers appear to have implicit motives that drive their likely unconscious use of predicates in accounting narratives.

CHAPTER 3

AN INVESTIGATION INTO INVESTOR RESPONSE TO THE LEVEL OF LINGUISTIC CONSTRUAL IN THE EARNINGS PRESS RELEASE

Introduction

Recent accounting narrative research has supported the potential for narratives to directly influence investment decisions. Specifically, results of the existing research indicate that investors respond to the level of negativity in the President's Letter (Abrahamson and Amir, 1996), the frequency of words pertaining to risk or uncertainty in the Form 10-K (Li, 2006), the fraction of negative words in firm-specific financial media stories (Engelberg, 2008; Tetlock et al., 2008), the level of optimistic and pessimistic tone in earnings press releases (Davis et al., 2008; Demers and Vega, 2008), and the level of certainty in the earnings press release (e.g., use of words such as "approximately" and "should" (Demers and Vega, 2008)).

The above-mentioned accounting research suggests that investor sentiment is a function of numerical information and the incremental information content of verbal narratives. What the existing studies have in common is the suggestion that management's language choices are intentional and conscious with the intent of either providing information to readers in an effort to reduce information asymmetries between the readers and management or as a form of impression management intending to opportunistically manipulate investors' perceptions and decisions.

The current experimental study uses the LCM to investigate whether managements' likely unconscious linguistic choices have an unconscious influence over

investors' perceptions and decisions. I predict that narrative construal will interact with narrative valence to influence investor judgment. Specifically, I argue that concretely written narratives will be seen as more verifiable and more likely due to intentionality of management. Therefore, positive narratives written concretely should cause the investor to rate a firm as a favorable investment while negative narratives written concretely should cause the investor to rate the firm as an unfavorable investment. However, abstractly written narratives will be seen as ambiguous and therefore exert less influence on investment decisions, regardless of valence. Results of the first study of this dissertation support this prediction in that managers appear to be attempting to protect the company and/or themselves by writing positive news concretely and negative news abstractly.

Research on the social psychology of language suggests that investor sentiment may be a function of the verbal narrative's influence on investors' attention to the simultaneously presented numerical data (i.e., the influence of the narrative on further information search and weighting). To my knowledge, the existing accounting studies provide no evidence concerning *how* narratives influence the cognitive processes that precede the investor's decision action. Thus, whether nonprofessional investors' attentional focus on and weighting of accounting numbers depends on the linguistic construal within the narrative explaining those numbers remains an open empirical question. The current study contributes to the literature by examining whether a concrete versus abstract construal in the narrative section of the earnings press release differentially influences which financial data are attended to and how those data are weighted when investors make judgments of a firm.

While the relationship between narrative construal and investors' cognitive processing has not been explicitly examined in research, there is theoretical reason to support the hypothesis that construal within a narrative can affect investors' cognitive processing. For example, psychological research on framing effects has shown that framing information positively versus negatively (e.g., percent success versus percent failure) not only influences the final actions taken by a decision maker, but also influences the degree to which information is examined and analyzed (Dunegan, 1993; Rothman and Salovey, 1997). Also, research using the Linguistic Category Model (LCM) has found that priming participants with verbs versus adjectives results in those participants having a different perceptual focus in a number of classic perceptual tasks (Stapel and Semin, 2007).

In this study, I examine the impact of the construal of the narrative section of the earnings press release on investors' cognitive processing. The focus of this study is on the earnings press release because it begins with a narrative explanation of actual financial results and ends with (often truncated) financial statements, allowing me to analyze the effects of narratives on attention to a stimulus (numerical data). Also, Francis et al. (2002) have reported that not only do investors respond to earnings announcements but investor responses to earnings announcements have been increasing over time.

To test these hypotheses, I conducted an experiment in which investors (master of business students) were asked to read an earnings press release, which begins with a narrative about the company's performance and concludes with the financial statements. Process tracing software recorded cue usage and weighting (measured as time spent viewing a financial statement item) to measure whether investors' focus on the financial

statements were different as a function of the subtle differences in linguistic construal of the narratives. In other words, do these subtle linguistic differences in the composition of a narrative alter the attention-driving function of the narrative?

Results were expected to indicate an interactive effect of construal and valence as indicated in Figure 1. Further analyses were hypothesized to show that these differences in judgment are due to differences in investors' focus of attention on financial data and weighting of that data. This causal model is depicted in Figure 2.

While most of the prior research studying accounting narratives is archival (for a review see Merkl-Davies and Brennan, 2007), the current approach is experimental and designed to test predictions concerning the effects of construal under controlled conditions. I adopt this approach for several reasons. First, study one revealed that firms write positive information with a concrete construal and negative information with an abstract construal and therefore there may not be sufficient variation in archival data to test the predictions. Second, an experiment furnishes the possibility to control other variables known to influence investors' judgments such as firm attributes, past performance, format and length of the earnings press release, and total number of statements in the press release, and instead focus solely on the impact of language use. Third, experimentation allows direct measurement of investors' beliefs about management credibility, investors' perceptual focus, and investors' thoughts about future financial performance. The ability to directly measure investors' judgments and the selection and use of data preceding those judgments allows me to determine *how* linguistic construal influences investors' cognitive processing. This is a significant

contribution to the literature on how accounting narratives influence investors' judgments.

The results indicate that investors reading a concretely written narrative are more influenced by valence than investors reading an abstractly written narrative. The influence of construal and valence on the investment decision is direct and not due to an effect on information search and weighting.

Results contribute to both the accounting and social linguistic literatures. Specifically, the paper contributes to the plain English disclosures literature by showing that management's construal of the very same information has the ability to influence investors, despite all of the narratives being written in plain English, suggesting plain English disclosures may not be enough to protect investors from being influenced by managers' word choices.

There has been a call in the social linguistic literature to investigate whether or not LCM inference rules can intentionally be used for impression management (Fiedler, 2008), and this study answers that call. If investors' investment decisions are influenced by linguistic construal, then managers will be able to intentionally use these linguistic tools to manage the impressions and decisions of stakeholders.

Literature Review and Hypotheses Development

Investor Response to Accounting Narratives

There is only a limited body of research concerning investor responses to accounting narratives, yet results suggest that investors use information in the narratives when making investment decisions.

By adding an interaction variable (measure of negativity in the President's Letter and earnings information) into a return-earnings regression, Abrahamson and Amir (1996) found that investors respond to the level of negativity in the President's Letter when valuing firms' equity. Investors consider earnings in low-negativity firms as more permanent than earnings in high-negativity firms.

Segars and Kohut (2001) found that firms with President's Letters that convey to their readers the qualities of credibility, efficacy, commitment and responsibility have significantly more favorable share prices and trading activity.

Drawing upon the impression management literature, Kaplan, Pourciau, and Reckers (1990) investigated whether managers of poor performing companies who, in their President's Letters, either justify or excuse the performance or indicate that a change strategy is being built, are able to influence the decisions of shareholders. Using an experiment, they determined that the content of the President's Letter significantly affects investors' buy and hold decisions, proxy support, and future profit expectations.

Extending the attributional framing literature, Baginski et al. (2000) not only found further evidence that internal (external) attributions are more likely when forecast news is good (bad), but they also found that regressing three-day cumulative abnormal returns on attribution type yields significant effects (although the effect for internal attributions is not as strong as for external attributions), suggesting that investors consider causal attributions to be credible disclosures by management and useful in security pricing.

In their study of qualitative verbal information, Tetlock et al. (2008) investigated whether the fraction of negative words in firm-specific financial media stories from 1980-2004 (in either the *Wall Street Journal* and *Dow Jones News Service*) can predict the

accounting earnings (a proxy for cash flows) and stock returns of individual S&P 500 firms, and whether the market efficiently incorporates this information. Information value and relative negativity were ignored, and the negativity of each article was measured simply by a relative frequency count. They found that the fraction of negative words predicts lower earnings, and that investors incorporate the linguistic content of media stories into stock prices with a one-day delay.

Using textual analysis software, Davis et al. (2008) measured the optimistic and pessimistic tone in 23,400 quarterly earnings press releases. Their hypothesis is that tone is a voluntary and credible disclosure method used by managers to intentionally communicate value-relevant information and that investors respond to this tone as a signal of future performance. Results of regressing optimistic and pessimistic tone, various performance indicators (e.g., meet or beat analyst expectations and whether earnings are positive or negative) and control variables (e.g., risk and size) on future ROA support their first set of hypotheses; specifically, the more optimistic (pessimistic) the tone in the earnings press releases, the higher (lower) the future ROA. Results of regressing optimistic and pessimistic tone, various performance indicators, earnings surprise, and control variables on the cumulative abnormal return over the three-days surrounding the press release date support their second set of hypotheses; specifically, the more optimistic (pessimistic) the tone in the earnings press releases, the more positive (negative) the market response. Additional tests including unexpected levels of optimism and pessimism in the regression cause the expected levels to become statistically insignificant, determining that managers build a reputation for a certain linguistic style and therefore the market response is for *unexpected* levels of optimistic

and pessimistic tone. An issue with this and other studies, which use generic software to code the narratives, is that accounting-specific terms may be mis-categorized. For example, the words “restatement” and “restructuring” have a negative connotation in financial reporting, yet are not considered pessimistic words in this software.

Demers and Vega (2008) measured net optimism in quarterly earnings press releases and found results in line with Davis et al. (2008). Not only is net optimism incorporated into asset prices, but it is priced more for certain firms (e.g., firms with greater analyst following and higher media following, high tech firms, stocks with high turnover, and firms with lower quality accounting data). They reason that the role of soft information is a function of the characteristics of the accompanying hard data, the credibility of the narrative, and the level of disagreement in the investment community concerning the value of the firm. The authors also examined the influence of the level of certainty in the earnings announcement and found that it is an indicator for post-announcement abnormal volatility. They reason that since investors see the level of uncertainty in the writing as an indication of management’s uncertainty about the firm, it increases the investors’ uncertainty about the value of the stock. In this study, a narrative with a high certainty score would be written in assertive language and most statements would be supported by either a factual number or financial comparison, whereas a narrative with a low certainty score would have imprecise language using terms such as “approximately.” One difference between their measure of certainty and my measure of concreteness is that in my experimental manipulations the amount of supporting financial information and number of factual statements is held constant.

The existing research differs from this dissertation in that I am interested in the predicate use in accounting narratives which drives attention, independent of the meanings of these predicates, in the context of the narrative text. The existing research studies semantics, or word meanings and tone, within the narrative. It does not study meta-semantics, or the attention-driving function of word classes. The existing literature also does not examine if a narrative can alter the cue usage and weighting (i.e., cognitive processing) of investors, resulting in different investment decisions. While results from the existing research suggest that investors respond to attributions, negativity, uncertainty, and optimistic tone, research has yet to investigate whether investors respond to the subtle influence of different predicate classes. The social linguistic literature suggests they would.

The Linguistic Category Model

The Linguistic Category Model (LCM) is based on the contention that interpersonal language is a communication tool with its own analyzable psychological properties. Thus, the motivational and cognitive processes of the producer influence the composition of the predicates in a narrative. For example, language construal may serve a social motive such as the protection of the in-group image. In addition to demonstrating that communicators show systematic differences in linguistic construal, research using the LCM has shown that this systematic bias influences the cognitive representation, inferences, comprehension, and response of the communication recipient, thereby perpetuating the biases of the communicator (Fiedler, 2008).

Wigboldus et al. (2000) found support for recipients' sensitivity to changes in a communicator's linguistic abstraction. Specifically, a description of a past event given in

an abstract construal leads to stronger dispositional inferences, while a concrete description of the same event leads to stronger situational inferences. In their first two studies, participants were asked to read and judge a story written by another participant about a male or female behaving in either a stereotypically male or stereotypically female way. Results showed that the stereotype-consistent (i.e., expectancy-consistent) behaviors were written with a higher level of abstraction and were attributed more to an individual's personality, while the stereotype-inconsistent (i.e., expectancy-inconsistent) behaviors were written more concretely and attributed more to the situation in which the individual found him- or herself. The effect of the judges' inferences was mediated by differences in message abstraction, meaning that the inferences were significantly attributable to construal differences.

To further support their inferences, the authors conducted a third study where stereotype content and linguistic abstraction were both manipulated orthogonally. Again results were replicated, further suggesting that linguistic construal plays a role in the transmission and maintenance of stereotypes by affecting a message recipient's cognitive inferences about the very same event.

Reitsma-van Rooijen, Semin, and Leeuwen (2007a) tested the effect of linguistic construal on the relationship between a communicator and recipient when that recipient is also the actor of the behavior in the message (i.e., the message is personal feedback). They hypothesized and found that participants receiving a positive abstract (concrete) message about a positive behavior felt closer (more distant) to the communicator, and those receiving a negative abstract (concrete) message about a negative behavior felt more distant (closer) to the communicator.

Again studying the effects of abstraction level within feedback, Reitsma-van Rooijen, Semin, and Leeuwen (2007b) studied whether a recipient will respond to differences in linguistic construal when the message presented is feedback on their own past performance. Feedback (positive v. negative) and linguistic construal level (concrete v. abstract) were manipulated to test their effects on subsequent performance, and source of the feedback (experimenter v. computer) was manipulated to test the influence of contextual conditions (interpersonal v. impersonal) on the outcome. Results indicated that those receiving a negative abstract message had worse subsequent performance than those receiving a negative concrete message when the source of the feedback was the experimenter. This is because abstract terms have been shown to imply that a trait is enduring while concrete terms imply the trait was specific to the situation. When the source of feedback was the computer, the results reversed. The authors suggest this is because when the computer calculates feedback, the feedback remains private until all tasks have been performed. Therefore, the participants may see the negative abstract feedback as a motivator to improve so that overall feedback (which becomes publicly accessible) is improved. Results for positive feedback were not significant.

