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The Auditor's Evaluation of Other Information Accompanying Financial Statements: Qualitative Expressions of Magnitude Describing Corporate Earnings

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T.S. Amer and Phil Drake

A significant portion of the annual reports issued by publicly traded firms 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. AU Section 550.01 of the professional standards (AICPA, 2000) refers to this type of non-numerical information that accompanies the financial statements as "other information."

AU Section 550.04 clearly indicates that the auditor should read this other information contained in the annual report, or other documents published by the client, and "consider whether such information, or the manner of its presentation, is materially inconsistent with information, or the manner of its presentation, appearing in the financial statements." If the auditor concludes that there is a material inconsistency, the auditor should consider whether the financial statements, the audit report, or the other information should be revised.

This paper seeks to quantify and operationalize the auditor's required review of other information in one document – the letter to shareholders – that accompanies the financial statements in the annual report. Specifically, we elicit how readers numerically interpret 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 are used to describe the size of an accounting measure or the change in size of an accounting measure.[1] Top management (e.g., presidents) very often use qualitative expressions of magnitude such as "**minimal**," "**moderate**" or "**sizable**," 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 phrase "**remarkable**" to describe an increase in comparable store sales. Similarly, the president of Air Product Technologies recently used the phrase "**substantial increases**" to describe changes in incremental profit margin.

Use of these qualitative terms raises the question of how readers of the annual report interpret these expressions and, within the context of AU Section 550, when might the use of such expressions be materially inconsistent with information appearing in the accompanying financial statements. If guidance can be provided, auditors' judgments of materiality under AU Section 550 could be simplified. The numerical interpretations of these qualitative expressions reported in this paper are used to guide auditors 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.

To ascertain whether other information is materially inconsistent requires the auditor to establish a materially threshold (AU Section 312 [AICPA, 2000]). The determination of materiality is based on professional judgment (AU Section 312.10). In 1976, The U.S. Supreme Court held in TSC Industries v. Northway that a fact is material if there is:

> "A substantial likelihood that the … fact would have been viewed by the reasonable investor as having significantly altered the 'total mix' of information made available". (TSC Industries v. Northway, Inc., 426 U.S. 438, 449 [1976])

To understand the implication of this notion to our study, consider the accounting measure of a change in accounting earnings over time. Top management (e.g., a president) may use a quantitative

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[1] This paper does NOT address so-called probability phrases. Probability phrases are expressions that describe probability levels and include phrases such as "likely", "probable", and "assured."

expression of magnitude in the letter to shareholders to describe this change (e.g., "a significant increase in earnings"). If readers interpret such an expression at a level that is, say, statistically two or three standard deviations away from the **actual** change reported in the accompanying financial statements, one could argue that the expression used by top management alters the total mix of information made available in the annual report. Such a deviation would require the auditor, under AU Section 550, to consider the use of this expression to be materially inconsistent with the audited financial statements.

This research is important for at least two reasons. First, auditors should be concerned with effectively and consistently applying the requirements of AU Section 550. Given the increasingly litigious environment, auditors have an incentive to carefully review and substantiate the claims that management makes in annual reports. As noted above, the Supreme Court has defined materiality in the context of the total mix of information provided, both quantitative and qualitative information. Part of this information set includes the letter to shareholders that appears in the annual report.

Secondly, there is increasing scrutiny by government authorities over the consistency and completeness of the financial information (both qualitative and quantitative) reported by publicly traded companies. The SEC has made comments regarding the importance of the auditor's responsibility for evaluating other information accompanying the financial statements (SEC and Financial Reporting Institute, 1994; SEC, 2000). Furthermore, in a recent Accounting and Auditing Enforcement Release (AAER) the SEC brought an action against Sony Corporation for failure to incorporate sufficient qualitative information beyond the financial statements (SEC, 1998).

The remainder of the paper is organized as follows. The next section contains a discussion of some prior research. The second section provides a description of the methodology used and the data collected. The third section describes how the data collected could be used to guide auditors in applying AU Section 550. The final section discusses the results and offers conclusions.

I. RELATED RESEARCH

Quantitative Equivalents

The logical first step in guiding auditors in applying the requirements of AU Section 550 is to determine how the readers of the letter to shareholders numerically interpret the qualitative expressions of magnitude used in the letter. Determining a quantitative equivalent (e.g., a mean value) for these expressions will provide auditors a reference point for assessing material inconsistencies between the expression used and the actual figures in the accompanying financial statements.

Prior research in both psychology and accounting has investigated the numerical interpretation of various qualitative expressions. 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 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 (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" (Newstead and Collis 1987; Wallsten et al. 1986; Pepper 1981). All of these studies have examined the interpretation of the expressions in non-accounting contexts.

