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**THE EFFECTS OF AUDIT REVIEW & AUDIT RISK ON AUDITORS'
JUSTIFICATIONS AND JUDGMENTS**

BY

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B.A., Grinnell College, 1986

THESIS

**Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Accountancy
in the Graduate College of the
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WE HEREBY RECOMMEND THAT THE THESIS BY

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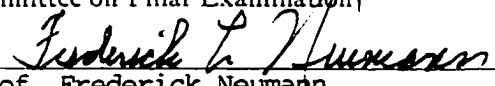

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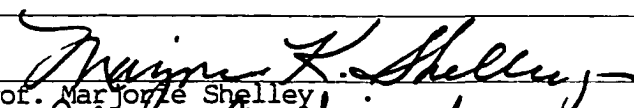

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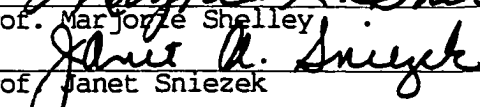
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Abstract

Real-time review, which many major accounting firms have adopted recently, emphasizes the allocation of audit resources based on risk. Real-time review also increases the number of times reviewers evaluate subordinate auditors' judgments and may be influenced by subordinates' persuasion behaviors. Since subordinates may use justifications to persuade a reviewer of the quality of their judgments, this study examined how the expectation of review affected both audit judgments and justifications across different levels of audit risk.

This study used an experiment with a fully crossed 2 (audit review) by 2 (level of audit risk) between-participant design. Audit seniors and managers (n=112) wrote justifications and made revisions to the hours budgeted to a critical audit area. Results indicate that the expectation of review differentially affected audit judgments and justifications across levels of audit risk. First, when audit risk was high, auditors increased the hours budgeted to a critical audit area more than when audit risk was low, but only when they expected to be reviewed. Second, when auditors increased budgeted hours more, they wrote more complex, less balanced justifications that include more arguments related to audit effectiveness. Third, auditors who expected to be reviewed, but who did not increase the number of hours budgeted to the critical audit area, wrote more complex, balanced justifications with more arguments related to audit efficiency. The study failed to find evidence that the characteristics of reasoning observed in auditors' justifications reflect a cognitive process that mediates the effects of review and risk on audit judgments.

This study adds to an interesting and growing area of accounting research by providing new evidence about the strategic persuasion behaviors subordinates use when they expect to be reviewed. It is crucial to understand these behaviors since they may affect reviewer evaluations of and responses to subordinates' judgments.

Dedication

I dedicate this paper to my family and friends. Without your support I could not have completed this project. To my parents, Ronald and Judith Mertzlufft who taught me perseverance and awarded mine with loving cups of jelly bellies. To my brother, Tim Mertzlufft, whose calls in the wee hours of the morning distracted me from worrying. To my fellow accountancy PhD student friends, Cathy Shakespeare and Jon Perkins, whose conversations about accounting research continue to inspire me to work harder. To my friends, Donnie Cotter, Carolyn Frischling, Bridget Jamison, Patrick Kennedy, Veronica Remaly, Sandy Spiroff and Jessica Wegman-Sanchez, whose efforts to keep me sane nearly succeeded. To my friends, Michael Foran and Nancy Foran, thank you for introducing me to Fred, who believed in Mary Poppins and gave her the courage to continue. Finally, to my soon-to-be husband, Dr. Anthony Curtis, for your love and patience during these final months—now you, too, can “marry a docta”.

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1. Introduction

Recently, many of the major accounting firms (big five and non-big five), have transformed audit review, the control mechanism that is thoroughly imbedded in both audit standards and practice (Peat, Marwick, Mitchell & Co., 1976; Solomon, 1987; American Accounting Association, 1988; Libby & Trotman, 1993), into a real-time process. Auditing is a sequential, iterative process that involves: 1) assessing audit risk; 2) planning the audit; 3) performing tests; 4) evaluating evidence; and 5) selecting an audit opinion. In real-time review, managers and partners examine evidence earlier in the audit rather than when the audit is substantially complete. The number of iterations through the audit sequence increases as reviewers guide subordinates through changes in the audit plan based on the merits of the examined audit evidence. Earlier intervention is intended to reduce the duration of fieldwork and lead to more timely identification and resolution of significant issues (Rich, Solomon & Trotman, 1997).

On a given iteration of the audit sequence, review can affect audit planning judgments in two ways. The expectation of review can affect a subordinate auditor's initial judgments, and the reviewer can accept, reject, or suggest changes to the subordinate's plan. Subordinates have numerous opportunities to engage in behaviors intended to persuade a reviewer of the quality of the subordinate's judgment (Rich et. al., 1997). Reviewer's actions depend on the subordinate's initial judgment and may be influenced by the subordinate's persuasion behaviors. Real-time review increases the number of times that reviewers evaluate subordinate judgments and may be influenced by subordinates' persuasion behaviors. The important first step in understanding how real-time review affects audit-planning judgments, therefore, is to examine how the expectation

of review affects subordinates' initial judgments, the persuasion behaviors subordinates use, and the relationship between subordinates' judgments and persuasion behaviors.

One of the key features of real-time review is the emphasis it places on risk-based audit planning (i.e. resource allocation). Increasingly, partners-in-charge review planning stage analytical procedures that are used to focus attention on critical audit areas¹ and assess the risk associated with those areas (Hirst & Koonce, 1996). Prior research suggests that auditors make judgments that conform to the expressed preferences or views of their supervisors and reviewers (Peecher, 1996). When reviewer preferences are not explicitly known, prior research indicates that auditors who expect to be reviewed assess risk higher (Hoffman & Patton, 1997; Morton & Felix, 1991) and make decisions consistent with higher risk assessments (Lord, 1992; Quilliam, 1993). For example, auditors who expected to be reviewed were more likely to qualify their audit opinion (Lord, 1992), and were more likely to write inventory down to scrap value (Quilliam, 1993). In a risk-based audit, review should encourage subordinates to make different judgments across different levels of risk, but none of the prior research has examined how the expectation of review affects judgments across different levels of risk.

Prior research also suggests that when auditors expected to be reviewed they used a greater quantity of justifications than auditors who did not expect to be reviewed. (Koonce, Anderson & Marchant, 1995). Justifications are the arguments that support an audit judgment. Since justifications are readily available for reviewer scrutiny, they are a key means of persuading a reviewer of the quality of an audit judgment (Rich et. al., 1997). To persuade a reviewer, a subordinate's justifications should convincingly argue that their judgment is based on

sound analysis and will ensure the effectiveness and efficiency of the audit (Emby & Gibbins 1988).

Psychology researchers have examined various characteristics of arguments and how these characteristics are affected by the pressure to justify one's judgment (Tetlock, 1983; 1985; Tetlock & Boetger, 1989; Tetlock & Kim, 1987; Tetlock, Skitka & Boetger, 1989). Structural complexity is the use of 1) more conceptual differentiation, which is the recognition of more than one dimension of or perspective to a problem (Gruenfeld, 1993; Suedfeld, Tetlock & Streufort, 1992), and 2) more integration, which is the recognition of the logical relations among differentiated dimensions (Gruenfeld, 1993). Balance is the development of arguments that support actions consistent with multiple perspectives.