Outside the social psychology literature, Schmid and Fiedler (1998) report an experiment where they asked lawyers in training and lay attorneys to prepare closing speeches as both the defense and prosecuting attorney for two different cases of differing severity. The speeches of the participants were coded as to the subject of the sentence (accused, victim, witness) and the valence of the utterance (positive, negative, neutral). They were also coded using the LCM. They found that participants used distinctly different linguistic strategies when discussing the defendant versus the victim. While the

effects were larger for the lay lawyers than the lawyers in training, it was the closing speeches of the lawyers in training that were subsequently presented to student judges. The student judges viewing the closing speeches chose punishments of differing severity depending on the linguistic strategy used by the attorneys. While some strategies had a direct effect, others mediated the effect of other factors such as the severity of the crime. Interestingly, the linguistic strategies did not influence the judges' evaluations of the lawyers' competence, fairness, or rhetorical skill, indicating that the judges were not aware of the strategies influencing their decisions.

Recipient response to different construals has also been studied by those interested in neuroscience and memory. Several neuroimaging studies have shown that words in concrete and abstract construal are processed and retrieved in different areas of the human brain (see: Lauro, Pisoni, Zerboni, and Papagno, 2007; Noppeney and Price, 2004). Other studies have shown a concreteness effect such that concrete words are better remembered during recall and recognition memory tests (see: Jessen, Heun, Erb, Granath, Klose, Papassotiropoulos, and Grodd, 2000; Peters and Daum, 2008; terDoest and Semin, 2005).

In summary, the research shows that not only do communicators systematically differ in their linguistic construals, but this difference influences the message recipient. Exactly how an investor is expected to be influenced is discussed in the next sub-section.

Hypotheses Development

There has been a substantial amount of research suggesting individuals respond to the level of construal within narratives. Given that narratives written in a concrete construal have been perceived to be more concrete, more verifiable, and more likely due

to intentional responsibility of the actor (Semin and Fiedler, 1988), this perception should enable investors to easily envision management achieving these results. Sedor (2002) found that narratives written in scenarios, as opposed to an unstructured list, allow investors to envision how that manager will carry out plans for the future. While scenarios and lists both offer concrete details, the scenarios reduce the cognitive effort necessary to envision these details. Hirst, Koonce, and Venkatarman (2007) show that disaggregation of earnings forecasts enhances credibility and influences investor judgments by providing concrete details. Gleason and Lee (2003) found that good news forecasts of credible analysts, which is perceived as being more highly credible information, leads to a stronger stock price reaction. Based on this research, it can be inferred that information written in a concrete construal, which gives the *perception of* verifiability and draws attention to the situated features of an event, can better enable an investor to envision the details and feel the information is more credible. This will result in the investor being more likely to be influenced by that data.

Information written in a concrete construal is perceived as more verifiable, less likely to be disputed, and being due to management intentions. Therefore, this information should exert a greater influence on investor judgment than information perceived to be less verifiable and more likely to be disputed (i.e., information written in an abstract construal). Information written in an abstract construal is seen as more ambiguous. Hogarth (1989) proposed that ambiguity influences assessments of probability. When an individual anchors on an initial assessment and the information which leads to that anchor is ambiguous, then a larger weight is given to alternative

values for that anchor. Therefore, information written abstractly should exert a lesser influence on investor judgment.

Research in numerous fields has suggested that message recipients are influenced by message valence (how positive or negative is the message). In marketing research, it has been shown that message valence influences the effectiveness of advertisements (Jain and Posavac, 2004). In communications research, valence has been shown to influence a message recipient's attention and memory such that negative messages receive more attention than positive ones (Bolls, Lang, and Potter, 2001). In summary, prior research has demonstrated that message recipients are sensitive to both the construal of a narrative and its valence.

I next present hypotheses concerning how investors will respond to concrete or abstract narratives written positively or negatively. I predict that when the narrative is written in concrete construal, investors will see the information as more verifiable and more likely due to intentionality of management, and these concretely written details will reduce the cognitive effort required by the investor to envision the events happening. Therefore, there should be a large difference between the positive and negative information such that positive concrete narratives will cause the investor to predict a more positive future for the company than negative concrete narratives. However, when the narrative is written in abstract construal, investors will find the information ambiguous and it will exert less influence on their investment decisions such that the difference in investment decisions for those reading positive and negative narratives written abstractly will not be significant. This interactive effect is formally hypothesized as follows:

H₂: Level of construal and narrative valence will have an interactive effect on investor judgment such that:

H_{2A}: With a concretely written narrative, positively valenced writing will lead to a more positive investment decision than negatively valenced writing.

H_{2B}: With an abstractly written narrative, there will be no significant difference on the investment decision of investors reading positively and negatively valenced writing.

Despite the evidence that accounting narratives influence the decisions of investors, there has been no research which has addressed how the narratives may be affecting the cognitive processes which precede the investment decision of investors. Before making an investment decision, investors must analyze and evaluate the data, both the narrative and the accompanying financial statements. There is theory and evidence from psychological research suggesting that construal within a narrative can affect investors' cognitive processing of the financial data. For instance, psychological research on framing effects has shown that framing the same information positively versus negatively (e.g., percent success versus percent failure) not only influences the final decisions and actions taken by a decision maker, but also influences the degree to which information is examined and analyzed. For example, Dunegan (1993) found that framing information in a negative way leads to more deliberate and controlled cognitive processing while framing information in a positive way leads to more simplified and automatic cognitive processing.

Perhaps the most prominent findings concerning the influence of narratives on cognitive processing comes from research using the LCM. This research has shown that systematic differences in linguistic construal influence the cognitive representation, inferences, comprehension, and response of the communication recipient (Fiedler and Semin, 1988; Reitsma-van Rooijen et al., 2007a, 2007b; Stapel and Semin, 2007;

Wigboldus et al., 2000). While the influence of language on higher-level cognition has been a common assumption (see: Gentner and Goldin Meadow, 2003), the influence of language on lower-level cognitive processing, such as attention, memory, and perception has, until recently, been relatively inconclusive. The reason for this is the past studies have been cross-cultural analyses of people speaking different languages (e.g., Do differences in language for color terms influence actual perception of color? (Özgen, 2004)). Issues with these cross-cultural analyses, such as translation issues and cultural and linguistic confounds, have since been overcome by Stapel and Semin (2007) who investigated whether differences in linguistic categories within the *same language* systematically influence people's basic cognitive processes. Their results support the argument that language has an attention-driving function. Specifically, the use of different predicate classes directs attention to different features of objects and events because they affect the perception of a stimulus environment. The use or cognitive activation of abstract predicates (i.e., adjectives) leads to a *global* focus with attention drawn to the *global* properties of an object, while the use or cognitive activation of concrete predicates (i.e., verbs) leads to a local, *detailed* focus with attention drawn to the *detailed* properties of an object.

In one of Stapel and Semin's experiments, participants were subliminally primed with verbs or adjectives (participants were asked to perform a vigilance task using a computer and the words (verbs or adjectives) were presented on the computer screen outside of awareness). Participants were then given a perceptual focus task designed by Kimchi and Palmer (1982) where they were asked to indicate which of two geometric figures (either a square made up of smaller triangles or a triangle made up of smaller

squares) was more similar to a target figure (either a triangle made up of smaller triangles, or a square made up of smaller squares). If they indicated a square of triangles was more similar to a triangle of triangles, they were showing a local focus, yet if they indicated it was more similar to a square of squares, they were showing a global focus. Participants in the adjective (verb) condition were more likely to use a global (local) focus when matching objects. Results supported their hypothesis that predicate categories can impact generic cognitive process, such as level of perceptual focus.

No studies have attempted to carry these results on perceptual focus into a business narrative setting and demonstrate similar results on investors' attentional focus on cues. The present study provides evidence on this key issue which has been neglected in the accounting narrative research: whether nonprofessional investors' focus on accounting numbers depends on the language within the narrative explaining those numbers. Specifically, this study examines whether an abstract versus concrete construal differentially influences the degree to which investors' decision processes (i.e., information search and cue weighting) are affected when analyzing actual financial data in order to make judgments of a firm.

Normative decision models suggest that decision makers should differentially and objectively weight each information cue based upon how successfully the cue predicts the outcome (Libby, 1981). However, individual's cue utilization and weighting does not always follow normative principles. For example, Shah and Oppenheimer (2007) found that people weight information that is easy to process (i.e., in a clearer font, less blurry, easier to pronounce) more heavily than information that is more difficult to process.

Based on the above theoretical support, I posit that investors reading a concrete construal will have a more specific attentional focus and therefore attend more to the financial statement items mentioned in the narrative. This increase in attention will lead to that information being given more weight in the investment decision. On the other hand, investors reading an abstract construal will have a more global attentional focus and will subsequently give a more thorough and comprehensive review of the financial statements.

The hypothesis is formally proposed as follows:

H₃: Investors who read narratives written in concrete (abstract) construal will have a more specific (global) focus and therefore attend more (less) to the financial statement items mentioned in the narrative and give that information more (less) weight in their investment decision.

Methodology

Participants

Seventy nine graduate business students from several major Northeastern Universities served as participants for this study. Average age of participants was 25.19 years, ranging from 20 to 50. Of the participants, 54.7% were male. Graduate business students were used in this study because Elliott, Hodge, Kennedy, and Pronk (2007) suggest that they are a valid choice as a proxy for nonprofessional investors. Also, MBAs were used as a proxy for nonprofessional investors in prior research (e.g., Maines and McDaniel, 2000; Winchel, 2008), they are easily accessible, and they possess the requisite task experience and have a relatively high level of understanding of business, accounting, and valuation issues. This is indicated by their having an average of 3.72 years of work experience and having taken an average of 11.76 accounting and 3.38

finance courses. Also, 91percent indicated that they had invested or planned to invest in common stock or mutual funds. Of those who had invested, the mean number of individual securities investments was 7.43.

Overview of the Experiment

The experiment is a 2 x 2 between-participants design to investigate the effect of managers' linguistic choices in an earnings press release on nonprofessional investors' decision processes and investment judgments.

The first independent variable manipulates the valence of the financial data, which is discussed in the narrative section of the press release as positive or negative. In all conditions, the narrative section of the press release mentions only sales; selling, general, and administrative (SG&A) expenses; and cash & cash equivalents. There are two versions of financial statements used. When the information discussed in the narrative is positive (negative), the financial statements reflect that. However, other items that are not discussed in the narrative are negative (positive) in the financial statements in an effort to offset the valence of that news. For example, when the narrative describes positive (negative) sales revenue results, the income statement indicates that sales had increased (decreased) 2%, but that net earnings had increased only 1.5% (6%). This is done to ensure that both sets of financial statements represent a "neutral" or "moderate" investment.

The second independent variable manipulates the construal of the narrative as abstract versus concrete. Appendix A presents the instrument with the four fictitious press releases.

Participants accessed the case through a computerized program and were asked to assume the role of an investor. They then viewed an earnings press release and were asked to make investment decisions. The focus of this study is those investment decisions and the way the information is processed in making those decisions (i.e., cue usage and weighting).

Development of the Instrument

Graduate business students were asked to assume they manage their own investments and are considering adding the common stock of a company to their investment portfolio. The case revolves around a hypothetical medical technology company called MedTech, Inc., which is patterned after a composite of medical technology firms trading on the New York Stock Exchange. Company background information indicated that MedTech, Inc. (a public company trading on the NYSE) is a medical technology company that develops and manufactures a wide range of products and therapies for major chronic diseases and medical disorders and that the company's management has been in place for five years.

After reading this brief background, participants viewed the narrative section of the company's last quarter's earnings press release. The independent variable manipulations are in this section of the instrument. All narratives discuss reasons for results in sales revenue, SG&A expenses, and cash & cash equivalents. These narratives are either all positive or all negative.

In the positively valenced narratives, net sales increased 6% due to the introduction of new products, successful clinical trials, and a broadened and diversified portfolio. In the negatively valenced narratives, net sales only increased 1.5% due to

unsuccessful clinical trials, a failed attempt at a patent renewal, and the decrease in unit sales of lasers in a particular division. Similarly, in the positive (negative) conditions, SG&A expenses decreased (increased) as a percentage of sales 2% due to reduced (increased) costs associated with product trials, reduced (increased) litigation expenses, and reduced (increased) non-cash compensation expenses for stock options. Similar explanations were provided for either an increase or decrease of cash and cash equivalents by \$18 million from the previous quarter. Other financial statement items were manipulated to balance the good (bad) news in those three items, so that all instruments presented a “neutral” investment alternative, however these items were not specifically mentioned in the narrative. For example, in the positively valenced narrative condition which had increases in net sales and cash and decreases in SG&A expenses, the financial statements also showed an increase in COGS, a decrease in R&D expenses, a very minimal increase in net earnings, a decrease in total current assets, and a decrease in liabilities. The opposite held for the negatively valenced narrative condition. Also manipulated is the construal of the narratives as concrete or abstract.

After reading the earnings press release narrative, participants were presented a truncated income statement and balance sheet with current quarter’s unaudited and last quarter’s audited financials. The statements give both the account balance and common-sized totals (e.g., percentages of total assets or percentage of net sales). The financial statements were created from several actual companies in the medical technology industry.

Pretesting of the Instrument

Two pretests were conducted. In the first pretest, the financial information was presented to 18 non-participant MBAs in order to ensure the investment is perceived as neutral. Each pretester was asked to analyze one set of financial statements (without viewing the narrative) and make the investment decisions in the final instrument. The pretest suggests that the two sets of financial statements represent equally attractive investments.⁹

In the second pretest, 39 accounting doctoral students and accounting faculty pretested the narrative section to ensure the abstract and concrete construals are of equal valence. They were asked to read a narrative and rate how positive or negative they felt the information in the press release was on a scale of 1 to 9 with endpoints labeled very negative and very positive¹⁰. ANOVA results indicate a significant main effect of valence ($p < .001$) with no main effect of construal and no interaction. The pretesters were also asked how likely they believe it is that management is trying to create a positive impression of the company through the press release¹¹. Again, ANOVA results indicate a significant main effect of valence ($p < .001$) with no main effect of construal and no interaction. And finally they were asked how competent they believe the manager is with

⁹ Pretesters were asked to provide a point forecast of the company's stock price at the end of the next quarter. Means were 51.71 for the financials which will accompany the positively written narratives and 51.51 for the financials which will accompany the negatively written narratives (MANOVA results $p = .828$). They were also asked to indicate how favorable they believe the company's financial results will be in the next quarter (means = 6.19 for positive and 5.50 for negative where 1 = "not at all favorable" and 9 = "extremely favorable"; $p = .512$). They were additionally asked how likely they were to buy shares in the company (means = 4.00 for positive and 4.60 for negative where 1 = "not at all likely" and 9 = "extremely likely"; $p = .399$).