This study extends the prior work in both accounting and psychology by examining how people numerically interpret qualitative expressions of *magnitude* (**not** probability phrases). No other research has investigated these expressions. 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 phrases "minimal," "consequential," and "significant" are all qualitative expressions of magnitude. The *concept* of specific interest is the change in the accounting measure of earnings. The *context* of interest is how the readers of the letter to shareholders numerically interpret the qualitative expressions of magnitude used by top management describing a change in earnings.

The accounting earnings measure within the letter to shareholders was chosen as the context of this study for three reasons: (1) accounting earnings is one of the most recognized and used measures, (2) the large number of qualitative expressions used in the letter to shareholders, and (3) the broad target audience of this letter.

II. METHODOLOGY AND DATA COLLECTION

Overview

The data collected was used to determine how the readers of the letter to shareholders numerically interpret the qualitative expressions of magnitude used by top management to describe a percentage change in corporate earnings. The data collection was accomplished using a computerized data collection instrument and followed the approach used by Amer and Bain (1998). The data collection involved asking subjects to provide a numerical interpretation of various qualitative expressions of magnitude within the context of the letter to shareholders.

Subjects

The authors recruited seventy subjects. A diverse set of subjects was recruited given that the target audience of the annual report and the letter to shareholders is varied, including sophisticated and non-sophisticated investors and stockholders. Indeed, almost any individual is a potential reader of a corporation's annual report and the letter to shareholders. Accordingly, this is consistent with the 1976 Supreme Court's (1976) ruling on materiality, which was viewed from the perspective of a "reasonable investor."[2]

Task

The subject's task was to provide numerical interpretations of 23 different qualitative expressions in the context of the letter to shareholders. A sample of the elicitation question is as follows:

> Assume the president of ABC Company uses the phrase MAJOR INCREASE to describe the recent change in ABC Company's earnings. What numerical percentage do you believe the president of ABC intended to convey by the phrase MAJOR INCREASE in describing the recent change in ABC Company's earnings?

Each subject provided a whole number percentage score on a scale of 0 to 9999 for each expression of magnitude. The contextual factor of direction (i.e., "increase") was arbitrarily selected by the author and was held constant across all subjects. Each subject was also given a one-page scenario that briefly described ABC Company, its financial performance relative to the industry, and the letter to the stockholders. Appendix A contains a copy of this scenario. A very generic set of contextual features relating to the company and its industry was provided in order to collect a "generic" interpretation from each subject.[3]

Expressions Used

The qualitative expressions of magnitude used in the experiment were selected as follows. First the authors scanned several dozen letters to shareholders from annual reports found on the Compact Disk Disclosure system. From that initial search, recurring qualitative expressions of magnitude, which were used to describe either increases or decreases in some accounting measure, were identified. Next, a thesaurus was used to find synonyms for those expressions. This provided a list of 46 expressions, which provided descriptions spanning the magnitude range from high to low. The annual reports were again searched using the Compact

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[2] The ages of the subjects were distributed as follows: 18.6% were between the ages of 18 and 25; 40.0% were between the ages of 26 and 35; 31.4% were between the ages of 36 and 45; 7.1% were between the ages of 46 and 55; and 2.9% were between the ages of 56 and 65.

[3] An alternative research methodology could involve finding several occurrences of a given expression of magnitude in the letter to shareholders and calculating the actual percentage change in the accounting measure from the financial statement data. The problem with this approach is that the context surrounding the use of a given expression is not constant. For example, the expression "significant increase" would be used to describe a change in gross profit for a retail company in one president's letter, and inventory turnover for a wholesaler in another president's letter. In addition, other contextual factors would have varied.

Disk Disclosure system and the number of occurrences of each word was identified. Forty of the forty-six words were used at least once to describe an increase or decrease in some measure of financial performance. The additional six words were kept with the initial list to balance out the magnitude range from low to medium to high qualitative expressions. Table 1 lists each expression.

Each subject numerically interpreted 23 qualitative expressions. Pilot testing and previous research (see Amer et al. 1994) showed that subjects began to experience fatigue after about 25 interpretations. Therefore, data for the 46 different expressions were gathered by having half the subjects interpret half the expressions, and the other half of the subjects interpret the other half of the expressions.

