

**CBA · NAU** **The Effect of Qualitative Expressions  
of Magnitude in the Letter to  
Shareholders on Investors’  
Perceptions of Earnings Performance**

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# The Effect of Qualitative Expressions of Magnitude in the Letter to Shareholders on Investors' Perceptions of Earnings Performance

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## INTRODUCTION

Annual reports issued by publicly-traded firms are important documents for communicating the financial performance of a company to current and potential investors and creditors. A significant portion of these annual reports contains non-numerical information (i.e., written expressions). This information is separate from the audited financial statements that also appear in the annual report. Examples of this non-numerical information include the letter to shareholders, management's discussion and analysis, and other written reports about the operations of the company.

The letter to shareholders is typically the first item representing "management's" communication that a reader comes to. It seems obvious that the non-numerical information contained in annual reports, including the letter to shareholders, is intended to have informational value given the time, effort, and monetary expenditures devoted to the preparation of these disclosures. The primary content of the letter to shareholders is a series of written expressions used to describe the company's financial situation. One must, therefore, assume that these words convey appropriate meanings and are important items of financial disclosure. The study reported in this paper attempts to determine if some of these words influence the perception of readers regarding the financial performance of the firm.

We report how readers' perceptions are influenced by one type of written expression often found in the letter to shareholders: qualitative expressions of magnitude used to describe the results of operations. Qualitative expressions of magnitude, such as "minimal," "moderate" or "sizable," are used to describe the size of a concept or the change in size of a concept. Top management (e.g., presidents) very often uses qualitative expressions of magnitude in the letter to shareholders to describe the quantitative financial performance of the company. For example, the president of Sharper Image Corporation recently used the expression "remarkable" to describe an increase in comparable store sales. Similarly, the president of Air Product Technologies recently used the expression "substantial increases" to describe changes in incremental profit margin.

We examine if the type of qualitative expression used in the letter to shareholders to describe a change in corporate earnings influence a readers' perception of actual earnings performance reported in the financial statements that are also contained in the annual report. Holding the actual percentage change in corporate earnings and other contextual factors constant, we find that the type of expression does affect readers' perception. In addition, we find evidence that less sophisticated investors are influenced more by the use of qualitative expressions of magnitude.

The inquiry into the influence of qualitative expressions of magnitude on readers' perceptions is important for a number of reasons. First, top management of corporations would likely be interested in how the words they use to describe financial performance influence the readers of their letters. Given the litigious nature of the securities environment a misunderstanding as to the information communicated in the letter to shareholders could lead to exposure of legal liability. Francis, Philbrick, and Schipper (1993) found that leading triggers of class action securities litigation were management's misleading disclosures involving earnings and/or sales disclosures.

The second reason why the study of this issue is important is that as a component of financial disclosure one would be interested in understanding the meaning expressed for evaluative purposes. Given the tremendously varied range of financial performance of different companies, investors must be able to interpret a wide variety of performance as communicated by these qualitative expressions. Understanding how qualitative expressions influence investors' perceptions will allow management to choose the expressions they use from an informed position and reduce the potential for confusion in the investment process.

The third reason this research is important is that individuals with lower levels of financial accounting understanding may rely more heavily on the meanings attached to such expressions. There is research evidence that shows that the optimal level of financial information depends on the individual's accounting knowledge. Individuals

with greater accounting expertise can better handle complex accounting decision-making tasks than unsophisticated subjects. For example, Enis (1988) compared the decision-making of professional and non-professional investors using alternative sets of financial ratio data. The professional investors performed relatively better using the complex cue set while the non-professional investors performed relatively better using a simple cue set. The general user population of annual reports (as opposed to financial analysts) may get lost in the numbers of the annual report. In this situation, the information disclosed through words may have more meaning than numerical information in the accompanying financial statements. So, even though the actual numbers in the financial statements accompany the letter to shareholders, those numbers may not be as useful as the qualitative expressions used by top management.

The remainder of the paper is organized as follows. The next section contains a discussion of some prior research organized to set forth the research questions. The second section provides a description of the methodology used and data collection. The third section describes the results and analysis carried out, followed by a final section that discusses the results and offers conclusions.

## II. BACKGROUND AND RELATED RESEARCH

Prior research in both psychology and accounting has investigated how people quantify various qualitative expressions. In this line of research, subjects are presented with several expressions and asked to provide a numerical value (or a level on a Likert type scale) that corresponds to the phrase. For example, subjects are provided with so-called probability phrases (e.g., “remote” and “probable”) and asked to provide a numerical equivalent on a scale representing numerical probabilities. As another example in this line of research, subjects are provided with so-called signal words (e.g., “warning” and “danger”) and asked to rate on a scale the degree of hazard communicated by the phrase.