¹⁰ Means: positive/concrete = 6.55; positive/abstract = 6.78; negative concrete = 3.75; negative abstract = 4.00.

¹¹ Means: positive/concrete = 7.73; positive/abstract = 7.89; negative/concrete = 3.92; negative/abstract = 4.00. This was on a 9-point scale with endpoints labeled very unlikely and very likely.

endpoints labeled very incompetent and very competent¹². Once again, ANOVA results indicate a significant main effect of valence ($p < .001$) with no main effect of construal and no interaction.

All results from pretesting indicate that the manipulations are successful and reasonable.

Experimental Procedures

I administered the experiment using a software program called Macromedia® Authorware® 7, which participants downloaded from a secure website. Upon entering an access code to the program, participants were randomly assigned to an experimental condition. After reading instructions and the company background, participants viewed the narrative section of the earnings press release and then were given access to the truncated income statement and balance sheet items.

When the financial statements first appear on the screen, only the previous quarter's information can be viewed. In order to access the most recent quarter's results, participants must click their cursor in the relevant box. This is done so that the process tracing software can monitor each item acquired by investors, the order of requested information, and the amount of time spent viewing each piece of financial information. This allows me to determine whether changes in linguistic construal influence the acquisition of financial items, and whether this information acquisition influences investment related judgments.

¹² Means: positive/concrete = 6.36; positive/abstract = 6.56; negative/concrete = 4.67; negative/abstract = 5.00.

When the participants were finished viewing the narrative and any relevant financial items, they chose to move to the next screen which is the judgment page where they were to record their responses to various questions. Once on this page, participants were no longer given access to the previous information. They were made aware of this before proceeding to this page. Participants were asked to provide a point forecast of the firm's share price at the end of the next (third) quarter. They were also asked to indicate how favorable they believe the company's results will be in the next (third) quarter by using a nine-point response scale with endpoints labeled "not at all favorable" and "extremely favorable", and indicate their likelihood of investing in the company and the likelihood another investor would invest in the company¹³ by using a nine-point response scale with endpoints labeled "not at all likely" and "extremely likely." Next, they were asked to answer several questions concerning their perceptions of management and the press release.

In addition to recording the participants' judgments, the software recorded each participants' process trace. In other words, it recorded each financial statement item viewed, the order in which they were viewed, and the amount of time spent on each item.

After completing these assessments, participants responded to a series of demographic questions, including years of work experience, whether they had previously invested in or intended to invest in common stocks or mutual funds, and how many

¹³ Psychological research on the "third-person effect" suggests individuals believe persuasive messages have a greater impact on others than on themselves (Davison, 1983; Perloff, 1993). For this reason, I ask participants to rate the likelihood other investors would purchase shares in the company.

accounting and finance courses they have taken¹⁴. When finished, participants were instructed to save their file and email it back to me.

Results

This study investigates the influence of accounting narrative linguistic construal and valence on investment decisions. It further investigates the information search processes of investors by determining whether linguistic construal influences investors' information search and cue weighting.

Influence on Investment Decisions

There are three main dependent variables in these analyses: (DV1) how favorable the investor believes the company's financial results will be in the next quarter, which is on a scale of 1 to 9 with endpoints labeled "not at all favorable" and "extremely favorable"; (DV2) the likelihood the investor will buy shares in the company, which is on a scale of 1 to 9 with endpoints labeled "not at all likely" and "extremely likely"; and (DV3) investors' point forecast of the company's stock price at the end of the next quarter. The independent variables are linguistic construal (concrete v. abstract) and valence (positive v. negative).

Hypotheses 2A and 2B predict that level of construal and valence will have an interactive effect on investor judgments. As shown in Table 4, Panels B and C, results are consistent with this prediction¹⁵. The effect of valence on investor decisions depends on whether the narrative is construed abstractly or concretely. Specifically, when the

¹⁴ A MANOVA was conducted to check that none of the demographic measures varied by experimental condition. There were no significant models, therefore ensuring successful random assignment of participants to conditions.

¹⁵ A MANOVA revealed that DVs 1 and 2 had significant models, however DV3 (point forecast) did not. Therefore, Univariate ANOVA results are reported for DV1 and DV2 only.

narrative was written abstractly, there was no difference in investor judgment between positive and negative narratives. Investors rated the favorability of the company's future financial results as 5.83 (1 = not at all favorable; 9 = extremely favorable) when the narrative was positive and 5.47 when the narrative was negative ($t = 2.699$; $p = .296$). However, when the narrative was written concretely, there was a significant difference in judgment between the positive and negative narratives. Investors rated the favorability of the company's future financial results as 5.900 when the narrative was positive and 4.35 when the narrative was negative ($t = 2.699$; $p = .011$). Results are the same for the question regarding the likelihood of the investor to buy shares in the company. The contrasts for dependent variables 1 and 2 are shown in Table 4, Panel D and lend strong support to hypotheses 2A and B that investors reading a concretely written narrative are more influenced by valence than investors reading an abstractly construed narrative.

As an additional test, I did contrasts to examine the extent that negative narratives written abstractly led to different investment decisions than positive narratives (written either concretely or abstractly). As seen in Table 4, Panels D and E, the negative consequences of doing so appear minimal. For DV1, there is no statistical difference between writing a narrative using negative/abstract construal versus writing the narrative positively¹⁶. For DV2, there is no statistical difference between writing a narrative using negative/abstract construal and positive/abstract construal, however narratives written with a positive/concrete construal do result in more positive investment decisions than those written with a negative/abstract construal¹⁷. Overall, these results suggest that

¹⁶ For negative/abstract v. positive/abstract, $t = 1.060$; $p = .296$ and for negative/abstract v. positive/concrete, $t = -.913$; $p = .367$.

¹⁷ For negative/abstract v. positive/abstract, $t = .425$; $p = .673$ and for negative/abstract v. positive/concrete, $t = -1.904$; $p = .065$.

when managers must write negative information in their narrative, they should write it abstractly as opposed to concretely. Results from Study 1 suggest they do.

As an additional test, results were also calculated with participants' self-assessed level of experience analyzing financial statements as a covariate. Results for the dependent variables were similar and the covariate was insignificant suggesting experience with financial statement analysis does not affect the influence of valence and construal on investors.

Influence on Cognitive Processing

Hypothesis 3 posits that information evaluation will be influenced by linguistic construal. The measures used to operationalize investors' information search processes as they viewed the financial information were the raw amount of time spent viewing the three items mentioned in the narrative, the percentage of time spent viewing the three items (calculated as the time spent on the three items divided by the overall time spent viewing the financial statements), the raw number of times those three items were viewed, and the percentage of times those three items were viewed (calculated as the number of times viewing the three items divided by the total number of items viewed).

I hypothesized that investors who read the concrete construal would have a more local focus and their attention would be directed to the accounts mentioned (i.e., sales, cash, and SG&A), whereas those who read the abstract construal would have a more global focus and view more accounts with their time more equally divided between accounts. It is this difference in information search and evaluation which I expected led to differences in investment decisions.

Results of a MANOVA fail to support the hypothesis. The only significant model was for the number of times the three items were viewed (overall model $F = 3.077$; $p = .0330$). For this dependent variable, there was only a main effect of valence ($F = 8.143$; $p = .006$)¹⁸ with no main effect for construal ($F = .740$; $p = .392$) and no significant interaction ($F = .550$; $p = .461$).

I did a mediation analysis to determine whether investors' cognitive processing followed the path originally predicted for construal (i.e., valence influenced the number of items viewed which influenced the investment decision). This mediation analysis followed the approach in Baron and Kenny (1986) which first determines the effect of valence on information search and weighting (number of times the three items were viewed) with an ANOVA. A significant effect was obtained ($F = 8.146$; $p = .006$). Next, I determined the effect of valence on the investment decision with ANOVA, again obtaining a significant result ($F = 7.765$; $p = .007$). Finally, I ran an ANCOVA with information search and cue weighting as the covariate, valence as the IV and the investment decision as the DV. If investors' cognitive processing followed the hypothesized path, I would find that information search and cue weighting is significant, but valence is no longer significant. These results were not found indicating that while valence may have a significant effect on the number of times the items mentioned in the narrative were viewed in the financial statements, it is not this cue usage which ultimately leads to the investment decision.

¹⁸ In the positive conditions, the items were viewed a mean number of 6.701 times and in the negative condition they were viewed a mean number of 9.047 times.

Determination of Intentionality of Reliance on Construal

In an effort to determine whether the effect of construal and valence on the investment decision was an intentional or unintentional cognitive effect, I performed additional analyses. I asked participants four additional questions. The first asked if they felt their judgments would have been different if the earnings press release had only included financial statements with no narrative. This required a yes or no response. The second asked how informative they found the narrative section of the earnings press release on a scale of 1 to 9 with endpoints labeled “not at all informative” and “extremely informative.” Question three asked how forthcoming they felt management was in the narrative on a scale of 1 to 9 with endpoints labeled “not at all forthcoming” and “extremely forthcoming.” And the final question asked how credible they found the narrative section of the earnings press release on a scale of 1 to 9 with endpoints labeled “not at all credible” and “extremely credible.”

Results confirm that investors did not believe they were relying on the narrative and therefore results suggest that nonprofessional investors unconsciously rely on the narrative section of the earnings press release. The only question that resulted in a marginally significant model was how forthcoming the investor felt management was in the narrative section of the press release ($F = 2.283, p = .086$)¹⁹. However, this result was driven by the valence of the narrative ($F = 4.870, p = .030$). There was no significant effect of construal ($F = .323, p = .572$) and no significant interaction ($F = .534, p = .467$). While these narratives may provide signals about the importance of financial statement

¹⁹ Would your judgments have been different if the earnings press release had only included financial statements (no narrative), yes or no? ($F = .574, p = .634$). How informative did you find the narrative section of the earnings press release on a scale of 1 to 9? ($F = 1.641, p = .187$). How credible did you find the narrative section of the earnings press release on a scale of 1 to 9? ($F = .862, p = .465$).

information, these signals appear to affect investor judgments through an unintentional cognitive process.

Discussion

Results show that the investment decision is jointly influenced by the valence and construal of accounting narratives accompanying financial statements. Also, this influence appears to be due to unconscious cognitive effects resulting in the investor being unaware of the influence of the narrative on her investment decision. The specific effect is that investors reading a concretely written narrative are more influenced by valence than investors reading an abstractly construed narrative, suggesting managers who need to include negative information in their narratives should construe it abstractly. Interestingly, results from Study 1 of this dissertation show they do this.

Results also show that the influence of construal and valence on the investment decision is a direct one. The narrative does not influence information search or cue weighting. Therefore, all investors attended to the same data in the financial statements, yet their investment decisions were different based on the narrative they read. No existing studies on accounting narratives have investigated this relationship.

Since the influence of construal on cognitive processing is shown to be unconscious, I provide evidence that full disclosure in plain English isn't enough to protect investors from the influence of managers' narratives. An unsophisticated investor can be influenced by something as subtle as managers' choice of verbs versus adjectives; the same amount of information is presented, it is simply written slightly differently and therefore has the ability to direct investors' attention and alter their decisions. Therefore,

it is unlikely that regulation of the narratives alone will protect investors. This is a fundamental issue for regulators.

CHAPTER 4

INSIGHT OFFERED FROM MANAGERS' UNCONSCIOUS LINGUISTIC CHOICES WITHIN THE FORWARD-LOOKING STATEMENTS OF THE EARNINGS PRESS RELEASE

Introduction

The existing accounting narrative literature investigates various managerial strategies for impression management and/or providing incremental information. These include obfuscation (manipulating reading difficulty), using attributions, or using/omitting specifically selected comparison benchmarks or financial disclosures (for a review, see Merkl-Davies and Brennan, 2007). However, the strategy most closely related to this study suggests managers use semantic (word meaning) manipulation (Davis et al., 2008; Tetlock, 2007).

Language is a tool for communication and its main function is to direct the attention and focus of others to different aspects of reality (Semin, 2007). At the semantic level, strategic language use is achieved by using words with different meaning to attract or detract attention. For example, Davis et al. (2008) coded words with an optimistic tone or meaning (e.g., favorable, satisfied, improvement) versus a pessimistic tone or meaning (e.g., bleak, disappointing, nothing) and found a significant association between this tone in earnings press releases and future return on assets (ROA). Tetlock (2007) and Tetlock et al. (2008) examined words with negative or pessimistic meanings in the Wall Street Journal (WSJ) and Dow Jones News Service (DJNS) for their ability to predict future earnings of S&P 500 firms. Similarly, Feldman et al. (2008) looked for changes in words expressing optimism and pessimism in the MD&A for their ability to

predict future stock performance, incremental to accruals, operating cash flows, and earnings surprises.

This study extends this body of work on semantics within accounting narratives and looks at a much more subtle and seemingly unconscious phenomenon, namely strategic language choices that nevertheless escape conscious access of its ‘author’. Just as the semantic properties of language drive attention, so too do the *meta-semantic* properties of linguistic categories. In other words, looking beyond the meaning of specific words and instead classifying words based on linguistic categories which have distinct inferential properties. The Linguistic Category Model (LCM) is a taxonomy of linguistic terms (verbs, adjectives and nouns) that are mapped on an abstractness-concreteness continuum, with action verbs being the most concrete and adjectives being the most abstract. It has been demonstrated that communicators systematically, yet unconsciously, vary the level of abstraction of the predicates they use (e.g., Maass et al., 1989), and that this systematically influences message recipients’ inferences and cognitive processes (e.g., Wigboldus et al, 2000).