Table 1: Summary Statistics for each Expression

	Expression	Mean	Standard Deviation	Median	Inter-quartile Range
1	INSIGNIFICANT	1.55	1.15	1	1
2	TRIVIAL	1.67	1.43	1	1
3	INCONSEQUENTIAL	1.87	1.58	1	1
4	MINUTE	1.89	1.52	1	1
5	MINIMAL	2.18	1.26	2	2
6	MEAGER	2.35	1.86	2	2
7	NEGLIGIBLE	2.43	2.88	1	2
8	SLIGHT	3.36	2.87	3	1
9	MINOR	3.49	2.69	3	3
10	LIMITED	4.55	3.03	5	3
11	SMALL	4.95	3.16	5	2
12	MARGINAL	6.81	12.17	4	4
13	MODEST	7.24	6.61	5	4
14	NOMINAL	7.41	16.36	3	3
15	MATERIAL	10.85	9.02	10	4
16	MODERATE	12.05	8.91	10	8
17	SOLID	13.88	10.10	10	5
18	MARKED	14.91	9.22	15	12
19	NOTABLE	16.97	12.73	14	10
20	CONSEQUENTIAL	18.62	26.71	10	10
21	SUBSTANTIAL	23.58	13.83	25	20
22	CONSIDERABLE	25.73	21.40	20	18
23	NOTEWORTHY	26.14	38.00	15	15
24	LARGE	26.70	16.59	20	15
25	SIGNIFICANT	27.08	21.21	20	20
26	SIZABLE	27.68	20.42	20	18
27	MAJOR	29.79	21.48	20	25
28	STRIKING	34.03	25.71	30	30
29	GREAT	34.85	21.81	30	35
30	SHARP	36.95	29.87	30	20
31	EXCEPTIONAL	38.46	26.23	30	40
32	OUTSTANDING	51.76	35.18	50	41
33	REMARKABLE	53.97	63.41	30	30
34	EXTREME	67.12	38.14	70	45
35	GIANT	74.06	102.36	50	45
36	TREMENDOUS	74.85	80.38	50	40
37	ENORMOUS	84.85	50.23	75	50
38	STUNNING	85.70	89.57	50	60
39	IMMENSE	88.67	78.91	70	70
40	AMAZING	89.85	62.91	75	70
41	FANTASTIC	90.42	89.17	65	50
42	PROFOUND	91.65	168.30	50	60
43	EXTRAORDINARY	100.57	105.31	66	70
44	INCREDIBLE	101.35	91.94	75	100
45	SPECTACULAR	102.03	89.03	80	50
46	PHENOMENAL	142.43	145.80	100	160

Procedure

The task was administered on computers via a programmed instrument.[4] The programmed instrument was distributed to the subjects either through the mail, or in person by the researchers. The participants completed the task in its entirety whenever they had a sufficient block of time. The subjects took an average time of 23.8 minutes (standard deviation = 10.3 minutes) to complete the exercise.

At the start of the exercise, the subjects were instructed that the purpose of the study was to determine how people use and understand expressions such as "respectable increase." The subjects were also told that there were no right or wrong answers, just individual opinions.

Next, the subjects completed several practice trials using expressions of magnitude not used in the measurement trials. Following the practice trials, the subjects read the one-page scenario. The scenario was presented on hard copy to enable the subjects to refer to it during the exercise. After reading the scenario, the subjects returned to the programmed instrument and answered six 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 one page scenario. The subjects were not able to continue the exercise until they had answered the questions correctly (91% of the multiple choice questions were answered correctly on the first attempt).

The subjects then completed 23 measurement trials, one for each of the qualitative expressions. A multiple choice question about a fact in the scenario was presented after every third trial to ensure that the subjects kept the one page scenario context in mind. The subjects had to correctly answer each multiple-choice question before they were allowed to proceed (97% of the questions were answered correctly on the first attempt). The order in which the qualitative expressions and multiple-choice questions was presented was randomized between subjects to prevent order effects.

Results

Table 1 presents summary statistics for each of the 46 expressions. An examination of the mean values indicates that the percentage range covered by the subjects' interpretations of the expressions is from 1.55% to 142.43%. This would seem to be a reasonable range given that the context of the interpretation was an "average sized" manufacturing facility in an industry exhibiting "average financial performance." It is interesting that there is a large amount of variance in the numerical interpretation as indicated by the large standard deviations, and that the amount of variance increases as the mean values of the expressions increases. This correlation between the mean value of the expression and variation is probably due to the fixed lower bound of the elicitation scale (i.e., 0%). In addition, there seems to be a few points in the range where the mean values jump by a large amount. For example, between the expressions "exceptional" and "outstanding," the expressions "remarkable" and "extreme," and a large jump between the expressions "spectacular" and "phenomenal."

III. USE OF NUMERICAL EQUIVALENTS FOR MATERIALITY ASSESSMENTS

The data collected and reported in Table 1 may now be used to develop a "red flag" criterion to help the auditor in making the materiality judgments required under AU Section 550. Such a criteria could be helpful to auditors in evaluating whether the use of a qualitative expression may be materially inconsistent with the information that appears in the accompanying financial statements. To illustrate how the findings reported in this paper could be used to guide the auditor in making such an evaluation, consider the following example.