The most developed area of this research involved determining the numerical equivalents of probability phrases (e.g., “likely,” “probable,” “remote,” “reasonably possible,” etc.). Previous accounting studies have examined the numerical interpretation of the probability phrases used in SFAS No. 5 (Amer et al. 1995, Harrison and Tomassini 1989; Jiambalvo and Wilner 1985; Raghunandan et al. 1991; Reimers 1992; Schultz and Reckers 1981), as well as the interpretations of other probability phrases (Amer et al. 1994; Chesley 1986, 1979; Reimers 1992). The focus of this prior work was primarily on determining the average numerical interpretation of the probability phrases.

A few psychologists have also examined the numerical equivalents of qualitative expressions other than probability phrases. For example, the interpretation of expressions of amount, such as “a few,” “some” or “several,” have been studied (e.g., Borges and Sawyers 1974; Cohen, Dearney, and Hansel 1958; Horman 1983), as well as the interpretations of expressions of frequency, such as “sometimes” and “very often” (e.g., Newstead and Collis 1987; Wallsten et al. 1986; Pepper 1981), and signal words such as “warning” and “caution” (e.g., Edworthy and Adams 1996; Edworthy 1998; Hellier, et al. 2000). All of these studies have examined the interpretation of the expressions in non-accounting contexts.

Amer and Bain (1998) and Amer and Drake (2003) examined how people numerically interpret qualitative expressions of magnitude (not probability phrases). A qualitative expression of magnitude is a phrase used to describe the size of some concept or the change in the size of some concept. For example, the expressions “minimal,” “consequential,” and “significant” are all qualitative expressions of magnitude.

Amer and Bain (1998) report how subjects interpret 46 expressions of magnitude by eliciting the numerical percentage associated with several expressions. The phrases were used to describe a change in the accounting measure of earnings. The context of interest was how the readers of the letter to shareholders numerically interpret the qualitative expressions of magnitude used by top management describing a change in earnings. Results indicated that the average numerical interpretation of the 46 phrases spanned a range from 1.6% for the phrase “insignificant” to 142.3% for the phrase “phenomenal.” They also found that the direction to which the qualitative expression of magnitude referred influenced the numerical interpretation. In general, expressions were interpreted with higher numerical values when they referred to a negative occurrence (a “decrease in earnings”) than when the same expression referred to a positive occurrence (an “increase in earnings”).

Amer and Drake (2003) report how readers’ numerical interpretations of qualitative expressions used in the letter to shareholders can be used to guide auditors and top management in making the determination of when the use of a qualitative expression may be materially inconsistent with the information that appears in the accompanying financial statements.

### III. HYPOTHESIS DEVELOPMENT

All research on qualitative expressions that we are aware of has focused on eliciting interpretations. An underlying assumption of this prior work is that the use of various qualitative expressions actually influences the perception of the reader. To date, no research has examined how different phrases actually influence readers' perceptions of a state of the world or some condition. The study reported in this paper extends prior research by examining this issue. Using a between-subject design, we examine if the use of different qualitative expressions of magnitude within the context of the letter to shareholders can influence investors' perceptions of the earnings performance of the business organization. The context is held constant across all treatment conditions and actual earnings performance figures are provided to the subjects, as would be the case in the annual report of a business organization.

Recent work by Hodge (2001) presents evidence that providing investors with "optimistic" un-audited information in the letter to shareholders influences their perception of earnings performance. Hodge's work, which does not examine the effect of qualitative expressions *per se*, illustrates that the tone (e.g., optimistic tone) of the written words contained in the letter to shareholders can influence the perceptions of readers. Among other results, Hodge found that subjects presented with financial statement information **and** the optimistic information contained in the letter to shareholders judged the firm's earnings potential to be higher.

In this study the focus shifts to determine if the use of different qualitative expressions alone will influence investor perceptions.

**H1:** The type of expression of magnitude used in the letter to shareholders will influence the readers' perception of earnings performance as reported in the accompanying financial statements.

A second objective of this study is to examine how the use of different types of qualitative expressions of magnitude influences less sophisticated investors. As noted earlier, Enis (1988) compared the decision-making of professional and non-professional investors using alternative sets of financial ratio data. The professional investors performed relatively better using the complex cue set while the non-professional investors performed relatively better using a simple cue set. Based upon this finding, we expect that less sophisticated investors will be influenced more by the type of qualitative expression of magnitude used in the letter to shareholders, because they have less ability to evaluate the financial information provided in the accompanying financial statements.