The difference between semantics (i.e., word meanings) and meta-semantics (i.e., inferential properties of linguistic classes) motivates this study. While the study of corporate narratives has remained focused on semantics, research in other domains has shown the value-relevance of studying the meta-semantic properties of word usage, specifically insight into the privately held thoughts and expectations of the communicator and the systematic influences on the recipient. This chapter draws upon the meta-semantics literature to examine managers’ unconscious linguistic choices in their voluntary narrative disclosures, as well as whether the market incorporates this

information²⁰. Based on research concerning the Linguistic Expectancy Bias (LEB, Wigboldus et al., 2000), I argue that managers' true expectations of the firm are revealed in their unconscious linguistic choices. Therefore, studying linguistic construal might provide novel incremental information about the future value of the firm.

The LCM has been used to study stereotyping (e.g., Maass, 1999), the legal setting (e.g., Schmid and Fiedler, 1998), politics (Rubini and Sigall, 2002), health care (Watson and Gallois, 2002), and in human resources to study personnel selection (Rubini and Menegatti, 2008). However, to my knowledge the LCM has never been used to study corporate narratives. The study reported here introduces a novel perspective to the accounting narrative literature by extrapolating from this research and investigating whether managers' use of concrete versus abstract verbs and predicates contains any additional information or insight into the future value of the firm, incremental to other narrative choices and numerical data. I also test whether stock market prices reflect the effect of these linguistic choices.

This study uses the Linguistic Category Model to measure the level of concreteness/abstractness of the forward-looking managerial statements in the earnings press release. I examine the impact of linguistic construal in a sample of earnings press releases issued by publicly traded firms between 2002 and 2004. Based on the LEB, which has found that expected behaviors are communicated via more abstract language than unexpected behaviors, I predict and find a positive association between future firm ROA and linguistic abstraction in forward-looking statements.

²⁰ Research using the LCM has shown that a communicator's choice of predicate class escapes conscious access. While the research design of this paper does not specifically test intentionality, the implicit assumption based on prior research is that the relation between LCM and firm performance is nonstrategic and unintentional.

The remainder of the chapter is organized as follows: The next section discusses the relevant prior literature and motivates my empirical hypotheses. Section three describes the sample and the variables. Section four presents results and the final section draws the conclusions from this study.

Literature Review and Hypotheses Development

Predictive Value of Accounting Narratives

In recent years, accounting researchers have moved beyond the study of the value relevance of quantitative financial disclosures and have begun analyzing the incremental predictive value of qualitative, narrative disclosures such as the corporate annual report (e.g., Management Discussion & Analysis (MD&A) and President's Letter), the earnings press release, and media news stories. Through this stream of literature, the predictive value of accounting narratives has been established.

As discussed in chapter 3, section 2.1, Davis et al. (2008) found that the more optimistic (pessimistic) the tone in the earnings press releases, the higher (lower) the future ROA. Demers and Vega (2008) discovered the level of certainty in the earnings announcement is an indicator for post-announcement abnormal volatility. Using a frequency count of words with a negative connotation, Tetlock et al. (2008) found this measure in firm-specific financial media stories can predict accounting earnings and stock returns of individual S&P 500 firms.

In addition to the research discussed in chapter 3, Smith and Taffler (2000) found that discretionary narrative disclosures (specifically, the unaudited Chairman's Statement of the corporate annual report) are associated with subsequent corporate bankruptcy. The authors used both word based and theme based content analysis methods and were able to

discriminate between firms which remained healthy and those which entered bankruptcy (with over 95% accuracy).

Li (2006) counted the number of words pertaining to risk or uncertainty in corporate annual reports (Form 10-K) and found a relation between a higher frequency count and lower future earnings in a cross-sectional setting. Specifically, those firms with the highest risk sentiment increase (based on a quintile partitioning) had a significantly larger percent decrease in earnings than firms with the lowest risk sentiment increase, after controlling for other commonly used earnings prediction variables.

My dissertation is unique in that it investigates the predictive value of what have been shown to be *unintentional* language choices, whereas many of the above-mentioned studies assume the linguistic choices are intentional. Another contribution of my research is that the LCM improves upon the generic software used in other studies. While the existing literature's use of computer programs to code narratives enables the researchers to evaluate a larger sample, there are issues with these programs which hand-coding overcomes. In accounting there are words that are very explicit to the discipline but generic in common usage. Generic computer software misses these. For example, words such as restatement, restructuring, repricing, forfeiting, re-negotiate, and challenging may be considered negative in accounting, but not in software. Also, forward-looking statements use terms such as "we believe," "we expect," and "we anticipate." These do not convey uncertainty, but are counted as uncertain in Demers and Vega (2008). Also, the word "loss" and its derivatives are counted as expressions of pessimism in papers using computer software, yet they may be used repeatedly by losing firms only because of the fact that a loss exists. Another issue with using DICTION and

other commercial classification systems, which is not an issue with the LCM, is that of negative modifiers. For example, if the press release reads: “earnings did not increase,” the word “not” negates the optimistic tone that DICTION would have recorded from this statement. Using the LCM overcomes these issues as the inferential properties of the LCM categories hold across semantic fields. In other words, the LCM coding is insensitive to the semantics of the text, but extracts the level of abstraction irrespective of valence and meaning.

Another way this dissertation differs from the current body of literature is that this paper is interested in the predictive ability of word categories (meta-semantics) versus word meanings and sentiments (semantics).

The Linguistic Category Model: The Communicator

As discussed in chapter two, the LCM has been widely used in studies of the linguistic intergroup bias (LIB; Maass et al., 1989) and the linguistic expectancy bias (LEB; Wigboldus et al., 2000) and has more recently been used in studies outside the stereotype literature (e.g., Schmid and Fiedler, 1996, 1998; Watson and Gallois, 2002; Rubini and Menegatti, 2008; Rubini and Sigall, 2002). These studies tend to focus on the domain of self-presentation and impression management, which is the focus of the current study’s investigation of corporate narratives.

Assuming that managers have private knowledge that other stakeholders may not have, any insight into managers’ expectancies concerning the future of the firm could prove invaluable in predicting the firm’s future. A series of studies in the social psychology domain by Douglas and Sutton (2003) have demonstrated that a

communicator's expectancies systematically and independently influence a communicator's level of language abstraction when describing events and behaviors.

Douglas and Sutton (2003) present four studies demonstrating that language use is influenced by communication context. These studies support the Linguistic Expectancy Bias (LEB) hypothesis that communicators' privately held beliefs and expectancies, as well as their goals and motives, systematically and independently influence their level of language abstraction when describing events and behaviors. When communication goals, whether implicit or explicit, conflicted with belief expectancies, it was the goals that independently affected language abstraction. In their first two studies, participants watched a cartoon character behaving either positively (e.g., picking up rubbish) or negatively (e.g., throwing rubbish on the ground). Likeability of the characters was manipulated at two levels (e.g., either a friend vs. an enemy, or someone who behaves this way very often vs. very rarely). Communication goals of the participants were manipulated such that they were asked to describe the behavior either positively or negatively. Consistent with the linguistic expectancy bias (LEB), participants chose more abstract descriptions (studies 1 and 2) or used more abstract words in their own free-response descriptions (study 3) for friends (enemies) performing positive (negative) behaviors. In other words, when expectancies matched the behavior, abstract language was used, and when expectancies did not match the behavior, more concrete language was used. However, when the communicators' goals conflicted with their expectancies, the goals overrode expectancies and independently affected abstraction and the LEB-consistent results no longer held. For example, when participants described an enemy's negative behavior *favorably*, they used more concrete descriptions.

To test whether these effects hold when participants are describing behavior of others for whom they have long-held beliefs and attitudes, the authors conducted study four. Participants were asked to think of a person they know, whom they either like or dislike, and to describe something this person had done recently which was either characteristic or uncharacteristic of them. In the control condition, no further instructions were given; however, in the experimental conditions, participants were asked to describe the behavior as if it was actually the opposite of what is typical for the individual (i.e., contrary to expectation). Results from the first studies were replicated, showing that communication goals have a powerful influence on the level of linguistic abstraction used in the description of events. In all cases, participants were truthfully describing the behavior; however, their descriptions provided differing representations of reality.

Maass et al. (1995) also find support for the LEB. They induced an expectation that a target person was sociable then showed participants cartoons in which this target person was doing behaviors that confirmed (behaving sociably) or disconfirmed (behaving unsociably) this expectation. Participants were then asked to choose from a list of descriptions of this behavior. When the behavior was congruent with expectations, participants chose more abstract descriptions and when the behavior was incongruent with expectations, participants chose more concrete descriptions.

The above research suggests that language abstraction can provide an implicit measure of communicators' belief expectancies. Assuming managers disclose truthfully to maintain legitimacy and keep the trust and confidence of investors, I expect that managers' privately held beliefs about the company will influence their use of linguistic

construal. It is unlikely these linguistic choices will be under the conscious control of the manager.

Investor Response to Accounting Narratives

As discussed in chapter three, section 2.1, results from the limited body of research concerning investor responses to accounting narratives suggest that investors use information in the narratives when making investment decisions. Specifically, Abrahamson and Amir (1996) found that investors respond to the level of negativity in the President's Letter; they consider earnings in low-negativity firms as more permanent than earnings in high-negativity firms. Kaplan et al. (1990) determined that the content of the President's Letter significantly affects investors' buy and hold decisions, proxy support, and future profit expectations. Baginski et al. (2000) found that investors consider causal attributions to be credible disclosures by management and useful in security pricing. Tetlock et al. (2008) found that investors incorporate the linguistic content of media stories (specifically the fraction of negative words in the story) into stock prices with a one-day delay. Davis et al. (2008) found that investors respond to optimistic and pessimistic tone in the earnings press release as a signal of future performance. Demers and Vega (2008) concluded that investors see the level of uncertainty in the earnings press release as an indication of management's uncertainty about the firm, and it increases the investors' uncertainty about the value of the stock.

Engelberg (2008) theorized that qualitative narrative information (which is more difficult to process than quantitative financial information) is more slowly diffused into asset prices. He used Tetlock's (2007) method of negative word count in Dow Jones News Service stories as his qualitative measure and earnings as his quantitative measure

and found that the qualitative information predicts price changes over longer horizons. In additional analyses he found that stocks in complex information environments and those with low institutional ownership experience more predictability from qualitative information. His sample runs from 1999-2005, but he also subdivided his sample to analyze whether the “Internet Bubble” or Regulation FD contributed to his results and found similar results in both subsamples.

Das and Chen (2007) developed an algorithm for extracting small investor emotive sentiment (the net of positive and negative opinions expressed about a stock) from discussions on stock message boards. Their algorithm is a compilation of various others and comparable to spam-filtering algorithms. It classifies messages as either bullish/optimistic, bearish/pessimistic, or neutral. Their sample includes two months of messages (July and August 2001) concerning twenty four tech-sector stocks (total of 145,110 messages). They found the sentiment of these messages is significantly related to stock index levels and stock volatility.

Henry (2006) used a short-window event study to examine investor response to the tone (i.e., frequency count of positive versus negative words) of earnings press releases of firms in the telecommunications and computer services industries between 1998 and 2002. Tone is measured using DICTION software. Examples of words classified as expressing positive tone are “succeed,” “accomplish,” and “growth,” while words expressing negative tone include “challenge,” “hurdles,” and “deteriorate.” Her results provide evidence that tone influences market reaction to the earnings press release. Henry used prospect theory as an explanation for her results suggesting that tone influences the reference point from which investors evaluate a firms’ performance.

I also expect to find that investors respond to the narrative section of the earnings press release. Specifically, I expect to find that investors respond to meta-semantic linguistic categories, as opposed to the existing research which found that investors respond to semantics (word meanings or tone).

The Linguistic Category Model: The Message Recipient

In the Linguistic Intergroup Bias / Linguistic Expectancy Bias (LIB/LEB) literature, Maass et al. (1989) used the LCM to study the transmission and persistence of social stereotypes. In an initial series of experiments, they found that people communicate at a higher level of abstraction when discussing favorable in-group and unfavorable out-group behaviors versus unfavorable in-group and favorable out-group behaviors. To test the implications of these results for the transmission of stereotypes, they conducted another experiment. If abstract terms are considered to be more informative about the subject and to imply stable behaviors that are difficult to disconfirm, then the expectation is that a recipient of an abstractly biased communication will be more likely to predict the subject of the communication will display this behavior or attribute in the future. Using the significantly biased response alternatives provided by the participants in their initial experiment, they asked a new set of participants to read these statements and rate the likelihood the behavior or attribute would be repeated. Using a 2 (desirable vs. undesirable) x 4 (level of abstraction) ANOVA, they found a main effect for level of abstraction such that higher levels of abstraction were more likely to suggest to the reader that the behavior would be repeated. The authors concluded that biased language may contribute to stereotype maintenance.

As discussed in chapter three, Wigboldus et al. (2000) also found support for message recipients' sensitivity to changes in a communicator's linguistic abstraction. Specifically, a description of a past event given in an abstract construal leads to stronger dispositional inferences, while a concrete description of the same event leads to stronger situational inferences. Also, Reitsma-van Rooijen et al. (2007a; 2007b) tested the effect of linguistic construal within the domain of personal feedback and found a systematic relationship between the construal of the feedback and how close or distant the recipient felt to the communicator of the feedback.

Outside of the social psychology literature, Schmid and Fiedler (1998) had lawyers in training give closing speeches as both the defense and the prosecuting attorney for cases of varying degrees of severity. As mentioned in chapter three, the speeches systematically differed in language strategies depending on whether the lawyers were the defense or prosecuting attorney. These speeches were then presented to student participants representing potential jury members who were asked to assess the severity of the crime and the degree of punishment they felt was warranted. Results suggest that language abstraction had an independent influence on sentencing behavior, separate from the influence of lawyer perspective and offense severity. Specifically, more abstract language influenced dispositional attributions by highlighting the intentionality of the negative behavior. However, language differences did not influence the participants' assessments of lawyer fairness or competence, indicating that the participants were not aware of the strategies influencing their decisions.