Structural complexity and balance can provide insight into auditors' justifications because both concepts can be related to the use of risk in auditors' arguments. Structural complexity can be used to examine the extent to which justifications 1) identify different causal dimensions of risk, for example, error or fraud, and non-error or business/industry changes; 2) demonstrate concern for audit outcomes; and 3) integrate identified causes and outcomes, for example, by indicating the guiding rule used to allocate audit resources. Balance can be used to examine the extent to which auditors consider both audit effectiveness and audit efficiency. Prior studies did not examine how these characteristics are affected by the pressure to justify across different levels of risk.

Psychology studies (Tetlock, 1983; Tetlock et. al., 1989) suggest that the structural complexity and balance of justifications reflect the underlying cognitive process used to arrive at

¹ A critical audit area is an area of the audited organization that auditors must understand thoroughly before attesting to managements' financial statement assertions. Once a critical audit area is understood, the associated

a judgment. These studies found that the characteristics of justifications influenced judgments (Tetlock, 1983; Tetlock et. al., 1989). However, auditors work in a professional environment that involves frequent, repeated justification with reviewer feedback about subordinates' judgments and justifications. Such an environment provides auditors with the opportunity to practice argument techniques. The extent to which such techniques become routine may affect the cognitive link between justifications and audit judgments. Previous research has not examined the relationship between justifications and judgments in a context in which participants routinely practice justification.

This study used an experimental methodology to examine how the expectation of review, absent explicitly stated reviewers' opinions, affects auditors' initial resource allocations, their justifications across different levels of audit risk, and the relationship between audit judgments and justifications. Audit seniors and managers read a case that utilized a seeded material increase in the gross margin (Libby, 1985) to focus their attention (Hirst & Koonce, 1996) on the sales/revenue cycle. Auditors wrote an explanation for why the number of hours budgeted to various areas of the audit should or should not be revised from the prior year's audit plan (an open-ended question). After writing their explanations auditors allocated budgeted hours across audit areas. The expectation of audit review and the level of audit risk were manipulated between participants.

Results from the experiment suggest that auditors' initial planning judgments varied across risk levels only when auditors expected to be reviewed. When auditors expected to be reviewed, they allocated more hours to the critical audit area when audit risk was high than when audit risk was low. Results also indicate that when auditors expected to be reviewed,

audit risk may be high or low.

justifications were more structurally complex, and when risk was low, justifications were more balanced. Justifications always exhibited more concern for audit effectiveness than for audit efficiency. The difference in balance across risk conditions occurred when auditors expected to be reviewed, because justifications exhibited relatively more concern for audit effectiveness when risk was high, and relatively more concern for audit efficiency when risk was low. Finally, results failed to find a cognitive mediation between the differences in reasoning observed in auditors' justifications and the effects of review and risk on auditors' planning judgments.

The remainder of this paper is as follows: the next section develops the hypotheses tested by the experiment. Section three describes the experimental method. Section four discusses results of data analysis. Section five discusses implications of this study for practice and future research.

2. Hypothesis Development

A Brief Discussion of Generalizability—Justifying within a Context

This paper examines justifications in a setting where a correct/normative answer, decision, judgment or action is non-existent. A significant body of psychology research examines justifications and the effects of justification pressure in a variety of such settings (see Lerner & Tetlock, 1999). These settings, generally, involved the expression of an attitude or opinion. The risk associated with such an expression is the social risk attendant with disagreeing with the person to whom one is justifying. This risk likely exists in auditing for auditors who disagree with their reviewer. However, also important, and a contextual feature not examined in prior psychology research, is the risk associated with justifying and taking an action.

Risk is the potential for negative consequences to occur (Yates, 1992). In an action-taking setting, risk is the potential for negative consequences to occur as a result of the action taken. Risk is a complex, multidimensional phenomenon. The dimensions of risk include 1) multiple causes of potential negative consequences, 2) multiple types of negative consequences, 3) the significance of each type of negative consequence, 4) multiple stakeholders who might suffer different types of negative consequences at varying significance levels, and 5) a distribution of probabilities associated with each combination of the preceding dimensions.

This study examines how the risk associated with budgeting at the audit planning stage affects auditors' justifications and their actions when auditors expect to be reviewed. The predictions in this study will generalize to other action-taking settings depending on the extent to which a different setting shares a similar set of relevant characteristics. Key relevant features in the setting herein examined include: 1) auditors are professionals trained to identify potential consequences associated with their actions that could negatively impact their employer (i.e.

accounting firm); 2) auditors are rewarded based on evaluations of other professional auditors who review their actions and justifications; 3) the risk associated with auditors' actions is most often asymmetric. The first two features generalize relatively easily to other professional settings with superior or peer review. The third feature, asymmetry of risk, requires a deeper understanding before it may be generalized.

Risk is asymmetric when the probability and/or significance of negative consequences associated with one outcome dimension is greater than that associated with other dimensions. At least two features of asymmetric risk are likely to affect the generalizability of any study that examines action-taking with associated asymmetric risk. First, consequence dimensions may be largely independent or largely interdependent. In the current study, for example, the consequence dimensions of the asymmetric risk are interdependent. Audit efficiency cannot be achieved without first achieving audit effectiveness. Second, consequence dimensions also may more or less directly affect the stakeholder of interest. In the current study, both audit effectiveness and audit efficiency have relatively direct consequences for the audit firm. In a different audit context, for example, a consequence dimension could directly affect the client firm and indirectly affect the audit firm (e.g. the potential negative fallout that would follow if the audit firm issued a qualified audit opinion based on the expectation that the client firm might not continue as a going concern.)

This brief discussion of the contextual features from the audit planning/budgeting setting intends to help the reader determine how well the hypotheses in the following section will generalize to another setting of interest. However, the hypotheses are developed and written within the audit planning/budgeting setting with its unique set of asymmetric risk features. The hypotheses are written to be understandable within this context.

Auditors' Justifications

Among other things, the review process is an important source of information for performance evaluation. As such, it motivates auditors to use more effort (Kennedy, 1993; 1995), and spend more time making judgments (Ashton, 1992). Psychology research suggests that this increased effort and time may be linked to the cognitive justification process people use (e.g. Tetlock et. al. 1989).

Auditors use justifications to demonstrate the quality of audit judgments (Emby & Gibbins, 1988; Gibbins & Newton, 1994; Davis & Solomon, 1989) because, in the audit environment assessing the quality of audit outcomes is difficult (see Gramling & Stone, 1998 for a discussion of audit outcome quality) and normative benchmarks infrequently exist. Since the quality of an audit judgment depends partly on the analysis used (Emby & Gibbins 1988), it is reasonable to expect auditors to use their justifications to illustrate characteristics of their reasoning. Auditors experience higher pressure to justify their judgments when they expect to be reviewed (Ashton, 1992; Kennedy, 1993; 1995; Koonce et. al. 1995). Prior research suggests that when people experience the pressure to justify to a person with unstated preferences or views, they use more structurally complex justifications (Tetlock, et. al, 1989). Therefore, I expect the following:

H1: Auditors who expect to be reviewed, will use more structurally complex justifications than will auditors who do not expect to be reviewed.