**H2:** Less sophisticated investors will be influenced more by the type of expression used in the letter to shareholders to influence the readers' perception of earnings performance as reported in the accompanying financial statements.

### IV. METHODOLOGY AND DATA COLLECTION

**Overview.** A two-by-three experimental design was employed. Two levels of investor sophistication by three levels of expression. Subjects were split by degree of investor sophistication (more about this below) and randomly assigned to one of three expression treatment conditions. Each subject was informed in the experimental materials that they were reading the letter to shareholders in the annual report and provided with an expression of magnitude used in the letter to describe the change in earnings. In addition, each subject was provided with earnings data for two years showing an increase in earnings of 17%. They then provided their perception as to the financial performance of the firm. The data collection was accomplished using a web-based data collection instrument.

#### Independent Variables

Two independent variables are hypothesized to affect a readers' perception of earnings performance for a given level of earnings: (1) the expression used in the letter to shareholders, and (2) the degree of sophistication of the reader. Three expressions were used: Insignificant, Notable, and Extraordinary. These expressions were taken from prior work by Amer and Bain (1998) and Amer and Drake (2003) in which numerical equivalents were elicited from subjects. The context provided to the subjects in these prior studies was also that of the letter to shareholders. In these studies it was found that average numerical equivalents of these three expressions were as follows:

<b>Insignificant:</b>	<b>1.6%</b>
<b>Notable:</b>	<b>17.0%</b>
<b>Extraordinary:</b>	<b>100.6%</b>

These three expressions were chosen because they span a broad range of magnitude from 1.6% to 100.6%. The choice of the expression "notable" was driven by the fact that in this study, the actual earnings figures provided to

the subjects in the case materials were set to show an increase of 17%. Therefore, the expression “notable,” which has been found to be interpreted at exactly 17%, provides a point from which to reference the effect of the other two expressions on readers’ perception.

**Investor Sophistication.** The second independent variable hypothesized to influence the effect of an expression of magnitude is that of investor sophistication. This factor was manipulated by eliciting responses from two types of subjects: Undergraduate business students and MBA students. A total of 164 undergraduate and 119 MBA students participated in the study. Data on several variables was collected to validate that these two subject groups differed in the degree of investor sophistication. Table 1 shows the mean values of these variables, all of which are statistically different providing evidence that there is a difference in the degree of investor sophistication between the subject groups. In addition, the data of Table 1 provides insight in to the background of the subject pools.

Table 1  
**Mean Values of Variables Collected to Verify the level of Investor Sophistication**

	<b>Undergraduate Business Students</b>	<b>MBA Students</b>
Age	23.6	29.6
Number of Times Subject has read an Annual Report	4.1	6.3
Number of Times Subject has Read the Letter to Shareholders In an Annual Report	2.8	4.9
Number of Times Subject has Invested In Stock	1.3	3.5
Self-reported Level of Investor Sophistication (10 point Likert-type scale)	3.5	4.9

All measures are significantly different at  $p < .001$

### **Dependent Variable**

The dependent variable collected was each subject’s perception of the level of earnings performance. Subjects were provided with one of the three expressions along with earnings figures for two years. Their perceptions were captured on a ten point Likert-type scale. The accounting earnings measure within the letter to shareholders was chosen as the context of this study because accounting earnings is one of the most recognized and used measures.

### **Procedure**

The task was administered using a web-based, computerized data collection program.<sup>1</sup> The programmed instrument was accessed individually by each subject through the internet at their convenience. The participants completed the task in its entirety whenever they had a sufficient block of time within a window of three to four days and during one sitting. The program randomly assigned each subject to one of the three treatment conditions for the factor of expression: Insignificant, Notable, and Extraordinary.

<sup>1</sup> Amer et al. (1994) note that this data-capturing approach provides several advantages: (1) preventing subjects from changing previous responses as they were not allowed to review prior responses, (2) controlling order effects through complete randomization of trials, (3) alleviating problems of non-responses (the computer program required the subjects to respond to every prompt before continuing), and (4) ensuring subjects’ complete understanding of the instructions by requiring them to correctly answer multiple choice questions about the accounting context.

At the beginning of the exercise, the subjects read through an explanation of a hypothetical investment scenario. After reading the scenario, the subjects answered seven multiple choice questions about the scenario. The multiple choice questions were designed to ensure that the subjects had attended to the context presented in the scenario. The subjects were not able to continue the exercise until they had answered the questions correctly (approximately 95% of the multiple choice questions were answered correctly on the first attempt).