The purpose of this study is to test whether the market will respond to linguistic differences in accounting narratives. Stock returns reflect changes in expectations about

future earnings. If the market reacts to the construal as a clue to managers' expectations about future earnings, then this should be incorporated into current stock prices.

Hypotheses

Given the above consideration, I expect managers' forward-looking statements to be systematically biased. Given that most forward-looking statements are encouraging and positive, I posit that when these statements match management expectations about the future (i.e., management expectation is that good news will be persistent) the manager will write more abstractly. However, if the manager's inside information leads her to believe that the future may not meet these positive expectations, I posit the manager will use a more concrete construal.

First, I examine whether certain proxies for managers' privately held information about the future are predictive of the level of abstractness managers' use in their forward-looking statements. This hypothesis is formalized as:

H₄: Managers' privately held information about the future is associated with construal in the forward-looking statements of the earnings press release such that the better managements' expectation of the future, the more abstract the statements.

Once the above association has been determined, I examine the association between the linguistic construal measure in the forward-looking statements of the earnings press release and future accounting-based performance measures in order to establish a relation between construal and future performance. In other words, does the way in which the forward-looking statements of the earnings press release are written offer insight into the future performance of the company? If so, we can distinguish between future successful and unsuccessful firms.

Formally, the following hypothesis is offered:

H₅: Future firm performance is associated with construal in the forward-looking statements of the earnings press release such that the more abstract the construal, the better the future.

By representing situations and events in concrete or abstract terms, communicators can systematically influence the inferences, comprehension, judgments and decisions of the recipient of the communication (Fiedler, 2008). The following hypothesis is tested:

H₆: Market returns around the earnings announcement date are associated with construal in the forward-looking statements of the earnings press release such that the more abstract the construal, the more positive the market returns.

Data and Sample Selection

Sample and Variable Definitions

The sample in this study consists of 553 quarterly earnings press releases of a random sample of publicly traded companies published by PR Newswire and BusinessWire between 2002 and 2004. Only observations for which the necessary CRSP, Compustat, and I/B/E/S data were available were used in the study. I obtained stock price data from the Center for Research on Security Prices (CRSP), historical accounting data from Compustat, and analyst forecast data from the Institutional Brokers' Estimate System (I/B/E/S).

Future firm performance is measured as future ROA. ROA is calculated as earnings scaled by total assets at the beginning of the respective quarter and future ROA is defined as the average of ROA for the four quarters following the earnings press release date. Abnormal market returns are measured using CAR (the cumulative abnormal market

return) which is defined as the cumulative return in excess of the CRSP equal-weighted market portfolio over the three day window centered on the earnings press release date.

The control variables used in my analyses are based on Davis et al. (2008) and include various accounting-based performance measures used in the literature and by analysts to measure future firm performance or abnormal returns as well as variables which capture the subject matter of the press release.

I include the current quarter preliminary earnings surprise (unexpected earnings, UE), which is measured as the difference between actual earnings and the most recent consensus analyst earnings forecast made prior to the earnings announcement, scaled by market value of equity at the end of the quarter. I define MBE to be 1 if earnings for the current quarter met or exceeded analysts' forecast and 0 otherwise. To control for size (SIZE), I use the natural logarithm of the market value of equity at the end of the current quarter.

I also include four variables likely associated with future firm performance:

- Profit margin (PM) = current-quarter earnings scaled by current-quarter sales
- Asset turnover (AT) = current-quarter sales scaled by total assets at the end of the current quarter
- Firm leverage (DA) = total liabilities at the end of the current quarter scaled by total assets at the end of the current quarter
- Book-to-market (BM) = book value of equity at the end of the current quarter scaled by the market value of equity at the end of the current quarter

LCM Coding and Valence

The Linguistic Category Model is used to measure the construal of the forward-looking statements of the earnings press releases. Using the LCM, each verb and adjective in the forward-looking statements of the earnings press releases was coded with the following ordinal rankings: DAV = 1; IAV = 2; SV = 3; ADJ = 4. The mean level of abstraction was computed by adding the different scores and dividing the total by the number of predicates coded. Thus, the mean level of abstraction could vary between 1 (concrete construal) and 4 (abstract construal).

Two independent coders knowledgeable in the LCM and blind to the hypotheses coded the earnings press releases. One coded all press releases and the other coded a random one-third of the press releases. Inter coder agreement is high (Cohen's Kappa coefficient = 0.733)²¹.

Each verb and adjective was also coded for valence (positive or negative) in context to the situation being described as well as whether it was discussing the past versus the future and whether it was discussing events internal versus external to the company.

The variable TONE is defined as the number of positive coded words minus the number of negative coded words divided by the sum of positive and negative coded words, giving TONE a value between 1 and -1. This simple frequency count to measure valence, or tone, is similar to what is used in the existing literature (e.g., Abrahamson and Amir, 1996; Henry, 2006). Of the forward-looking statements that were coded, only 28% of them had negative comments within them.

²¹ According to Landis and Koch (1977), a coefficient between 0.41 and 0.60 is considered acceptable, and one between 0.61 and 0.80 is considered high.

Results

Descriptive Statistics

Table 5 presents descriptive statistics for all accounting variables and the LCM data for internal forward-looking statements²². Approximately 80% of companies in the sample meet or beat analysts' expectations of earnings²³. The mean LCM for internal forward-looking statements is 2.54.

Table 6 provides a correlation matrix for all regression variables. Several variables are significantly correlated however collinearity diagnostics were performed and multicollinearity is not a concern in the model.

Test of Hypothesis 4

This hypothesis investigates whether managements' privately held beliefs about the future performance of the company will be reflected in their linguistic choices in the forward-looking statements of the earnings press release.

Two proxies were chosen to represent managements' privately held beliefs about the future of the company: whether or not the company was able to meet/beat analysts' earnings expectations in the next quarter and whether the company's income increased or decreased in the next quarter. The regression model is:

$$LCM_i = \beta_0 + \beta_1 MBE_Future + \beta_2 INC_Future_i + \varepsilon_i$$

Table 7 presents the regression results. The model is marginally significant ($F = 2.489$; $p = .084$) indicating that the variables used to represent managements'

²² As shown in Table 3, there is a significant difference between internal statements and external statements. Therefore, statements discussing the future which referred to events external to the company (e.g., the economy or the weather) were omitted from these analyses and the focus was on only forward-looking statements discussing the future of the company itself.

²³ Not reported in this Table is that none of the firm quarters were a loss. These overall positive results for my sample bias against my finding results.

expectations for the future of the firm together are associated with the LCM used by management in the forward-looking statements of the earnings press release. This result suggests that managers alter their level of abstractness depending on their expectations. Specifically, the better the expected future, the more abstract the forward-looking statements.

Test of Hypothesis 5

This hypothesis investigates whether there is an association between construal level in the internal forward-looking statements of the earnings press release and future firm performance. Following Davis et al. (2008), I regress future firm performance (future ROA) on various control variables known to explain future firm performance as well as on LCM. The regression model is:

$$FUTROA_i = \beta_0 + \beta_1 ROA_i + \beta_2 \sigma_{ROA_i} + \beta_3 SIZE_i + \beta_4 UE_i + \beta_5 MBE_i + \beta_6 PM_i + \beta_7 AT_i + \beta_8 DA_i + \beta_9 BM_i + \sum_j \beta_{10j} YEAR_{ij} + \beta_{11} TONE_i + \beta_{12} LCM_i + \varepsilon_i$$

In this model, ROA, PM, and AT are used to control for the effect of this quarter's performance on next quarter's performance and the standard deviation of ROA is used as a proxy for risk. UE and MBE are used to capture the power of other performance measures to predict future performance. DA and BM are proxies for firm size. TONE is included to ensure that LCM is not simply picking up the same information as TONE, but rather that it has an incremental effect. I also account for year effects by including suppressed estimated coefficients on the year (YEAR) dummy variable.

Table 8 presents the regression results. The model is significant (Adjusted R² = .781; F = 129.453; p < .000). The coefficient on LCM is .043 (t = 1.893; p = .059 2-tailed) indicating a significant relationship between linguistic construal in the internal

forward-looking statements of the earnings press release and future firm performance. Specifically, the more abstract the internal, forward-looking statements of the earnings press release, the higher the Future ROA of the firm.

Test of Hypothesis 6: Short-Window Event Study

This hypothesis investigates whether the market responds to linguistic construal in the earnings press release. I regress the cumulative abnormal return (CAR) on construal and other control variables which are known to be associated with market response.

I include UE in the model because I'm looking for a market response that's incremental to the current-period earnings surprise. Since prior research has found that investors' response to earnings surprises are different when they represent meeting/beating analysts' forecasts as opposed to missing those forecasts, I include an interaction variable between UE and MBE.

Consistent with results of my experiment that valence and construal have an interactive effect on the investment decision, I expect that the ability of the market to anticipate future earnings changes may be different between firms that miss and firms that meet/beat earnings expectations. For that reason, I include the interaction variable of LCM*MBE²⁴.

The resulting regression model is:

$$CAR_i = \beta_0 + \beta_1 UE_i + \beta_2 UE_i * MBE_i + \beta_3 BM_i + \beta_4 TONE_i + \beta_5 LCM_i + \beta_6 LCM_i * MBE_i + \varepsilon_i$$

Table 9 presents results. The model is significant (Adjusted R² = .034; F = 3.575; p = .002). The coefficient on LCM is -.051 (t = -1.033; p = .302) and the coefficient on the

²⁴ Adding the variable LCM*TONE to the regression equation yields similar results.

interaction of LCM with MBE is .132 ($t = 2.500$; $p = .013$). This suggests that LCM is significant, but only when interacted with MBE and therefore can explain CAR only for firms that meet or beat earnings expectations. As the construal of the forward-looking statements of the earnings press release become more abstract, the cumulative abnormal return increases for firms that meet or beat earnings expectations.

Unexpected earnings is also significant in explaining CAR for firms that meet or beat expectations. Specifically, as unexpected earnings increases, so does CAR. However, UE is marginally significant and negative for firms that did not meet/beat. In this case, as UE increases, CAR goes down. This is likely due to these firms being punished by the market.

Discussion

This study investigates whether managers' linguistic construal in the forward-looking statements of the earnings press release (as measured by the LCM) is predictive of the future value of the firm and whether the market incorporates this information. It is assumed that managers have private information about the firm's prospects. It is also assumed that managers want to present a truthful, yet positive, image of the firm's future. Thus, if the managers' privately-held expectations match this positive image, the manager is more likely to use abstract construal given abstract language gives the impression of enduring traits that are likely to extend into the future. However, if the manager's privately-held expectations do not match this positive image, it is more likely the manager will use concrete construal.

Results indicate that the LCM measurement has a significant association with future ROA, even after controlling for other financial information known to influence

future performance. Also, significant association between the LCM*MBE measure and CAR and the non-significant association between LCM and CAR shows that investors are relying on this information to assess earnings quality, but only for firms that meet or beat earnings expectations.

It may be possible to build a portfolio where one buys firms with a high LCM score on forward-looking statements and sells short those firms with a low score in order to get a positive net return on this portfolio. Future research could investigate this.

This study contributes to various streams of literature. Academics and investors will be interested in the LCM as a unique tool to assess managers' unconscious linguistic choices and as a way to gain insight into their privately-held information. Regulators, particularly those involved in the plain English disclosures, will be interested in the value relevance of unconscious managerial linguistic choices. If managers learn that choice of predicates may be able to influence investment decisions without the conscious awareness of investors (as is shown in chapter 3 of this dissertation), they could use it as an impression management technique that would be extremely difficult to monitor and control with plain English disclosures.

This study contributes to LCM literature by showing the model's value relevance in a business context. It is also the first study to show the predictive value of the LCM by analyzing forward-looking statements for expectancy-consistency.

CHAPTER 5

CONCLUSION

This dissertation presents three studies, which together provide a novel and in-depth look at the types of language managers use in construing an accounting narrative and the investor response to such language. Using both archival and experimental studies, this dissertation documents that managers have motives that influence their implicit language strategies and that investors' decisions are unconsciously impacted by these language strategies.

Using archival data, I find that managers use different linguistic strategies when discussing positive versus negative financial results. Specifically, positive financial results are discussed in a more concrete construal than negative financial results, likely in an attempt to direct investor attention to the intentionality of management for the positive result. Also using archival data, I investigate and find that forward-looking statements in the earnings press release have predictive value. Drawing upon the Linguistic Expectancy Bias (LEB) research which has found that expectancy-consistent statements are written more abstractly than expectancy-inconsistent statements, I posit and discover that managers writing forward-looking statements (which are generally positive and optimistic) are more abstract in the construal of those statements if their expectation is that good news will be persistent. I also test whether the market responds to these linguistic choices, and find it does, but only for firms which meet or beat earnings expectations.

Through an experiment, I manipulate orthogonally the construal and valence of the narrative section of an earnings press release and find that investors are influenced by these subtle differences. Specifically, investors reading a concretely written negative narrative are the least likely to find value in the firm as an investment. Also, and very importantly, I am able to document that this is an unconscious effect.

This dissertation makes many important contributions to both accounting and psychology research and to practice. It contributes to the voluntary disclosure literature by introducing the Linguistic Category Model and demonstrating that managers use different linguistic construal when discussing past events as a (likely unconscious) attempt at impression management. This could be important to those interested in plain English regulation setting. Managers also use different construal when discussing future events and this has been shown to have predictive value, which can be very helpful in firm valuation.

While many prior studies have examined the use of accounting information in a decision context, to my knowledge none have examined whether the narrative discussing that information has a direct influence on investment judgment, or an indirect influence by causing investors to focus their attention on different accounting numbers in the quantitative financial statements. I found that the influence of the narrative on the investment decision was direct.