High quality audit judgments should also ensure the effectiveness and efficiency of an audit (Emby & Gibbins, 1988). To persuade a reviewer, subordinates' justifications, therefore, should discuss how their planned actions achieve these objectives. Thanks to education, training and experience, auditors are likely to understand that when risk is high the need to mitigate audit

risk, by performing an effective audit, is paramount. Therefore, when audit risk is high, auditors' justifications are likely to focus primarily on achieving audit effectiveness. When audit risk is low, while achieving audit effectiveness is still necessary, it is relatively more important to also ensure audit efficiency. When risk is low, subordinates may demonstrate good audit judgment by developing arguments that focus on achieving both audit effectiveness and audit efficiency. Balance reflects the extent to which the auditors develop arguments that support two different perspectives. Therefore, I expect the following:

H2: When risk is low, auditors will use more balanced justifications than when risk is high.

Auditors are educated and trained to consider audit risk when making audit judgments. The extent to which auditors' justifications develop arguments related to achieving audit effectiveness and audit efficiency likely depends on the level of audit risk. Real-time review, with its emphasis on basing audit plans on the level of audit risk, should reinforce the relationship between the level of risk and the extent to which auditors' justifications include consideration of audit effectiveness and audit efficiency. Thus, review should reinforce the relationship between the balance of auditors' arguments and the level of risk. Therefore, I expect the following:

H3: The difference in balance across levels of risk will be greater when auditors expect to be reviewed than when auditors do not expect to be reviewed.

Audit Judgments

Audit resources are initially allocated in the audit plan. The audit plan indicates the procedures to be performed, the time allotted to each procedure, and the audit team member who will perform the procedure. Auditors can increase the resources allocated to a critical audit area

by 1) selecting a more costly, time consuming procedure, 2) adding procedures, 3) increasing the hours allotted to each procedure, 4) increasing sample sizes, 5) assigning a more experienced team member with a higher billing rate, or 6) adding more personnel. Prior research suggests that audit judgments shift to mitigate risk. For example, when engagement risk was high, auditors were less likely to allow a client-preferred accounting treatment than when engagement risk was low (Hackenbrack & Nelson, 1996). Allocating more resources to a critical audit area is one way of mitigating audit risk, because it increases the likelihood that the audit is performed effectively. Furthermore, allocating more resources to a critical audit area when risk is high and fewer when risk is low, is consistent with the relative extent to which auditors consider audit effectiveness and audit efficiency across risk conditions. Therefore, I expect the following:

H4: When audit risk is high, auditors will allocate more resources to a critical audit area than when audit risk is low.

Psychology research that examined the relationship between justifications and judgments found that judgments were likely to be consistent with the views expressed in justifications (Tetlock et. al. 1989). I expect that when auditors expect to be reviewed, and audit risk is high, they will increase the extent to which they consider audit effectiveness. I also expect that when auditors expect to be reviewed, and audit risk is low, they will increase the extent to which they consider audit efficiency. This suggests that when auditors expect to be reviewed they will 1) increase resource allocations to a critical audit area when risk is high, and 2) decrease resource allocations to a critical audit area when risk is low. These expectations are expressed in the following hypothesis:

H5: When auditors expect to be reviewed, auditors will allocate more (fewer) resources to a critical audit area, when risk is high (low).

3. Method

Experimental Design, Participants, and Manipulation of Independent Variables

The hypotheses in this study were tested in an experiment with a fully crossed 2 (audit review) x 2 (audit risk) between participant design. One hundred and twelve (n=112) audit seniors and managers from three audit firms, with an average of 3.4 years and a range between 6 months and 15 years of audit experience, were randomly assigned to one of the four experimental conditions.

Instructions accurately indicated to participants in the *no review condition* that their individual responses would remain anonymous. Instructions accurately indicated to participants in the *review condition* that their individual responses would be identified as theirs and reviewed by university faculty and audit partners from their firm. Participants in the two risk conditions received different information in the experimental case. Participants in the *low risk condition* were informed that the strength of internal controls and management integrity at the company in the case were in the top ten percent of all firm clients. Participants in the *high risk condition* were informed that the strength of internal controls and management integrity at the company in the case were in the bottom 40 percent of all firm clients.

Case Materials

All participants received a printed case booklet that included case materials and experimental questions². The information provided in the case was based on a real company, on industry information from Moody's, and on practitioners' descriptions of information used during planning stage analytical review (Hirst & Koonce, 1996). The case included both financial and non-financial information about the hypothetical client. Financial information

included selected account balances from the previous year's audited financial statements, this year's unaudited trial balance and a summary list of key financial ratios including gross margin, gross margin ratio, operating profit margin ratio and current ratio. A material increase was seeded in the gross margin. The non-financial information included the number of hours budgeted to several areas³ in the previous year's audit plan and narrative dialogues⁴ summarizing discussions with various client personnel. In these narratives client personnel indicated that the increase in the gross margin was due to a change in sales mix (a non-error cause). The information provided in the case, both financial and non-financial was suggestive, but not perfectly diagnostic of the cause of this fluctuation.

Experimental Tasks

After reading the general instructions, a brief description of case materials, and consent forms, participants indicated their informed consent by signing a consent form. Next, all participants began at the same time to read case materials and answer experimental materials. After reading through case materials, participants were instructed to review the case materials as needed, and write a justification indicating why budgeted hours from the prior year's audit plan should or should not be revised. After completing their explanation, participants were provided with a second copy of the prior year's audit plan. Participants were instructed to indicate the changes they would make to budgeted hours.

Following this, auditors completed post-experimental tasks. First, participants responded to statements about the case materials and experimental tasks using eight-point likert scales.

² The case materials are in Appendix A.

³ The areas included in the audit plan were current assets, current liabilities, the sales/revenue cycle and total hours.

⁴ The descriptive narratives are similar to those used by Koonce (1992) to provide more realistically, the information auditors have available at planning stage analytical review. However, the content of the narratives is completely original.

These statements were manipulation and validity checks, and included a question about the partner-in-charge's concern for audit effectiveness and audit efficiency. Finally, participants completed a brief educational and work experience survey.

Dependent Measures Related to Justifications

The arguments participants wrote were coded to measure the structural complexity and balance in their justifications. All arguments were typed to facilitate coding. A research assistant and the author coded auditors' justifications for both dependent measures. Both coders were blind to experimental condition; the research assistant was blind to the purpose of the study.

Structural Complexity

An *integrative complexity* (Gruenfeld, 1993; Stone, Sivitanides & Magro, 1994; Tetlock & Boetger, 1989) score measured the structural complexity of auditors' analysis. This measure is independent of content (Suedfeld, Tetlock & Streufort, 1992). Specifically, it is a combined measure of both the number of differentiated concepts, and the extent to which these concepts are integrated in the reasoning of an argument. Integrative complexity is coded using a seven point scale on which higher scores indicate more complex reasoning. A score of 1 indicates "low differentiation and low integration" while a score of 7 indicates "moderate to high differentiation and high integration" (Suedfeld, Tetlock & Streufort, 1992). Both coders learned how to code integrative complexity by using training materials written by psychology researchers who are integrative complexity coding experts (Suedfeld, Tetlock & Streufort, 1992). Coders began coding experimental materials after they reached 80% agreement with expert coders on the training materials. The coders coded individually only after also reaching 80% agreement with each other on two random samples (n=10) of experimental materials. During the coding of these samples, disagreements between coders were resolved through discussion. One observation was

removed from the sample because it was deemed uncodable by both coders. When coding was complete, I tested interrater reliability using Cohen's Kappa ($K=.64$). Using the Landis & Koch interrater reliability scale, agreement between the two raters was in the second highest "substantial" category (Landis & Koch, 1977).