The scenario described a situation in which each subject had some cash to invest in the stock of ABC Company. ABC Company was described as a manufacturing business organization that produces products that are sold to a variety of retail businesses. In addition, it was explained that ABC Company was in an industry that was exhibiting an average level of financial performance. A very generic set of contextual features relating to ABC Company and its industry was provided to the subjects. Such a generic context was chosen to avoid confounding factors such as industry, historical financial performance, and prior experience of the subjects influencing the results. We sought to create a “clean” context within which to examine the hypotheses.

Each subject was then informed that they were reading the letter to shareholders from the most recent annual report of ABC Company. It was explained that the letter appears at the beginning of the annual report and contains ABC Company’s president’s assessment of recent performance and the outlook for the company’s future. The following elicitation question was then presented to each subject:

In the letter that you are reading the president of ABC Company used the phrase

**INSIGNIFICANT INCREASE**

to describe the change in ABC Company’s earning from last year. Assume that “earnings” is defined as total revenue minus total expenses.

You also look at the earnings figures for last year and this year that are published in the annual report:

<b>Last year’s earnings</b>	<b>\$1,000,000</b>
<b>This year’s earnings</b>	<b>\$1,170,000</b>

Based upon the phrase the president used and earning figures above, how would judge the earnings performance of ABC Company over last year? Click a point on the following scale:

<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	<input type="checkbox"/> 8	<input type="checkbox"/> 9	<input type="checkbox"/> 10
<b>Very</b>				<b>Moderate</b>					<b>Very</b>
<b>Poor</b>									<b>Good</b>

It is important to note that the earnings figures provided in the elicitation screen were held constant across all six treatment conditions (three levels of the expression factor by two levels of the investor sophistication factor). From the difference in the earnings figures provided it is easy to see that the actual increase in earnings is 17%. Also, note the contextual factor of direction (i.e., “increase”) used in the elicitation screen above was arbitrarily selected by the authors and was held constant across all treatment conditions.

## V. RESULTS AND ANALYSIS

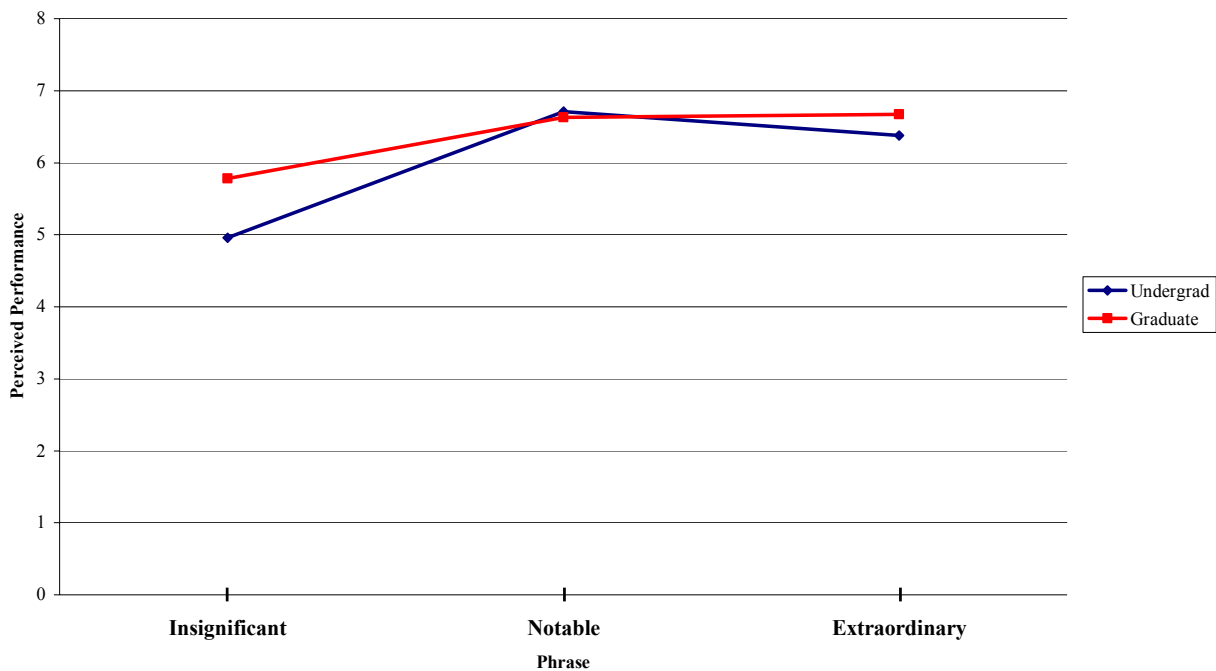
Table 2 and Figure 1 present mean values of the subject’s perceptions of earnings performance. As can be seen in Table 2, and well shown in Figure 1, there are at least two results of note. First, the expression “Insignificant” resulted in lower perceptions of earnings performance than either the expression “Notable” or “Extraordinary.” This result held for both levels of investor sophistication (undergraduate business students and MBA students). Second, the less sophisticated investors (undergraduate business students) perceived earnings performance to be lower when provided with the expression “Insignificant” than the more sophisticated investors (MBA students). These results at least partially support the hypotheses **H1** and **H2**.