This dissertation adds to psychology research by answering the call for studies of linguistic construal outside of the stereotype literature. While numerous studies have used the LCM to categorize language use, none directly pertain to the impact of

managements' narratives. Also, this study finds support for the predictive value of predicate usage, which is new and of considerable interest.

With respect to practice, the results have implications for management in terms of how they construe the narratives published concurrently with accounting data. It also provides evidence that linguistic construal influences the investment-related judgments of nonprofessional investors and encourages investors to assess their decision making process. Traditional economic models of investor decision making suggest that linguistic construal should be irrelevant, yet this experiment shows that linguistic construal systematically influences investors' decisions.

Limitations and Future Research

As with all research, results of these studies must be considered in light of potential limitations. The Linguistic Category Model was not designed for the purpose of analyzing financial statement narratives, but rather for the stereotype literature. This is the first of its use in a business context and further use of the model in this context will help support the conclusions drawn here.

Using a model which requires hand-coding places limits on sample-size. While a sample was chosen which was expected to provide variability in positive and negative news, the final sample coincidentally included no loss firms. While this is a limitation to the study in that results are more difficult to extrapolate to other firms, this also biases against my finding results. Also, the firms chosen were a random sample of S&P 500 firms. This leaves the door open for future research to investigate firms with less rich information environments to examine whether this firm characteristic affects how the market responds to linguistic construal.

As with all experimental research, realism of the experimental task is a potential limitation. I took great care to create an earnings press release which was as realistic as possible while allowing me to do successful manipulations. Future research can investigate whether sophisticated investors respond differently than unsophisticated investors. Elliott (2006) and Frederickson and Miller (2004) find sophisticated investors' judgments about future earnings are unaffected when firms emphasize the pro forma earnings number, while unsophisticated investors are affected. However, Mullainathan and Shleifer (2005) find that the cognitive processing of experienced investors can be susceptible to biases.

Additional future research may investigate how different nations respond to the different use of predicates. Stapel and Semin (2007, p. 31) state that "there is a preference for concrete language in interdependent cultures relative to independent cultures." Maass, Karasawa, Politi, and Suga (2006) showed similar findings. It would be interesting to find if this influenced international reporting and what influence IASB changes make in how those across nations interpret the same financial statements.

FIGURE 1

**Prediction of Investor Judgments
of Likelihood Company Will Have Improved Performance
in the Next Quarter**

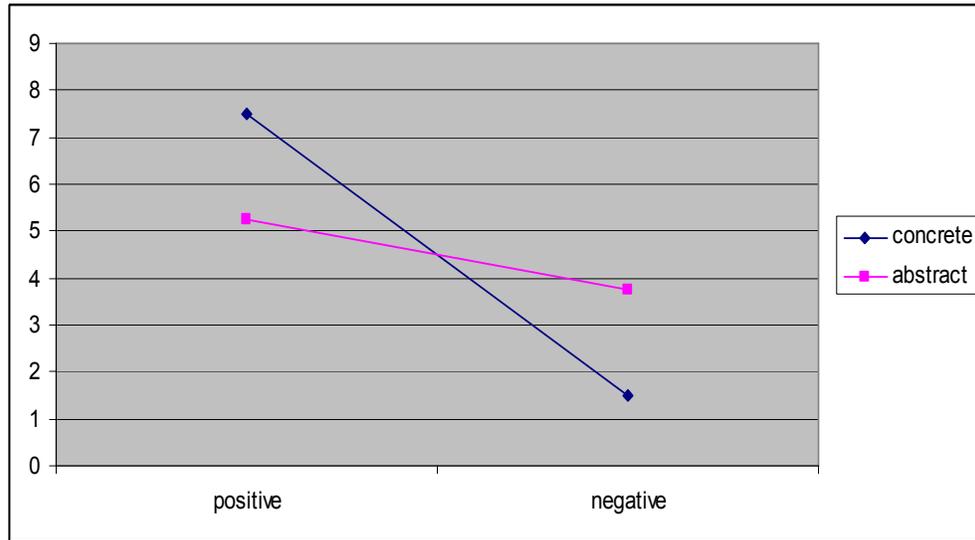


FIGURE 2

**Causal Model of Linguistic Construal and
Attentional Focus on Investor Judgment**

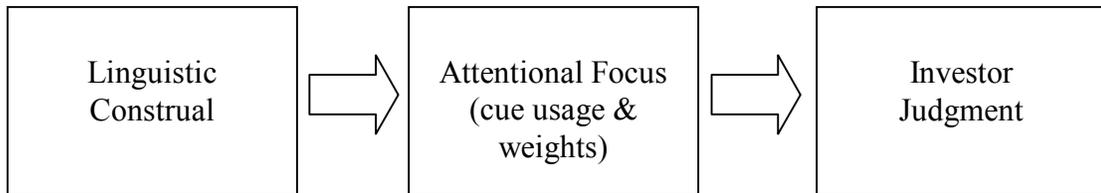


TABLE 1**Classification Criteria for the Linguistic Category Model (LCM)**

Category	Criteria	Examples
Descriptive Action Verbs (DAVs)	Convey an objective description of a single observable event, behavior, or action, while preserving its contextual and situated features; represent detail; highlight intentionality	Talk Stare E-mail
Interpretative Action Verbs (IAVs)	Refer to general class of behaviors; have positive or negative connotations; provide an interpretation of an event	Help Inhibit Imitate Generate Allocate Improve Drive Invest Earn
State Verbs (SVs)	Describe a cognitive or emotional state; highlight unintended emotional reactions to uncontrollable forces, rather than a specific behavior or event; cannot be objectively verified	Expect Think Pleased Concerned Recognize Earn Want Hope Encouraged Believe Pleased
Adjectives (ADJs)	Refer to specific qualities or characteristics of the object of the behavior; show no reference to context; least verifiable; highly interpretative; represent broad aspirations; detail overarching principles and goals	Aggressive Strong Gradually Conditional Slight Lower Revised Recurring

TABLE 2**Correlations Among Overall LCM of Entire Press Release
and Various Firm Performance Measures**

	LCM
LCM	1
SIZE	.012 .787
EPS	-.021 .625
NET INCOME (LOSS)	.020 .645
NET SALES TURNOVER	-.029 .506
ROA	.086 .045*
FUTURE ROA	.078 .072
PROFIT MARGIN (PM)	.007 .869
ASSET TURNOVER (AT)	.105 .015*
FIRM LEVERAGE (DA)	.132 .002**
BOOK-TO-MARKET RATIO (BM)	-.160 .000**

This table presents the Pearson correlation coefficients of the LCM with various firm performance measures as defined below where necessary. The correlations are calculated using 51 firms sampled during the period January 2002 through December 2004, resulting in a total of 553 firm-quarter observations. Below each correlation coefficient are *p*-values.

- ** Correlation is significant at the 0.01 level (2-tailed).
- * Correlation is significant at the 0.05 level (2-tailed).

LCM	Mean level of abstraction from 1 (concrete) to 4 (abstract) for all coded words in the earnings press release
SIZE	Natural logarithm of the market value of equity at the end of the current quarter

FUTROA	Average ROA (earnings scaled by total assets at the beginning of the quarter) for the four quarters following the earnings press release date
PM	Current-quarter earnings scaled by current-quarter sales
AT	Current-quarter sales scaled by total assets at the end of the current quarter
DA	Total liabilities at the end of the current quarter scaled by total assets at the end of the current quarter
BM	Book value of equity at the end of the current quarter scaled by the market value of equity at the end of the current quarter

TABLE 3**LCM Comparisons of Various Types of Statements in the Earnings Press Release**

		n ^a	Mean	Standard Deviation	t-statistic	p-value
Entire press release	Positive	541	2.713	.226	-8.090	.000
	Negative	444	2.901	.480		
Internal / Future Statements	Positive	452	2.590	.391	-2.821	.005
	Negative	136	2.713	.596		
Internal / Past Statements	Positive	539	2.710	.248	-2.828	.005
	Negative	405	2.778	.481		
External / Future Statements	Positive	71	3.193	.808	-1.068	.287
	Negative	62	3.335	.710		
External / Past Statements	Positive	203	3.566	.710	-1.124	.262
	Negative	240	3.635	.577		
Internal Statements		553	2.501	.197	-35.051	.000
External Statements		380	3.501	.628		
Future Statements		481	2.523	.359	-.451	.652
Past Statements		549	2.531	.214		

^a n = number of firms with statements in the combined categories referenced. (e.g., The 3rd n refers to the 452 firms that had positive statements which referenced future, internal events, while the 10th n refers to the 240 firms that had negative statements referencing external events that occurred in the past.)

TABLE 4**The Effect of Linguistic Construal and Narrative Valence on the Investment Decision**

Panel A: Cell Means, Standard Errors, and Sample Sizes

DV ^a	Positive/Negative	Abstract/Concrete	Mean	Standard Error	Sample Size
1	Positive	Abstract	5.826	.297	23
		Concrete	5.900	.318	20
	Negative	Abstract	5.474	.326	19
		Concrete	4.353	.345	17
2	Positive	Abstract	4.522	.371	23
		Concrete	5.400	.397	20
	Negative	Abstract	4.316	.408	19
		Concrete	3.471	.431	17

Panel B: ANOVA for DV1

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>ms</u>	<u>F-statistic</u>	<u>p-value^b</u>
Valence	17.605	1	17.605	8.703	.004
Construal	5.347	1	5.347	2.643	.108
Valence x Construal	6.964	1	6.964	3.443	.067
Error	151.724	75	2.023		
Total	179.494	78			

Panel C: ANOVA for DV2

<u>Source</u>	<u>SS</u>	<u>df</u>	<u>ms</u>	<u>F-statistic</u>	<u>p-value</u>
Valence	22.250	1	22.250	7.045	.010
Construal	.005	1	.005	.002	.967
Valence x Construal	14.494	1	14.494	4.589	.035
Error	236.880	75	3.158		
Total	271.671	78			

Panel D: Contrasts for Hypotheses 2A and 2B

Dependent Variable	Contrast	t-statistic	p-value
1	Positive Concrete Positive Abstract	.152	.880
	Negative Concrete Negative Abstract	-2.807	.008
	Positive Abstract Negative Abstract	1.060	.296
	Positive Concrete Negative Concrete	2.699	.011
2	Positive Concrete Positive Abstract	1.563	.126
	Negative Concrete Negative Abstract	-1.489	.146
	Positive Abstract Negative Abstract	.425	.673
	Positive Concrete Negative Concrete	2.935	.006

Panel E: Supplemental Contrasts

Dependent Variable	Contrast	t-statistic	p-value
1	Negative Abstract Positive Abstract	1.060	.296
	Negative Abstract Positive Concrete	-.913	.367
2	Negative Abstract Positive Abstract	.425	.673
	Negative Abstract Positive Concrete	-1.904	.065

^a Definition of dependent variables:

DV1 = How favorable the investor believes the company's financial results will be in the next quarter on a scale from 1 to 9 with endpoints labeled "not at all favorable" and "extremely favorable"

DV2 = How likely the investor is to buy shares in the company on a scale from 1 to 9 with endpoints labeled "not at all likely" and "extremely likely"

^b All p-values are two-tailed

TABLE 5

Descriptive Statistics

	FUTROA	CAR	ROA	σ ROA	SIZE	UE	MBE	MBE Future
Mean	.0204	.0056	.0174	.0112	15.6077	-.0004	.7969	.7981
Median	.0173	.0049	.0139	.0061	15.5626	.0003	1.00	1.00
Minimum	-.07	-.34	-.28	.00	13.16	-.32	.00	.00
Maximum	.13	.48	.15	.16	19.33	.06	1.00	1.00
Std. Dev.	.0250	.0675	.0341	.0191	1.1295	.0164	.4028	.4019

	INC Future	PM	AT	DA	BM	TONE	LCM
Mean	.6052	.0692	.2162	.6046	.0005	.8009	2.5454
Median	1.00	.0653	.1797	.6018	.0004	1.00	2.5250
Minimum	.00	-2.59	.02	.07	.00	-1.00	2.00
Maximum	1.00	.63	.72	1.52	.00	1.00	4.00
Std. Dev.	.4894	.2082	.1511	.2510	.0004	.3816	.3718

This table presents descriptive statistics for all regression variables, which are defined as follows:

FUTROA	Average ROA (earnings scaled by total assets at the beginning of the quarter) for the four quarters following the earnings press release date
CAR	Accumulated return in excess of the CRSP equal-weighted market portfolio over the three day window centered on the earnings press release date
SIZE	Natural logarithm of the market value of equity at the end of the current quarter
UE	Difference between actual I/B/E/S earnings and the most recent consensus analyst earnings forecast made prior to the earnings announcement, scaled by market value of equity at the beginning of the quarter
MBE	1 if earnings for the current quarter met or exceeded analysts' forecast and 0 otherwise
MBE_Future	1 if earnings for the next quarter met or exceeded analysts' forecast and 0 otherwise
INC_Future	1 if income for the next quarter exceeded income for the current quarter and 0 otherwise
PM	Current-quarter earnings scaled by current-quarter sales
AT	Current-quarter sales scaled by total assets at the end of the current quarter
DA	Total liabilities at the end of the current quarter scaled by total assets at the end of the current quarter
BM	Book value of equity at the end of the current quarter scaled by the market value of equity at the end of the current quarter

TONE	Number of positive coded forward-looking words minus number of negative coded forward-looking words divided by sum of all coded forward-looking words
LCM	Mean level of abstraction from 1 (concrete) to 4 (abstract) for all forward-looking coded words