Balance

Facts from the case, assumptions, requests for additional information and evaluations such as identification of specific financial statement errors, statements about the appropriateness of account balances and risk assessments, and indications of potential problems were coded as distinct idea units (see Koonce, et. al., 1995). Next, both coders coded each unit as either "related to concern for audit effectiveness" or "related to concern for audit efficiency". Using Cohen's Kappa ($K=.92$), interrater reliability was in the highest agreement category "almost perfect" (Landis & Koch, 1977). Next, a *ratio balance index*, a measure of evaluative consistency that controls for the total number of thoughts (Tetlock, et. al, 1989; Petty and Brock, 1979), was calculated to measure the balance of auditors' justifications. The ratio balance index ranges from .5 to 1. Scores closer to .5 (1) on this index indicate more (less) balanced justifications. To construct the ratio balance index, **RBI**, each piece of evidence identified as an idea unit was coded as either "related to concern for audit effectiveness" or "related to concern for audit efficiency". The numerator of the ratio was the larger of **F**, the number Effectiveness Thoughts or **f**, the number of Efficiency Thoughts (i.e. the maximum of **F** or **f**). The denominator of the ratio was **T**, the total number of pieces of evidence used in the argument (i.e. $T = F + f$). The equation for computing the RBI is as follows:

$$\mathbf{RBI} = \mathbf{\max(F,f)/T} \quad (1)$$

Dependent Measures Related to Audit Judgments

Resource allocation judgments were measured using the number of hours budgeted to the sales/revenue cycle this year minus the number of hours budgeted last year divided by the number of hours budgeted last year (i.e. the percent change in budgeted hours).

4. Results

Outlier Analysis

I used outlier analysis to test the robustness of results. The deleted residuals method (Neter et. al, 1990) identified 9 extreme observations of the hours auditors budgeted to the sales/revenue cycle. Of these observations, seven decreased and two increased the hours budgeted. Five of the seven decreases were from the low risk no review condition. Remaining outliers came from the other three conditions. Outlier analysis compared results across four samples: 1) the full sample, 2) a sample with all outliers removed, 3) a sample with decreasing outliers removed, and 4) a sample with increasing outliers removed.

F-tests revealed that the variance in the low risk-no review condition was higher than the variance in the other three conditions for the full and increasing-outliers-removed samples. Variances were equal across all four cells in the all-outliers-removed and decreasing-outliers-removed samples. Chi-square tests confirmed that statistically cell sizes were equal in all samples. Results related to the tests of hypotheses were qualitatively the same across all four samples.

Manipulation and Validity Checks

The review manipulation was successful. On an eight-point scale, participants indicated their agreement with the statement that they expected to be reviewed (7=strongly agree, 0=strongly disagree). The difference between mean responses in the review condition (5.13) and no review condition (3.95) was significant ($F_{1,108}=10.04$; $p=.00$). Also, as expected, participants in the review condition took more time ($F_{1,108}=13.58$; $p=.00$) and indicated they exerted more effort ($F_{1,108}=6.49$; $p=.01$) and felt more pressure to justify their responses ($F_{1,108}=4.78$; $p=.03$). Participants in the review condition did not feel more pressure to complete the case quickly

($F_{1,108}=2.05$; $p=.15$). Participants in the review condition did not feel more personally responsible ($F_{1,108}=2.94$; $p=.09$) than participants in the no review condition. The audit risk manipulation was also successful. Participants in the high risk condition rated risk significantly higher than participants in the low risk condition ($F_{1,108}=51.92$; $p=0.00$). As expected, none of the dependent measures for the manipulation and validity checks exhibited joint or crossover effects related to the combined manipulations of the level of risk and the expectation of review. (See Table 1).

Auditors' Justifications

Hypothesis one predicts that auditors' justifications will be more structurally complex when auditors expect to be reviewed. This was tested with ANOVA using the integrative complexity scores as the dependent measure. As predicted, the test reveals a main effect for review ($F_{1,108} 8.03$; $p=.00$). (See Table 2).

Hypothesis two predicts that auditors' justifications will be more balanced when risk is low than when risk is high. This was tested with ANOVA using the balance ratio index scores as the dependent measure. The test reveals a main effect for risk ($F_{1,108} 7.15$; $p=.01$) in the predicted direction. (See Table 3).

Hypothesis three predicts that the differences in balance across risk conditions will be greater when auditors expect to be reviewed. This was also tested with ANOVA using the balance ratio index as the dependent measure. This test failed to find a significant review by risk interaction ($F_{1,108} 0.89$; $p=.35$). However, planned comparison t-tests indicate justifications were more balanced ($t=2.74$; $p=.01$) when risk was low (mean=.81) than when risk was high (mean=.89) when auditors expected to be reviewed, but not when auditors did not expect to be reviewed ($t=1.16$; $p=.25$). (See Table 3).

Additional Analysis of Auditors' Justifications: Effectiveness and Efficiency Thoughts

The balance of auditors' justifications reflects the relative degree of concern related to audit effectiveness and audit efficiency in auditors' justifications. The theory developed in this paper suggests that risk and review affect the balance of auditors' justifications because auditors 1) consider audit effectiveness more when risk is high, 2) consider audit efficiency more when risk is low and 3) review increases both of these effects. On average, auditors were much more concerned with effectiveness than efficiency (see panel A, Table 4). I performed additional analysis that tests how review and risk affect the number of effectiveness thoughts and the number of efficiency thoughts in auditors' justifications. This analysis tests the theoretical development leading to hypotheses two and three.

Auditors' justifications exhibited more consideration of audit effectiveness when risk was high (mean=16.57) than when risk was low (mean=13.31). This effect is significant. ANOVA using the number of effectiveness thoughts as the dependent measure reveals a significant main effect for risk ($F_{1,108} 5.63$; $p=.02$). Auditors' justifications also exhibited more consideration of audit efficiency when risk was low (mean=5.36) than when risk was high (mean=2.94). Again, the effect is significant. ANOVA using the number of efficiency thoughts as the dependent measure also reveals a significant main effect for risk ($F_{1,108} 6.53$; $p=.01$).

Auditors' justifications exhibited more consideration of audit effectiveness when auditors expected to be reviewed (mean=17.28) than when auditors did not expect to be reviewed (mean=12.62). This difference is significant. ANOVA using the number of effectiveness thoughts as the dependent measure reveals a significant main effect for review ($F_{1,108} 8.38$; $p=.00$). The difference in the number of efficiency thoughts also was in the expected direction. Justifications exhibited greater consideration of efficiency when auditors expected to be reviewed

(mean=4.41) than when they did not expect to be reviewed (mean=3.91). However, the effect was not significant. ANOVA using the number of efficiency thoughts as the dependent measure does not reveal a significant main effect for review ($F_{1,108} = 0.26$; $p=.61$) (See Table 4).

Audit Judgments

Hypotheses four and five combined, predict a risk and review by risk interaction effect on auditors' resource allocation judgments. These two hypotheses were tested using ANOVA with the percent change in budgeted hours as the dependent measure. This analysis reveals a significant main effect for review ($F_{1,108} = 6.13$; $p=.01$) and a significant main effect for risk ($F_{1,108} = 6.88$; $p=.01$) but no significant review by risk interaction ($F_{1,108} = 2.39$; $p=.12$). (See panel B, Table 5).