Table 2  
**Mean Values – Perception of Earnings Performance\***

	Phrase		
	Insignificant	Notable	Extraordinary
<b>Undergraduate Business Students</b>	4.96 (2.11)	6.71 (1.87)	6.38 (1.87)
<b>MBA Students</b>	5.78 (1.79)	6.63 (1.98)	6.67 (1.78)

\*Standard deviations shown in parentheses.

Figure 1  
**Mean Values – Perception of Earnings Performance**



### Tests of H1 – The Effect of Expression on Perceived Earnings Performance

Statistical analysis confirms the results noted above. A one-way, two-factor ANOVA was carried out to examine the hypothesized effects. The main effect of expression was shown to be statistically significant:  $F(2, 277) = 12.78$ ;  $p < .0001$ . In addition, post-hoc analysis using the Tukey and Scheffe methods revealed that the perceptions of earnings performance for the expression “Insignificant” were statistically lower than both other expressions (“Notable” and “Extraordinary”):  $p < .0001$ . The perceptions of earnings performance for the expressions “Notable” and “Extraordinary” were not statistically significantly different from one another. So, the use of the qualitative expression “Insignificant” resulted in lower perceptions of earnings performance by all subjects, across both levels of investor sophistication.

### H2 – The Effect of Investor Sophistication

The main effect of investor sophistication was not significant:  $F(1, 277) = 2.16$ ;  $p = .143$ , and the interaction between expression and investor was also not significant:  $F(2, 277) = 1.28$ ;  $p = .281$ . Thus, we fail to reject the null hypothesis for H2.

However, further examination of the data shows that the interaction term captures more of the variation in the model when we consider just the “insignificant” and “notable” expressions. Using the model

$$\text{Perception of performance} = \beta[s] S + \beta[p] P + \beta[s*p] S*P + \epsilon$$

when S represents “sophistication” containing the categories (grad, undergrad), and P represents “phrase” containing the categories (insignificant, notable). S\*P represents the interaction of sophistication and phrase. In this model, the expression term (P) again captures most of the variability with  $F(1, 188) = 20.96$  and  $p < 0.0001$ . The interaction term (S\*P) is capturing more of the variability with  $F(1, 188) = 2.44$  and  $p = 0.12$  in a two-tailed test. If we consider the one-tailed test then  $F(1, 188) = 4.88$  and  $p = 0.06$ . Under the one-tailed test, the interaction term is significant at the 0.10 level of significance. These additional findings help explain the mean values of perception of earnings performance, shown in Figure 1.

## VI. DISCUSSION AND CONCLUSIONS

This paper seeks to determine if the use of qualitative expressions of magnitude used in the letter to shareholders to describe financial performance influences readers’ perceptions of earnings performance when the actual state of earnings performance is known from the accompanying financial statements. In addition, does the use of these expressions influence less sophisticated investors to a greater extent than more sophisticated investors? The results presented above indicate that the use of these expressions does influence all investors and, to some extent, influences less sophisticated investors more. These results are seen primarily when examining the data between the expression “Insignificant” and the other two expressions: “Notable” and “Extraordinary.”

An additional result seen in the data needs further discussion. As noted above, there was no significant difference in the perceived earnings performance between the expressions “Notable” and “Extraordinary.” A possible explanation for this could be attributed to the fact that investors cannot be “over-hyped” by the expressions used in the letter to shareholders. That is, investors’ perceptions of earnings performance can be influenced within “reason,” say, between two expressions such as “Insignificant” and “Notable.” However, if an expression is used in the letter to shareholders that is overly positive, investors will discount the meaning of such an expression.

An important practical implication for management can be taken from this research. The expressions used in the letter to shareholder do influence investor perceptions – words matter. However, if one is overly positive or over-hypes the actual financial results presented in the financial statements, investors will, apparently, not buy it.



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