TABLE 6
Correlations Among Regression Variables

	FUTROA	CAR	ROA	σ ROA	SIZE	UE	MBE	MBE Future
FUTROA	1							
CAR	.005 .912	1						
ROA	.641** .000	.061 .198	1					
σ ROA	-.190** .000	.019 .682	.062 .191	1				
SIZE	.254** .000	-.009 .843	.184** .000	-.077 .104	1			
UE	.065 .173	.066 .162	.076 .110	.008 .858	.083 .078	1		
MBE	.251** .000	.148** .002	.195** .000	-.036 .452	.117* .013	.200** .000	1	
MBE Future	.236** .000	.079 .111	.071 .147	-.048 .332	.091 .064	.106* .031	.268** .000	1
INC Future	.118* .021	-.012 .818	-.118* .021	-.093 .071	.031 .539	-.052 .309	.014 .787	.137** .007
PM	.332** .000	.048 .307	.845** .000	.044 .349	.182** .000	.141** .003	.159** .001	-.008 .869
AT	.382** .000	.035 .456	.341** .000	-.096* .042	.125** .008	.065 .167	.166** .000	.143** .003
DA	.009 .845	-.017 .727	.060 .208	-.237** .000	.000 1.000	-.045 .339	-.003 .956	.010 .834
BM	-.481** .000	-.017 .714	-.344** .000	-.097* .041	-.425** .000	-.224** .000	-.165** .000	-.118* .016
STONE	.003 .946	.133** .005	-.047 .320	-.017 .715	.087 .065	.018 .698	.168** .000	.024 .623
YEAR	.118* .013	-.034 .476	.109* .022	-.071 .134	.195** .000	.069 .144	.068 .151	.034 .494
LCM	.091 .058	.005 .918	.044 .357	-.020 .680	-.009 .853	.037 .444	.045 .344	.082 .099

	INC Future	PM	AT	DA	BM	TONE	YEAR	LCM
FUTROA								
CAR								
ROA								
σ ROA								
SIZE								
UE								
MBE								
MBE Future								
INC Future	1							
PM	-.107* .036	1						
AT	-.033 .520	.058 .221	1					
DA	-.087 .087	.026 .567	-.092 .051	1				
BM	-.064 .211	-.222** .000	-.219** .000	.118* .012	1			
TONE	.068 .182	-.022 .638	.132** .005	-.212** .000	-.097* .041	1		
YEAR	.099 .052	.162** .001	.024 .615	.030 .522	-.101* .032	.067 .155	1	
LCM	.100 .054	-.034 .480	.176** .000	-.048 .316	.011 .814	.039 .414	-.033 .486	1

This table presents the Pearson correlation coefficients of the variables used in the empirical tests. For definitions of the variables, please refer to Table 5. The correlations are calculated using 51 firms sampled during the period January 2002 through December 2004. Below each correlation coefficient are *p*-values.

- ** Correlation is significant at the 0.01 level (2-tailed).
- * Correlation is significant at the 0.05 level (2-tailed).

TABLE 7

Hypothesis 4

*Regression of Linguistic Construal
on Measures of Managers' Inside Information of the Future*

$$LCM_i = \beta_0 + \beta_1 MBE_Future + \beta_2 INC_Future_i + \varepsilon_i$$

Variable	coefficient	t-statistic	p-value
INTERCEPT		50.009	.000
MBE_Future	.057	1.107	.269
INC_Future	.093	1.788	.075
Adjusted R ²	.008		

This table presents results of the test of the hypothesis of an association between construal level of forward-looking statements in the earnings press release and managers' inside information of the future of the firm.

Table 5 presents all variable definitions.

TABLE 8**Hypothesis 5**

*Regression of Future Firm Performance on Linguistic Construal
and Various Control Variables*

$$FUTROA_i = \beta_0 + \beta_1 ROA_i + \beta_2 \sigma_{ROA,i} + \beta_3 SIZE_i + \beta_4 UE_i + \beta_5 MBE_i + \beta_6 PM_i + \beta_7 AT_i + \beta_8 DA_i + \beta_9 BM + \sum_j \beta_{10j} YEAR_{ij} + \beta_{11} TONE_i + \beta_{12} LCM_i + \varepsilon_i$$

Variable	coefficient	t-statistic	p-value
INTERCEPT		-1.182	.238
ROA	1.077	22.528	.000
σ ROA	.005	.190	.850
SIZE	.021	.798	.425
UE	-.027	-1.142	.254
MBE	.049	1.987	.048
PM	-.415	-9.688	.000
AT	-.096	-3.272	.001
DA	-.060	-2.459	.014
BM	-.202	-7.307	.000
YEAR	.028	1.185	.237
TONE	.024	.995	.320
LCM	.043	1.893	.059
Adjusted R ²	.781		

This table presents results of the test of the hypothesis of an association between future firm performance and construal level of forward-looking statements in the earnings press release.

YEAR is a year dummy variable.

Table 5 presents all other variable definitions.

TABLE 9**Hypothesis 6**

Regression of Market Response on Linguistic Construal and Various Control Variables

$$CAR_i = \beta_0 + \beta_1 UE_i + \beta_2 UE_i * MBE_i + \beta_3 BM_i + \beta_4 TONE_i + \beta_5 LCM_i + \beta_6 LCM_i * MBE_i + \varepsilon_i$$

Variable	coefficient	t-statistic	p-value
INTERCEPT		-.009	.993
UE	-.118	-1.635	.103
UE*MBE	.220	3.028	.003
BM	.005	.089	.929
TONE	.065	1.360	.175
LCM	-.051	-.033	.302
LCM*MBE	.132	2.500	.013
Adjusted R ²	.034		

This table presents results of the test of the hypothesis of whether or not the market responds to the level of linguistic construal in the forward-looking statements of the earnings press release.

Table 5 presents all variable definitions.

APPENDIX A
RESEARCH INSTRUMENT

The following information is included in this Appendix:

- A complete research instrument for the positive data / concrete construal condition which consists of the following:
 - Letter of introduction and instructions to research participant
 - Company background information
 - Narrative section of earnings press release
 - Truncated financial statements
 - Condensed consolidated statement of earnings
 - Condensed consolidated balance sheet
 - Investment questions
 - Demographic data

- Narrative manipulations for all conditions
 - Sales
 - Positive valence / concrete construal
 - Positive valence / abstract construal
 - Negative valence / concrete construal
 - Negative valence / abstract construal
 - Selling, General & Administrative Expenses
 - Positive valence / concrete construal
 - Positive valence / abstract construal
 - Negative valence / concrete construal
 - Negative valence / abstract construal
 - Cash
 - Positive valence / concrete construal
 - Positive valence / abstract construal
 - Negative valence / concrete construal
 - Negative valence / abstract construal

- Financial statement manipulations for all conditions
 - For positively valenced narratives
 - Condensed consolidated statement of earnings
 - Condensed consolidated balance sheet
 - For negatively valenced narratives
 - Condensed consolidated statements of earnings
 - Condensed consolidated balance sheet

Dear Investor,

Thank you for agreeing to participate in this study. The contribution of your time to this research is greatly appreciated, and is invaluable to the ultimate success of this project. The task I ask you to address is contained on the following pages and should not take you in excess of twenty minutes. Since this study is computer-based, it is necessary that you complete it in one sitting. Please ensure you have enough time allocated.

I am studying the type and nature of corporate information that is useful to investors. You will be provided with background information on a company, as well as an earnings press release containing selected financial information. Please review this information carefully. Assume that you manage your own investments and you are considering adding the common stock of this company to your investment portfolio. You will then be asked to evaluate this company as an investment, make several judgments, and respond to a number of questions.

To ensure meaningful results, please follow all the instructions and respond candidly and on an individual basis. Do not feel uncomfortable providing answers about which you are not certain; this is expected given the nature of this research. It should be emphasized that there are no right or wrong answers. All that you are asked is to provide your best judgment. Your individual responses will remain strictly confidential and will only be analyzed after being combined with the responses of other participants.

Thank you again for your invaluable participation and cooperation in this project.

Sincerely,

Tracey Riley
Accounting Doctoral Candidate
University of Massachusetts

Instructions

You will be provided with:

- (1) Background information on a company
- (2) An earnings press release
- (3) Statement of earnings
- (4) Balance sheet

After reviewing these items, you will not be able to return, so please review the information carefully.

Once you have finished reviewing the financial information, you will be asked to respond to a series of questions regarding your investment decision, followed by a series of demographic questions. Please respond to the best of your ability. There are no right or wrong answers.

There will be a file named “record.txt” in the current working path, after you finish the survey. Please email the file to rileyresults@hotmail.com.

Thank you.

Company Background

MedTech is a medical technology company that develops and manufactures a wide range of products and therapies for major chronic diseases and medical disorders, such as sudden cardiac arrest, congestive heart failure, coronary heart disease, diabetes, and spinal disc deterioration. MedTech's stock is registered on the New York Stock Exchange, and the company is subject to reporting requirements typical of a publicly held corporation. The current executive management of MedTech has been in place for five years. The current President and CEO, John A. Davis, joined MedTech at that time.

July 6, 2009 Monday 4:55 PM GMT

MedTech Corporation Announces 2009 Second Quarter Earnings

BOSTON, Massachusetts, July 6 -- John A. Davis, President and Chief Executive Officer of MedTech Corporation (NYSE: MTC), announced today financial results for the second quarter ended June 30, 2009. The second quarter earnings are consistent with the estimated earnings reflected in the earnings guidance included in the June 3 press release, which are also consistent with the industry average.

Net sales in the second quarter were \$3,976 million, a 6 percent increase over the \$3,751 million in the second quarter last year, demonstrating our breadth and diversity. Our new product introductions and clinical trials were extremely successful and we have a significantly expanded and advanced new product pipeline.

Owing to successful efforts concerning the efficiency of selling expenses, SG&A expenses as a percentage of sales are decreased 2% to 31%, compared to 33% the second quarter of last year. This decrease is primarily the result of our lowered non-cash compensation expenses for stock options and reduced costs associated with the Zance trial. Additionally, reduced administrative costs for the second quarter included decreased litigation expense from completed antitrust litigation against a competitor.

MedTech's balance sheet at June 30, 2009 included cash and cash equivalents of \$1,372 million, approximately \$18 million more than the second quarter of 2008. This was primarily due to increased working capital, improved collections and reduced accounts receivable days outstanding. We were pleased to see continued progress in our efforts to improve cash flows as demonstrated by the increase in working capital, improved collections, and reduced accounts receivable days outstanding.

About MedTech

MedTech is a worldwide medical technology company that develops, manufactures, and markets products and therapies for use in a broad range of medical specialties in an effort to alleviate pain, restore health, and extend life for people with chronic disease.

Forward-Looking Statements

Except for the historical information herein, the matters discussed in this news release may include forward-looking statements for the purposes of the safe harbor protections under The Private Securities Litigation Reform Act of 2005. The company wishes to caution the reader of this press release that actual results may differ from those discussed in the forward-looking statements due to a number of factors including, but not limited to, risks associated with new product and other developments, which are subject to risks and uncertainties, such as competitive factors, clinical trials, general economic conditions, and government regulation.

MedTech, Inc.

Condensed Consolidated Statements of Earnings
(Unaudited)
(in millions, except per share data)

	Three Months Ended	
	June 30	
	2009	2008
Net sales	\$3,976	\$3,751
Costs and expenses:		
Cost of products sold	994	862
<i>% of sales</i>	<i>25%</i>	<i>23%</i>
Operating expenses:		
Research and development expenses	278	338
<i>% of sales</i>	<i>7%</i>	<i>9%</i>
Selling, general and administrative expenses	1,233	1,238
<i>% of sales</i>	<i>31%</i>	<i>33%</i>
Other expenses, net	358	188
<i>% of sales</i>	<i>9%</i>	<i>5%</i>
Total costs and expenses	2,863	2,626
<i>% of sales</i>	<i>72%</i>	<i>70%</i>
Net earnings	\$1,113	\$1,125

MedTech, Inc.

Condensed Consolidated Balance Sheet
(Unaudited)
(in millions)

	June 30, 2009	June 30, 2008
ASSETS		
Current assets:		
Cash and cash equivalents	\$1,372	\$1,354
<i>% of total assets</i>	<i>5.9%</i>	<i>5.8%</i>
Receivables, less allowances	2,250	2,206
<i>% of total assets</i>	<i>9.7%</i>	<i>9.5%</i>
Inventories	1,551	1,489
<i>% of total assets</i>	<i>6.7%</i>	<i>6.4%</i>
Other current assets	4,038	4,209
<i>% of total assets</i>	<i>17.5%</i>	<i>18.1%</i>
Total current assets	9,211	9,258
<i>% of total assets</i>	<i>39.8%</i>	<i>39.9%</i>
Property, plant and equipment, net	4,402	4,382
<i>% of total assets</i>	<i>19%</i>	<i>19%</i>
Long-term investments	4,120	4,021
<i>% of total assets</i>	<i>17.8%</i>	<i>17.3%</i>
Other assets	5,388	5,533
<i>% of total assets</i>	<i>23.4%</i>	<i>23.9%</i>
Total assets	23,121	23,194
LIABILITIES & SHAREHOLDERS' EQUITY		
Total current liabilities	2,429	2,502
<i>% of total assets</i>	<i>10.5%</i>	<i>10.8%</i>
Total liabilities	10,142	10,166
<i>% of total assets</i>	<i>43.9%</i>	<i>43.8%</i>
Total shareholders' equity	12,979	13,028
<i>% of total assets</i>	<i>56.1%</i>	<i>56.2%</i>
Total liabilities and shareholders' equity	23,121	23,194

Please answer the following questions.

1. MedTech's stock is currently selling at \$51.13. Please provide a point forecast of MedTech's stock price at the end of the next (third) quarter. _____

2. Please provide a range forecast of MedTech's stock price at the end of the next (third) quarter. This range will represent the upper and lower bounds of a 95% confidence interval.