Hypothesis four predicts that auditors will allocate more resources when risk is high than when risk is low. This effect should be corroborated by the significant main effect for risk in the ANOVA described above. However, closer examination of the data reveals an unexpected effect. Two-tailed planned comparisons reveal the difference in allocations occurs only when auditors expect to be reviewed. When auditors expected to be reviewed they increased the hours budgeted to the sales/revenue cycle more ($t=3.61$; $p=.00$) when risk was high (mean=26.6% increase) than when risk was low (mean= 8.8% increase). However, when auditors did not expect to be reviewed, they did not increase budgeted hours more ($t=0.81$; $p=.42$) when risk was high (mean=10.0% increase) than when risk was low (mean= 4.3% increase). (See panels A and C, Table 5).

Hypothesis five predicts that when auditors expect to be reviewed they will allocate more audit resources when risk is high and fewer resources when risk is low. The ANOVA reported above clearly fails to observe a significant interaction. Planned comparisons further show no

difference in the number of hours auditors budgeted across review conditions, when risk was low ($t=.62$; $p=.53$). However, when risk was high, auditors who expected to be reviewed (mean=26.3% increase) budgeted significantly more hours ($t=3.44$; $p=.00$) than auditors who did not expect to be reviewed (mean=10.0% increase). (See Table 5 and Figure 1).

The Relationship Between Auditors' Justifications and Audit Judgments

Recent auditing research found that judgments conforming to explicitly stated reviewer preferences were cognitively motivated (Wilks, 2000). Psychology research has found evidence of a cognitive link between judgments and justifications (Tetlock et. al., 1989). People were more likely to shift their attitudes toward the opinion of a person to whom they are justifying when justifications exhibited a greater amount of consideration of that person's opinion (Tetlock, et. al, 1989).

If, in the audit setting, the arguments in auditors' justifications reflect the underlying cognitive process, we should observe that characteristics related to these arguments mediate the effects of review and risk on auditors' judgments. Specifically, based on the hypotheses developed in this study, balance should mediate the effect of risk and the review by risk interaction on auditors' resource allocations. A variable functions as a mediator when 1) variations in levels of the independent variable significantly account for variations in the presumed mediator (i.e. path a), 2) variations in the mediator significantly account for variations in the dependent variable (i.e. path b) and 3) when Paths a and b are controlled, a previously significant relation between the independent and dependent variable is reduced (Baron & Kenny, 1986).

These conditions are not met in the current study. The balance of auditors' justifications was affected by risk and the review by risk interaction as predicted. However, auditors'

judgments were not affected by risk and the review by risk interaction as predicted. Therefore, the second condition is not met and testing the third condition is unnecessary.

An Alternative Explanation: Controlling for Inferred Reviewer Preferences

Prior studies that examined how review affected auditors' judgments when reviewer preferences are not explicitly stated found that judgments were consistent with auditors assessing risk higher when they expect to be reviewed (Hoffman & Patton, 1997; Lord, 1992; Morton & Felix, 1991; Quilliam, 1993). Results related to the manipulation checks for control risk in this study demonstrate that the expectation of review does not always increase risk assessments (See Table 1 and discussion of manipulation checks). Furthermore, in this study, when risk was low, auditors did not allocate more resources when they expected to be reviewed. Results from prior studies and the observations in this study may be consistent with an alternative explanation. Specifically, auditors may have inferred reviewer concerns for audit effectiveness and audit efficiency, even though preferences were not explicitly stated. These inferred preferences may have affected auditors' allocation of resources. To test this explanation, I tested 1) whether or not auditors inferred a reviewer preference and 2) whether or not an inferred preference affected auditors' judgments and justifications consistent with the observed judgment effects.

A validity check question, asked participants to indicate what concerned the partner-in-charge, audit effectiveness or audit efficiency. On an eight point response scale a 7 indicated the partner was concerned with "the effectiveness of our planned tests of the client's financial statement assertions" and a 0 indicated the partner was concerned with "the cost of the hours budgeted for this engagement". Participants who did not expect to be reviewed believed the partner-in-charge in the case would be just about equally concerned with audit effectiveness and audit efficiency (mean=3.68). Participants who expected to be reviewed believed the partner-

in-charge would be more concerned with audit effectiveness than efficiency (mean= 4.21). The difference between the means was significant ($F_{1,108} = 4.12$; $p=.04$). (See panels A and B, Table 6).

Since auditors did infer a reviewer concern for audit effectiveness, when they expected to be reviewed, I retested all hypotheses in this study using ANCOVA and controlling for inferred reviewer preferences. Inferred reviewer preferences were not a significant co-variate for any of the dependent variables related to auditors' justifications or the hours auditors budgeted to the sales/revenue cycle. (See panel C, Table 6).

5. Discussion

Summary of Results

Results related to auditors' justifications are largely consistent with the theory developed in this paper. When auditors expect to be reviewed, justifications are more structurally complex than when auditors do not expect to be reviewed. When risk is low, auditors' justifications are more balanced than when risk is high. This effect is pronounced when auditors expect to be reviewed. The difference in balance is related to the effects review and risk had on the extent to which auditors wrote arguments concerned with audit effectiveness and audit efficiency. Auditors always wrote more arguments concerned with audit effectiveness. However, when risk was high and auditors expected to be reviewed, they wrote more justification arguments concerned with audit effectiveness.

Results related to auditors' resource allocation judgments are not always consistent with theory developed in this paper. Contrary to expectation, when auditors did not expect to be reviewed, the increase in the hours budgeted across different levels of risk is not statistically different. Further, auditors did not budget fewer hours to the sales/revenue cycle when they expected to be reviewed and risk was low. As expected, auditors increased budgeted hours to the sales/revenue cycle more when they expected to be reviewed and risk was high.

Implications for Practice, Limitations and Suggestions for Future Research

Real-time review emphasizes the importance of risk-based audit planning. Real-time review should reinforce the allocation of more resources to high-risk areas and fewer resources to low-risk areas. Results from this study suggest that the expectation of review at the planning stage is likely to encourage subordinates to allocate more resources to high risk audit areas, but will not affect their resource allocations to low risk audit areas

However, no one study provides conclusive evidence. Readers should be particularly careful about the conclusions they draw from this study related to how real time review affects audit resource allocation judgments. First, the relationship between review, risk and audit judgments was not consistent with the model developed in this study. Furthermore, one of the hallmarks of real-time review is that earlier intervention allows reviewers to adjust the audit process. One limitation of this study is that it did not test what adjustments, if any, reviewers would make to subordinates' resource allocations.

Other studies have shown that more experienced auditors over-estimate subordinate knowledge (Kennedy & Peecher, 1997) and fail to anticipate subordinate predecisional distortion of information cues (Wilks, 2000). Such inaccurate evaluation of subordinate work may lead reviewers to insufficiently or over adjust subordinate's audit plans. Furthermore, accounting firms are increasingly using the partner-in-charge to review planning stage audit judgments (Hirst & Koonce, 1996). The presumption is that because partners are likely to have the longest experience with the client, they are likely to possess better knowledge and understanding of the client than subordinates. Longer association with the client is likely to affect the partner's perceptions which, in turn, could influence their review decisions. Future research should examine this rich area of inquiry of how reviewers respond to subordinate judgments and persuasion behaviors.