Assume the **actual** percentage increase in earnings for a given company was 4% (as calculated by reference to the financial statements contained in the annual report). If top management were to use a

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[4] Amer et al. (1994) note that this data-capturing approach provides several advantages: (1) preventing subjects from changing previous 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 successfully complete several practice trials and to correctly answer multiple choice questions about the accounting context.

qualitative expression in the letter to shareholders to describe this 4% increase, they could choose, say, the expressions "**minor**" or "**limited**" from Table 1. Further assume the auditor has established a preliminary materiality threshold of, say, 3% of earnings (AU Section 312.19, AICPA, 2000; SEC 1999). This implies that the expression that top management should use in the letter be selected from those that have a mean numerical interpretation of between 1% and 7%. From Table 1 this includes, roughly, any of the first 12 expressions listed. Examining the mean value of these 12 expressions indicates that the subjects, on average, interpreted these expressions within the materiality threshold of plus or minus 3% of earnings – within the preliminary threshold established by the auditor in this example.

Therefore, reference to the mean values reported in Table 1 indicates a set of qualitative expressions that would be appropriate for use in the letter to shareholders. However, one should also consider the variances associated with the interpretations of each expression in order to make a decision regarding material inconsistencies between the expression used and the actual percentage increase reported in the accompanying financial statements.

The Issue of High Variance of the Numerical Interpretations

As noted above in Section II, and as can be seen in Table 1, there is a significant amount of variance associated with the numerical interpretations of each qualitative expression of magnitude. This high variance indicates that the readers of the letter to shareholders do not interpret the qualitative expressions with a high level of consensus. This implies that given an actual percentage increase in earnings, top management can use many expressions to describe this percentage increase and be assured that a large percentage of readers will interpret the expression to include the actual percentage increase reported in the financial statements. This makes it difficult to justify a material misstatement.

Statistically, approximately 95% of the subjects' numerical equivalents fall within two standard deviations of the numerical mean for a given qualitative expression (assuming normally distributed observations). Since the numerical data for all the expressions exhibit a high level of variance, there is a tremendous overlap in the subjects' numerical equivalents between the expressions. For example, consider the data from Table 1 for the expression "**substantial**." This expression was interpreted to represent a mean increase in earnings of 23.50% with a standard deviation of 13.83%. Therefore, approximately 95% of the subjects' numerical interpretations of this expression fell within the range 0% to 51.16%. With a range this large, it would be difficult to justify, based upon the data reported in this paper, when the use of the expression "**substantial**" would be materially inconsistent with the actual percentage increase reported in the accompanying financial statements. Likewise, The high variability in the subjects' numerical interpretations of all the expressions would make it difficult to identify when the use of **any** expression would be materially inconsistent with nearly any actual percentage increase in earnings. This is because some of the readers' numerical interpretations of the given expression would include the actual percentage increase reported in the financial statements.

IV. GENERAL DISCUSSION

Two results from this research deserve further discussion. First is the fact that there was a large amount of variation in the interpretation measures collected. As noted above, there are large standard deviations for most of the expressions examined in this study. This large variation has implications for both auditors who must apply AU Section 550, and to top management who may choose to use these expressions in their letters to shareholders.

Guidance for Auditors

The results reported above, especially the finding of high variance in the subjects' numerical interpretations, reduce the auditor's risk of failing to comply with AU Section 550. The broad range of numerical equivalents (and the resulting high variance) the subjects provided for all the expressions, implies that top management's communications using qualitative expressions are very vague. Therefore, auditors can assume that nearly any expression top management decides to use to describe changes in earnings is within the realm of materiality in that some readers will interpret such expressions to include whatever actual percentage change is reported in the accompanying financial statements.

Guidance for Top Management

The high variance reported also has implications regarding the effectiveness of top management communicating financial performance using qualitative expressions. If top management in their letters to shareholders want precision, comparability, or consistency in their communication then they should probably not use these expressions. If, however, top management wants to be vague in communicating their companies financial performance then they should consider using qualitative expressions.

A second result, related to the effectiveness of top managements' communications, concerns how the subjects perceived the appropriateness of using qualitative expressions of magnitude. It is interesting to note that the subjects would seem to generally **not** want top management to use qualitative expressions when describing financial performance. One of the debriefing questions that was asked of all subjects who completed the exercise was as follows:

> I prefer OTHERS to use phrases (such as "respectable increase") instead of actual numerical percentages when they communicate with me.
>
> Strongly Agree 1 2 3 4 5 6 7 8 9 Strongly Disagree

The mean response to this question was 8.07 (standard deviation = 1.24). Given this strong preference for actual numerical percentages, it seems that top management would best meet investor desires by simply reporting the numbers in their letters to shareholders instead of using qualitative expressions of magnitude to describe the change.

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