_____ (Lower bound)

_____ (Upper bound)

3. Please indicate how favorable you believe MedTech's financial results will be in the next (third) quarter.

Not at all Favorable				Neutral				Extremely Favorable
1	2	3	4	5	6	7	8	9

Please indicate your response here _____

4. How confident are you that MedTech will have improved (favorable) financial results next quarter?

Not at all Confident				Neutral				Extremely Confident
1	2	3	4	5	6	7	8	9

Please indicate your response here _____

5. How likely are you to buy shares in MedTech?

Not at all Likely				Neutral				Extremely Likely
1	2	3	4	5	6	7	8	9

Please indicate your response here _____

6. How likely do you think another investor would be to buy shares in MedTech?

Not at all Likely				Neutral				Extremely Likely
1	2	3	4	5	6	7	8	9

Please indicate your response here _____

7. How risky do you consider an equity investment in MedTech?

Not at all Risky				Neutral				Extremely Risky
1	2	3	4	5	6	7	8	9

Please indicate your response here _____

8. How likely are the actions taken by management in the current period to lead to outcomes in future periods?

Not at all Likely				Neutral				Extremely Likely
1	2	3	4	5	6	7	8	9

Please indicate your response here _____

9. How forthcoming was management in this narrative?

Not at all Forthcoming				Neutral				Extremely Forthcoming
1	2	3	4	5	6	7	8	9

Please indicate your response here _____

10. How useful did you find this earnings press release in making your judgments?

Not at all Useful				Neutral				Extremely Useful
1	2	3	4	5	6	7	8	9

Please indicate your response here _____

11. Would your judgments have been different if the earnings press release had only included financial statements (no narrative)?

_____ yes _____ no

12. How informative did you find the narrative section of the earnings press release?

Not at all Informative				Neutral				Extremely Informative
1	2	3	4	5	6	7	8	9

Please indicate your response here _____

13. How forthcoming was management in the narrative section of the earnings press release?

Not at all Forthcoming				Neutral				Extremely Forthcoming
1	2	3	4	5	6	7	8	9

Please indicate your response here _____

14. How credible did you find the narrative section of the earnings press release?

Not at all Credible				Neutral				Extremely Credible
1	2	3	4	5	6	7	8	9

Please indicate your response here _____

15. How credible do you find the management of MedTech?

Not at all Credible				Neutral				Extremely Credible
1	2	3	4	5	6	7	8	9

Please indicate your response here _____

16. How favorable do you tend to find increases in R&D expense?

Not at all Favorable				Neutral				Extremely Favorable
1	2	3	4	5	6	7	8	9

Please indicate your response here _____

Demographic Data

Gender: Female _____ Male _____

Age: _____

Number of years of work experience: _____

Have you ever invested in common stocks or in a mutual fund that holds common stocks?
Yes _____ No _____

If yes, approximately how many stocks have you owned? _____

In the future do you plan to invest (or plan to continue to invest) in common stocks or in a mutual fund that holds common stocks? Yes _____ No _____

Prior to this study, had you ever read a company's earnings press release?
Yes _____ No _____

How much experience do you have analyzing financial statements?

Very Little Experience				Neutral				A lot of Experience
1	2	3	4	5	6	7	8	9

Please indicate your response here _____

Have you ever used financial statements to evaluate a company's performance?
Yes _____ No _____

When you invest, to what extent do you rely on each of the following?

A) A full service broker

Very Little				Neutral				A lot
1	2	3	4	5	6	7	8	9

Please indicate your response here _____

How many Finance courses have you taken, either as a graduate or undergraduate?
(including those you are taking this semester)? _____ courses

Thank you!

Please email record.txt, a file saved in the current working path, to
rileyresults@hotmail.com.

You can close the application window now.

NARRATIVE MANIPULATIONS

Positive sales/concrete: Net sales in the second quarter increased six percent to \$3,976 million compared to \$3,751 million in the second quarter last year, demonstrating our ability to broaden and diversify our portfolio. We drove revenue growth by introducing new products and hosting successful clinical trials. We filed four New Drug Applications (NDA) for products, significantly expanding and advancing our new product pipeline.

Positive sales/abstract: Net sales in the second quarter were \$3,976 million, a 6 percent increase over the \$3,751 million in the second quarter last year, demonstrating our breadth and diversity. Our new product introductions and clinical trials were extremely successful and we have a significantly expanded and advanced new product pipeline.

Negative sales/concrete: Net sales in the second quarter slowed to a 1.5 percent increase closing at \$3,807 million compared to \$3,751 million in the second quarter last year, primarily resulting from our conducting an unsuccessful clinical trial and undergoing a failed attempt at a patent renewal. Also, we experienced a decrease of unit sales of lasers in our spinal business.

Negative sales/abstract: Net sales in the second quarter experienced a small, 1.5 percent increase closing at \$3,807 million compared to \$3,751 million in the second quarter last year. This result was primarily due to our being unsuccessful with a clinical trial, patent renewal, and spinal business product advancement.

Positive SG&A/concrete: Owing to successful efforts to improve the efficiency of selling expenses, we decreased SG&A expenses as a percentage of sales 2% to 31%, compared to 33% the second quarter of last year. This decrease is primarily attributed to the company lowering non-cash compensation expenses for stock options. Also, we reduced costs associated with the Zanca trial. Additionally, we lowered administrative costs for the second quarter by decreasing litigation expense when we concluded antitrust litigation against a competitor.

Positive SG&A/abstract: Owing to successful efforts concerning the efficiency of selling expenses, SG&A expenses as a percentage of sales are decreased 2% to 31%, compared to 33% the second quarter of last year. This decrease is primarily the result of our lowered non-cash compensation expenses for stock options and reduced costs associated with the Zanca trial. Additionally, reduced administrative costs for the second quarter included decreased litigation expense from completed antitrust litigation against a competitor.

Negative SG&A/concrete: Selling, general and administrative expenses as a percentage of sales have increased 2% to 35%, compared to 33% the second quarter of last year. This increase is primarily attributed to the company increasing stock based compensation expense. Also, we experienced increased costs associated with the Zanca trial. Additionally, administrative costs for the second quarter were affected by litigation expense increases associated with antitrust litigation initiated against a competitor.

Negative SG&A abstract: Selling, general and administrative expenses as a percentage of sales have increased 2% to 35%, compared to 33% the second quarter of last year. This increase is primarily the result of our increased stock based compensation expense and higher costs associated with the Zanca trial. Additionally, administrative costs for the second quarter included additional litigation expense from antitrust litigation against a competitor.

Cash positive/concrete: MedTech's balance sheet at June 30, 2009 included cash and cash equivalents of \$1,372 million, approximately \$18 million more than the second quarter of 2008. The increase occurred primarily because we increased working capital, improved collections and reduced accounts receivable days outstanding.

Cash positive/abstract: MedTech's balance sheet at June 30, 2009 included cash and cash equivalents of \$1,372 million, approximately \$18 million more than the second quarter of 2008. This was primarily due to increased working capital, improved collections and reduced accounts receivable days outstanding.

Cash negative/concrete: MedTech's balance sheet at June 30, 2009 included cash and cash equivalents of \$1,336 million, approximately \$18 million less than the second quarter of 2008. The decrease occurred primarily because we decreased working capital and had difficulty with collections which led to accounts receivable days outstanding being increased.

Cash negative/abstract: MedTech's balance sheet at June 30, 2009 included cash and cash equivalents of \$1,336 million, approximately \$18 million less than the second quarter of 2008. This decrease was primarily due to decreased working capital, difficult collections and increased accounts receivable days outstanding.

For narratives with positive valence concerning sales, SG&A, and cash

MedTech, Inc.		
Condensed Consolidated Statements of Earnings (Unaudited) (in millions, except per share data)		
	Three Months Ended	
	June 30	
	2009	2008
Net sales	\$3,976	\$3,751
Costs and expenses:		
Cost of products sold	994	862
<i>% of sales</i>	25%	23%
Operating expenses:		
Research and development expenses	278	338
<i>% of sales</i>	7%	9%
Selling, general and administrative expenses	1,233	1,238
<i>% of sales</i>	31%	33%
Other expenses, net	358	188
<i>% of sales</i>	9%	5%
Total costs and expenses	2,863	2,626
<i>% of sales</i>	72%	70%
Net earnings	\$1,113	\$1,125

MedTech, Inc.

Condensed Consolidated Balance Sheet
(Unaudited)
(in millions)

	June 30, 2009	June 30, 2008
ASSETS		
Current assets:		
Cash and cash equivalents	\$1,372	\$1,354
<i>% of total assets</i>	<i>5.9%</i>	<i>5.8%</i>
Receivables, less allowances	2,250	2,206
<i>% of total assets</i>	<i>9.7%</i>	<i>9.5%</i>
Inventories	1,551	1,489
<i>% of total assets</i>	<i>6.7%</i>	<i>6.4%</i>
Other current assets	4,038	4,209
<i>% of total assets</i>	<i>17.5%</i>	<i>18.1%</i>
Total current assets	9,211	9,258
<i>% of total assets</i>	<i>39.8%</i>	<i>39.9%</i>
Property, plant and equipment, net	4,402	4,382
<i>% of total assets</i>	<i>19%</i>	<i>19%</i>
Long-term investments	4,120	4,021
<i>% of total assets</i>	<i>17.8%</i>	<i>17.3%</i>
Other assets	5,388	5,533
<i>% of total assets</i>	<i>23.4%</i>	<i>23.9%</i>
Total assets	23,121	23,194
LIABILITIES & SHAREHOLDERS' EQUITY		
Total current liabilities	2,429	2,502
<i>% of total assets</i>	<i>10.5%</i>	<i>10.8%</i>
Total liabilities	10,142	10,166
<i>% of total assets</i>	<i>43.9%</i>	<i>43.8%</i>
Total shareholders' equity	12,979	13,028
<i>% of total assets</i>	<i>56.1%</i>	<i>56.2%</i>
Total liabilities and shareholders' equity	23,121	23,194

For narratives with negative valence concerning sales, SG&A, and cash

MedTech, Inc.		
Condensed Consolidated Statements of Earnings (Unaudited) (in millions, except per share data)		
	Three Months Ended	
	June 30	
	2009	2008
Net sales	\$3,807	\$3,751
Costs and expenses:		
Cost of products sold	799	862
<i>% of sales</i>	<i>21%</i>	<i>23%</i>
Operating expenses:		
Research and development expenses	419	338
<i>% of sales</i>	<i>11%</i>	<i>9%</i>
Selling, general and administrative expenses	1,332	1,238
<i>% of sales</i>	<i>35%</i>	<i>33%</i>
Other expenses, net	114	188
<i>% of sales</i>	<i>3%</i>	<i>5%</i>
Total costs and expenses	2,664	2,626
<i>% of sales</i>	<i>70%</i>	<i>70%</i>
Net earnings	\$1,143	\$1,125

MedTech, Inc.

Condensed Consolidated Balance Sheet
(Unaudited)
(in millions)

	June 30, 2009	June 30, 2008
ASSETS		
Current assets:		
Cash and cash equivalents	\$1,336	\$1,354
<i>% of total assets</i>	<i>5.8%</i>	<i>5.8%</i>
Receivables, less allowances	2,223	2,206
<i>% of total assets</i>	<i>9.6%</i>	<i>9.5%</i>
Inventories	1,501	1,489
<i>% of total assets</i>	<i>6.5%</i>	<i>6.4%</i>
Other current assets	4,038	4,209
<i>% of total assets</i>	<i>17.5%</i>	<i>18.1%</i>
Total current assets	9,098	9,258
<i>% of total assets</i>	<i>39.4%</i>	<i>39.9%</i>
Property, plant and equipment, net	4,402	4,382
<i>% of total assets</i>	<i>19%</i>	<i>19%</i>
Long-term investments	4,120	4,021
<i>% of total assets</i>	<i>17.8%</i>	<i>17.3%</i>
Other assets	5,501	5,533
<i>% of total assets</i>	<i>23.4%</i>	<i>23.9%</i>
Total assets	23,121	23,194
LIABILITIES & SHAREHOLDERS' EQUITY		
Total current liabilities	2,429	2,502
<i>% of total assets</i>	<i>10.5%</i>	<i>10.8%</i>
Total liabilities	10,142	10,166
<i>% of total assets</i>	<i>43.9%</i>	<i>43.8%</i>
Total shareholders' equity	12,979	13,028
<i>% of total assets</i>	<i>56.1%</i>	<i>56.2%</i>
Total liabilities and shareholders' equity	23,121	23,194

APPENDIX B

EXCERPTS FROM EARNINGS PRESS RELEASES

The following panels present excerpts from two firms' earnings press releases. Panel A is an announcement exhibiting a highly concrete construal and Panel B is an announcement exhibiting a highly abstract construal. I have underlined in the text the words associated with the underlying linguistic construal.

Panel A – Highly concrete: Franklin Resources, July 25, 2002, LCM = 2.057

Fiscal Third Quarter 2002 Highlights:

- *In Lipper's mutual fund evaluation tool, Lipper Leaders, Franklin Templeton Investments garnered more awards than any other mutual fund company under the consistent return and preservation categories combined as of June 30, 2005.*
- *Templeton Foreign Fund and Templeton Growth Fund ranked in the top quintile of their respective Lipper peer groups ... and outpaced their respective benchmark indices.*
- *Templeton Growth Fund was rated 5 stars overall by Morningstar as of June 30, 2002.*
- *All six Mutual Series funds were ranked in the top two quartiles of their respective Lipper peer groups.*
- *Franklin Templeton Investments Corp. (Canada) successfully launched the Series T group of funds designed for Canadians.*
- *Franklin Templeton Investments was recognized as Worth magazine's Editor's Choice for "Favorite Mutual Fund Family."*
- *Defined Contribution Services received the 2002 achievement award from the Association of Graphic Communicators for the "The Path to Your Retirement Future" enrollment book.*

Panel B – Highly abstract: Aetna, Inc., October 30, 2003, LCM = 3.190

"This marks Aetna's seventh-consecutive quarter of strong performance on all key financial measures," said John W. Rowe, M.D., chairman and CEO. "Our solid earnings for the third quarter are the result of successful efforts in several areas, including our disciplined underwriting and medical cost-management efforts and significant reductions in operating expenses. We continue to move beyond the issues unique to our turnaround; and are focused on enhancing the value of the Aetna franchise through profitable growth, increased operating efficiency and disciplined capital management.

"We continue to enhance our sales and distribution capabilities with the offering of innovative new products and services," said Ronald A. Williams, president. "Aetna is well positioned to realize sustainable, profitable growth across all customer markets and to benefit from continued efficiencies."

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