This study adds to an interesting and growing area of accounting research. Auditing research suggests that subordinates have multiple opportunities to engage in behaviors to persuade a reviewer the subordinates' judgment is good (Rich, et. al. 1997). This study provides evidence about the persuasion behaviors that auditors use across different levels of risk when they expect to be reviewed. When risk was high, auditors increased budgeted hours more when

they expected to be reviewed than when they did not expect to be reviewed. They also wrote more complex, less balanced justifications that included more arguments related to audit effectiveness. When risk was low, auditors who expected to be reviewed did not increase the number of hours budgeted to the critical audit area, more than auditors who did not expect to be reviewed. However, they wrote more complex, more balanced justifications that included more arguments related to audit efficiency. These results suggest that auditors selectively use multiple persuasion behaviors simultaneously and that their selection of behaviors is influenced by the level of risk.

Table 1. Manipulation and Validity Check Statistical Results*Panel A. Review Manipulation*

Variable	Review Condition	No Review Condition	F-Value	Pr>F
Expectation of Review	5.13	3.95	10.04	.00
Time	41.36	35.17	13.58	.00
Effort	4.60	4.03	6.49	.01
Pressure to Justify	4.30	3.61	4.78	.03
Time Pressure	2.70	3.18	2.05	.15
Personal Responsibility	5.64	5.24	2.94	.09

Panel B. Risk Manipulation

Variable	High Risk Condition	Low Risk Condition	F-Value	Pr>P
Control Risk	5.08	2.97	51.92	.00

Table 2. The Effect of Review on the Complexity of Auditors' Justifications

Panel A: Mean Integrative Complexity Scores

	No Review	Review	Combined
Low Risk	1.96 (n= 28)	2.58 (n=28)	2.33 (n=56)
High Risk	1.78 (n= 28)	2.40 (n=27)	2.10 (n=55)
Combined	1.86 (n=56)	2.49 (n=55)	

Panel B: ANOVA for Integrative Complexity Scores

Source	Degrees of Freedom	F-Value	Pr>P
Review	1	8.03	.00
Risk	1	2.41	.12
Review-Risk	1	0.00	.97

Table 3. The Effects of Review and Risk on the Balance of Auditors' Justifications

Panel A: Mean Ratio Balance Index

	No Review	Review	Combined
Low Risk	.82 (n= 28)	.80 (n=28)	.81 (n=56)
High Risk	.87 (n= 28)	.90 (n=27)	.89 (n=55)
Combined	.85 (n=56)	.85 (n=55)	

Panel B: ANOVA for Ratio Balance Index

Source	Degrees of Freedom	F-Value	Pr>P
Review	1	0.00	.99
Risk	1	7.15	.01
Review-Risk	1	0.89	.35

Panel C: Planned Comparisons

	T-Value	Pr>P
No Review High Risk> No Review-Low Risk	1.16	.25
Review-High Risk>Review-Low Risk	2.74	.01

Table 4. Additional Analysis: The Effects of Review and Risk on the Number of Effectiveness and Efficiency Thoughts

Panel A: Mean Number of Effectiveness Thoughts and (Efficiency Thoughts)

	No Review	Review	Combined
Low Risk	11.96 (4.84)	14.66 (5.88)	13.31 (5.36)
High Risk	13.27 (2.98)	20.00 (2.89)	16.57 (2.94)
Combined	12.62 (3.91)	17.28 (4.41)	

Panel B: ANOVA for the Number of Effectiveness Thoughts

Source	Degrees of Freedom	F-Value	Pr>P
Review	1	8.38	.00
Risk	1	5.63	.02
Review*Risk	1	2.27	.13

Panel C: ANOVA for the Number of Efficiency Thoughts

Source	Degrees of Freedom	F-Value	Pr>P
Review	1	0.21	.64
Risk	1	6.53	.01
Review*Risk	1	0.26	.61

Table 5. The Effects of Review and Risk on Audit Judgments

Panel A: Mean Percent Change in Budgeted Hours

	No Review	Review	Combined
Low Risk	4.3% (n= 28)	8.8% (n=28)	6.8% (n=56)
High Risk	10.0% (n= 28)	26.3% (n=27)	17.6% (n=55)
Combined	6.9% (n=56)	17.3% (n=56)	

Panel B: ANOVA for Mean Percent Change in Budgeted Hours

Source	Degrees of Freedom	F-Value	Pr>P
Review	1	6.13	.01
Risk	1	6.88	.01
Review-Risk	1	2.39	.12

Panel C: Planned Comparison T-Tests

H3: Within Review Conditions	T-Value	Pr>P
Review-High Risk > Review-Low Risk	3.61	.00
No Review-High Risk > No Review-Low Risk	0.81	.42

H4: Within Risk Conditions	T-Value	Pr>P
Low Risk-Review < Low Risk-No Review	0.62	.53
High Risk-Review > High Risk-No Review	3.44	.00

**Table 6. Additional Analysis: An Alternative Explanation—
The Effect of Inferred Reviewer Preferences on
Hours Budgeted to the Sales/Revenue Cycle**

*Panel A: Mean Inferred Reviewer Preferences for Audit Effectiveness and Audit Efficiency**

	No Review	Review	Combined
Low Risk	3.77 (n=28)	4.22 (n=29)	4.00 (n=57)
High Risk	3.60 (n=28)	4.21 (n=27)	4.77 (n=55)
Combined	3.68 (n=56)	4.21 (n=56)	

Panel B: ANOVA for the Effects of Review and Risk on Inferred Reviewer Preferences

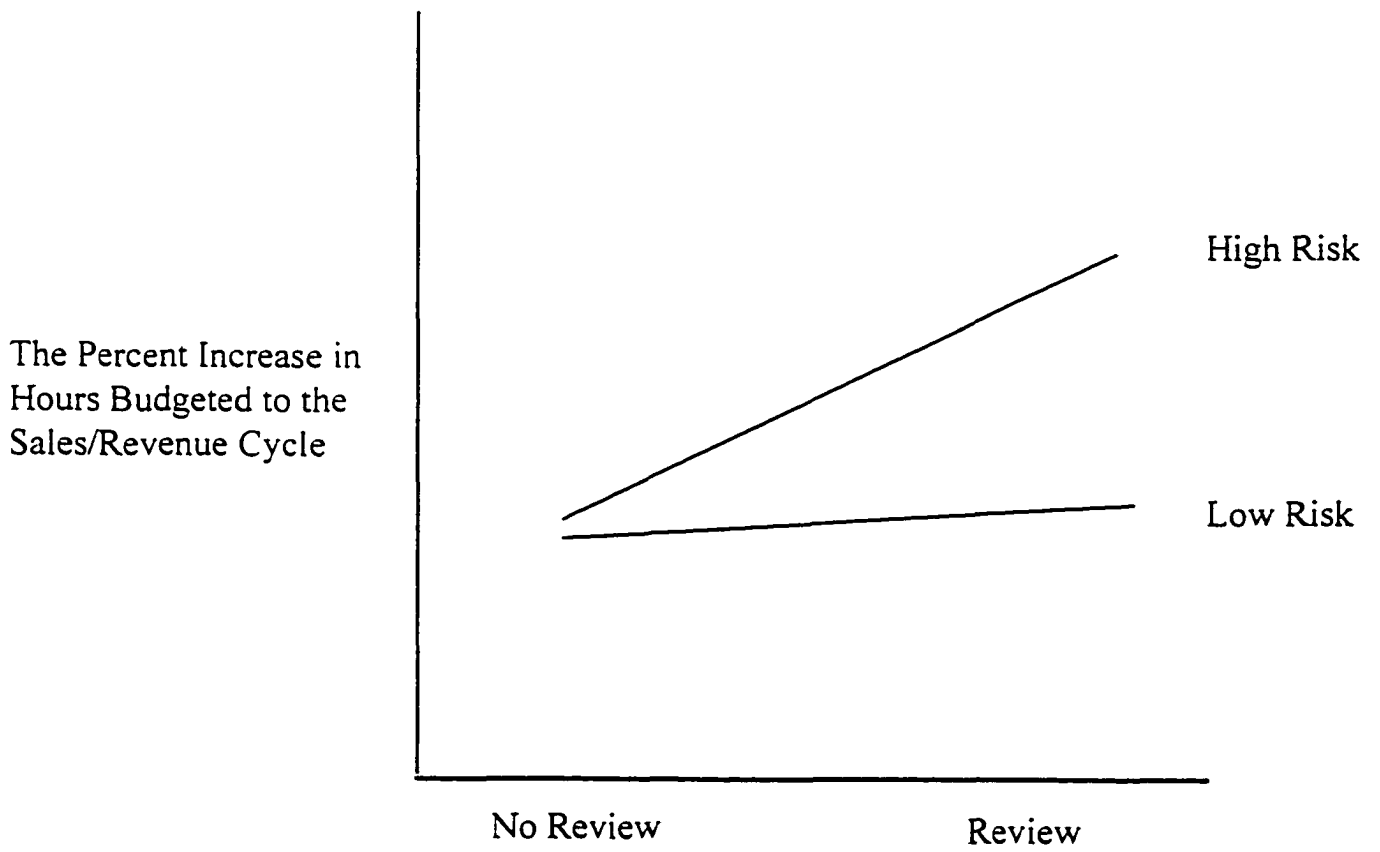
Source	Degrees of Freedom	F-Value	Pr>P
Review	1	4.12	.04
Risk	1	0.12	.73
Review-Risk	1	0.08	.77

Panel C: ANOVA for the Effect of Inferred Reviewer Preferences on Hours Budgeted to the Sales/Revenue Cycle

Source	Degrees of Freedom	F-Value	Pr>P
Review	1	5.67	.04
Risk	1	6.94	.01
Review*Risk	1	2.33	.13
Partner Concern	1	0.34	.56

*Scores above 3.5 indicate a greater concern for audit effectiveness than audit efficiency.

Figure 1. The Effects of Audit Review and Risk on Budgeted Hours



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Appendix A. Case Materials

Audit Planning Case

RH

General Instructions

Thank you for participating in this research project. You will have until 9:30 this morning to complete the following case. This case is designed to learn more about analytical review and audit planning. Specifically, we are interested in learning about what audit planning decisions you make and why you make them.

Your responses to this case will be identified as your work. The quality of your responses will be reviewed by both University of Illinois accountancy faculty and McGladrey & Pullen, LLP audit partners.

Assume you are the in-charge audit senior for the audit of the client described in the attached case. You will read selected information about the client, the industry in which it operates and the budgeted hours from last year's audit plan. You should examine as much detail as you consider necessary to decide what, if any, revisions should be made to last year's audit plan. Use your best professional judgment throughout.

This study has five sections. In the first section you will write an analysis of the information provided indicating why the budgeted hours from the previous year's audit plan should or should not be changed. In section two, you will indicate what changes, if any, you think should be made. In section three, you will evaluate a conclusion drawn from the information provided in the case. In section four, you will respond to statements that ask about your perceptions of the case. Section five is a questionnaire asking you for brief information about your work and educational background.

Please complete the sections in numeric order without looking ahead to upcoming sections. You may refer to your prior responses or to the case information when completing all sections. If you have any questions while analyzing the case, please raise your hand. However, please do not talk to others about the case while you are working.

Participation in this exercise is both important and voluntary. You may choose to not complete the case at any time. If you wish to discontinue participation please close your booklet and raise your hand. If you refuse to participate or choose to discontinue participation, you will suffer no loss or benefits to which you are otherwise entitled.

If you would like, you may receive a copy of the results of this study by filling out the address label provided at the end of the case.

Thank you.

Susan Mertzlufft
University of Illinois at Urbana-Champaign
Professor Dan Stone
University of Illinois at Urbana-Champaign

Individual Identification of Your Responses

To ensure your responses can be clearly identified please provide the information requested on the lines provided below. Please note that this information will be provided to audit partners who review responses from this case.

Name (Please Print Legibly)

Signature

Job Title

Home Office Phone Number

Home Office Address

Read the following pair of statements. Check the statement you believe is true.

I expect my responses to be reviewed by faculty at the University of Illinois and McGladrey & Pullen, LLP audit partners.

I do not expect my responses to be reviewed by faculty at the University of Illinois and McGladrey & Pullen, LLP audit partners.

Please turn the page and continue.

Take out the consent form that is underneath your case booklet. Please read and sign this statement.

Stop!!! Do not continue until instructed to do so!!

Please make sure that you have filled in all of the information requested on the preceding pages and read and signed the consent form.

Thank you.

Section 1 Instructions

You are the in-charge audit senior for the financial statement audit of Mercer, Inc. a client of McGladrey & Pullen, LLP for ten years. Preliminary investigation indicates that Gross Margin, Operating Profit Margin and the Current Ratio increased significantly this year compared to last year. In this section, you are to analyze the information provided in the case and write an explanation of why the number of hours budgeted to auditing tasks in last year's audit plan should or should not be revised. Your explanation should be based on your analysis of the information provided and your knowledge of accounting and auditing. Your explanation should represent what you consider when planning an audit. The explanation should be as complete you believe necessary. You may review the available information at any time while you write your argument.

The following pages contain selected information about Mercer, Inc.. They also contain information about the industry in which the client operates and the budgeted hours from last year's audit plan. You may look at this information at any time throughout the case.

The following is a list of the information available to you in this case.

p.	5	Company Description
p.	6	Selected Information about Mercer, Inc.'s Controls
p.	7	Selected Account Balances and Financial Ratios for Mercer, Inc
p.	8	Selected Industry Financial Ratios
p.	9	Explanation of Calculation of Financial Ratios
p.	10-11	Excerpts from Discussions with Client Personnel
p.	12	Selected Information from the 1996 Mercer, Inc. Audit Plan

Following the above information, a space is provided for your explanation.

Company Description

written by a member of the Mercer, Inc. Audit Team, 1997
with information compiled from

Mercer, Inc. 1997 Annual Board of Directors Meeting

Mercer, Inc. has been a client of McGladrey & Pullen, LLP for ten years. The company was founded forty years ago by Charles M. Mercer, uncle of current Chief Executive Officer and President, John E. Mercer. Mercer, Inc. designs and manufactures high performance electronic products and systems for specialized applications in a variety of different industries.

Until five years ago Mercer, Inc. generated three quarters of its revenue from defense electronics. In 1997 more than half of revenues came from high-growth commercial electronics markets, including oil and gas, wireless telecommunications, commercial aerospace and medical electronics. John Mercer believes the company's future growth will come from the high growth technology-driven markets.

At the beginning of fiscal year 1996 the company set an important financial goal: to reach \$200 million in sales with above average profitability by the year 2000. This equates to an annual compounded growth rate of 30%. To meet this goal the company implemented four key policies. First, Mercer Inc. is promoting and investing heavily in a long-term, company-wide personnel development program called "Living and Leading". Second, the company is penetrating new commercial electronics markets by targeting and pursuing opportunities in niche markets. Third, the company is automating throughout the organization. Finally, the company continues to enter new and promising partnerships and other joint ventures to develop products and applications.

In the fiscal 1997 report to stock holders, John Mercer wrote: "The challenge before us is great. We seek an ambitious goal that requires an aggressive approach to managing." Mercer told the partner-in-charge of the audit that he believes new corporate policies are the reason behind the company's success. Mercer pointed with pride to the near 30% growth in sales revenues in 1997.

Selected Information on Mercer, Inc.

compiled from

Partner's Annual Client Evaluation Meeting

in conjunction with

The Audit Team Responsible for Mercer, Inc. Audit

Percentile Evaluations: For the first time this year, partners at your firm rated client companies using percentile estimates. Percentile estimates are averages of 57 partners' judgments within your firm. Each partner categorized Mercer, Inc. into one of ten deciles (ranging from the lowest 10% to the top 10%), after reviewing reports prepared by the audit team responsible for Mercer, Inc.'s audit in 1996. They were comparing Mercer, Inc. to the rest of their current auditing clients (Note: Higher percentiles are better than lower percentiles):

Competence of Management: (i.e. management's knowledge of GAAP and GAAS and general awareness of their industry as well as operation and control of their firm)	87th percentile
Integrity of Management (i.e. management's professionalism, objectivity, honesty and ethical behavior)	35th percentile
Internal Control Procedures Strength: (i.e. policies and procedures established to provide assurance that firm's objectives regarding processing of transactions, preservation of data, and safeguarding of assets will be achieved)	30th percentile
Overall Lucrativeness Client: (i.e. sum of projected audit, consulting and tax service fees collected less expected costs associated with performing those services, including estimated opportunity costs)	90th percentile

Selected Financial Information for Mercer, Inc

compiled by a member of Mercer, Inc. Audit Team, 1997
with information from 1996 audited financial statements
and 1997 unaudited trial balance

Income Statement Accounts	FY 1997¹ (in thousands)	FY 1996² (in thousands)
Net Sales	\$96,666	\$75,060
Cost of Sales	\$77,445	\$62,560
Selling and Administrative	\$11,380	\$8,977
Interest Expense	\$942	\$1,355
Earnings Before Tax	\$6,899	\$2,168
Income Tax Expense	\$414	\$130
Net Earnings	\$6,485	\$2,038
Balance Sheet Accounts	As of 06/30/97	As of 06/30/96
Current Assets	\$34,276	\$32,666
Current Liabilities	\$12,815	\$13,376
Long-Term Debt	\$5,101	\$10,419
Financial Ratios	FY 1997	FY 1996
Gross Margin	\$19,221	\$12,500
Gross Margin Ratio	19.88%	16.65%
Operating Profit Margin Ratio	8.11%	4.69%
Current Ratio	2.7	2.4

¹From the 1997 unaudited trial balance

²From the 1996 audited financial statements

Selected Financial Information for the Electrical Equipment Industry

compiled by a member of the Mercer, Inc. Audit Team 1997
with information from industry reports
including Moody's Industry Review

	Mercer	Industry Average	Industry Median	Current Year Range	
				Minimum	Maximum
Operating Profit Margin Ratio	8.11%	7.17%	7.72%	1.93	10.96
Current Ratio	2.67	2.16	2.25	1.51	2.73

Explanation of Calculation of Selected Financial Ratios

Gross Margin				
Net Sales - Cost of Sales				
1997	\$96,666	-	\$77,445	= \$19,221
1996	\$75,060	-	\$62,560	= \$12,500
Gross Margin Ratio				
<u>Net Sales - Cost of Sales</u>				
Net Sales				
1997	\$96,666	-	\$77,445	= 19.88%
	<u>\$96,666</u>			
1996	\$75,060	-	\$62,560	= 16.65%
	<u>\$75,060</u>			
Operating Profit Margin Ratio				
<u>Operating Profit</u>				
Net Sales				
1997	\$7,841	=	8.11%	
	<u>\$96,666</u>			
1996	\$3,523	=	4.69%	
	<u>\$75,060</u>			
Operating profit is profit before interest expense, extraordinary items and income and expense items of a non-operating nature				
Current Ratio				
<u>Current Assets</u>				
Current Liabilities				
1997	\$34,276	=	2.7	
	<u>\$12,815</u>			
1996	\$32,666	=	2.4	
	<u>\$13,376</u>			

Discussions with Client Personnel

As part of your planning work, you had several discussions with key Mercer, Inc. personnel. During these discussions you asked them about the increase in the Gross Margin, Operating Profit Margin and Current Ratio. Partial narratives from these discussions appear below.

Natalie Leonard, Assistant Controller

“Well, the big news in our department this year was our long term debt transactions. We restructured some of our long-term debt at a lower rate. We used the interest savings and additional capital generated in the business to pay off another issue.

Income is definitely going to be up this year. What an exciting year! Based on our initial calculations, it looks like our sales are way up. Paying off the long term debt decreased some of our expenses, of course. But it looks like the big increase in income is because our sales mix changed.

Our margins in telecommunications and oil and gas are much better than our margins in defense. Our margins in those industries are around 27%. Defense is only around 16%. I think medical and aerospace are somewhere around 22%. I don't have exact figures now, but I remember looking at these numbers mid-year when we were doing budgets. Of course, you can also talk to Tim Whitman, our sales manager. He'll probably know more about it.”

Patrick Hinkle, Vice President Operations

“There was a slump in semi-conductors in 96. We were a bit worried around here, but it looks like we bounced back. We streamlined our production process two years ago. We keep looking for places to automate. We keep the pressure on efficiency around here and I think we're doing a good job of it. But, we'll have to become even more efficient to keep up in this business in the future. In fact, our total overhead costs have been about the same since early 96.

The challenge now is going to be on getting up to speed on that new medical laser. I can tell you I will be happy when that is running smoothly. I'm probably worrying too much. My wife says I always worry too much. Part of the job, I tell her.”

Anthony Curtis, Head Engineer

“Did you here about our new patent on the laser? This is going to be big news in the medical industry. We just got Food and Drug Administration clearance to manufacture and market. One of our production facilities is due to start production by calendar year end. We worked on this as a joint venture. Of course, close alliance with our customers has always been a cornerstone of development and design around here.”

Tim Whitman, Sales Manager

“Up! I’m telling you, working in this industry now is every sales man’s dream come true. Sure, particular markets get saturated quickly. Too many products come into the limelight only to be replaced by newer, better, faster, and cheaper gizmos. In terms of what I’m selling, there is little stability. Today it’s satellite assemblies, tomorrow its lasers for the operating room.

That’s the key to our success around here. Young Mr. Mercer’s got the right idea. Move into the new niche. Make your own market. I work with those engineering guys all the time. We form a team with our customers. I talk to Joe at NLS, he tells me they need this gizmo. I go to Anthony, he tells me we aren’t doing that yet, but get the specs. I’m telling you, those guys in product development are wizards. They can come up with just about anything and quick too!

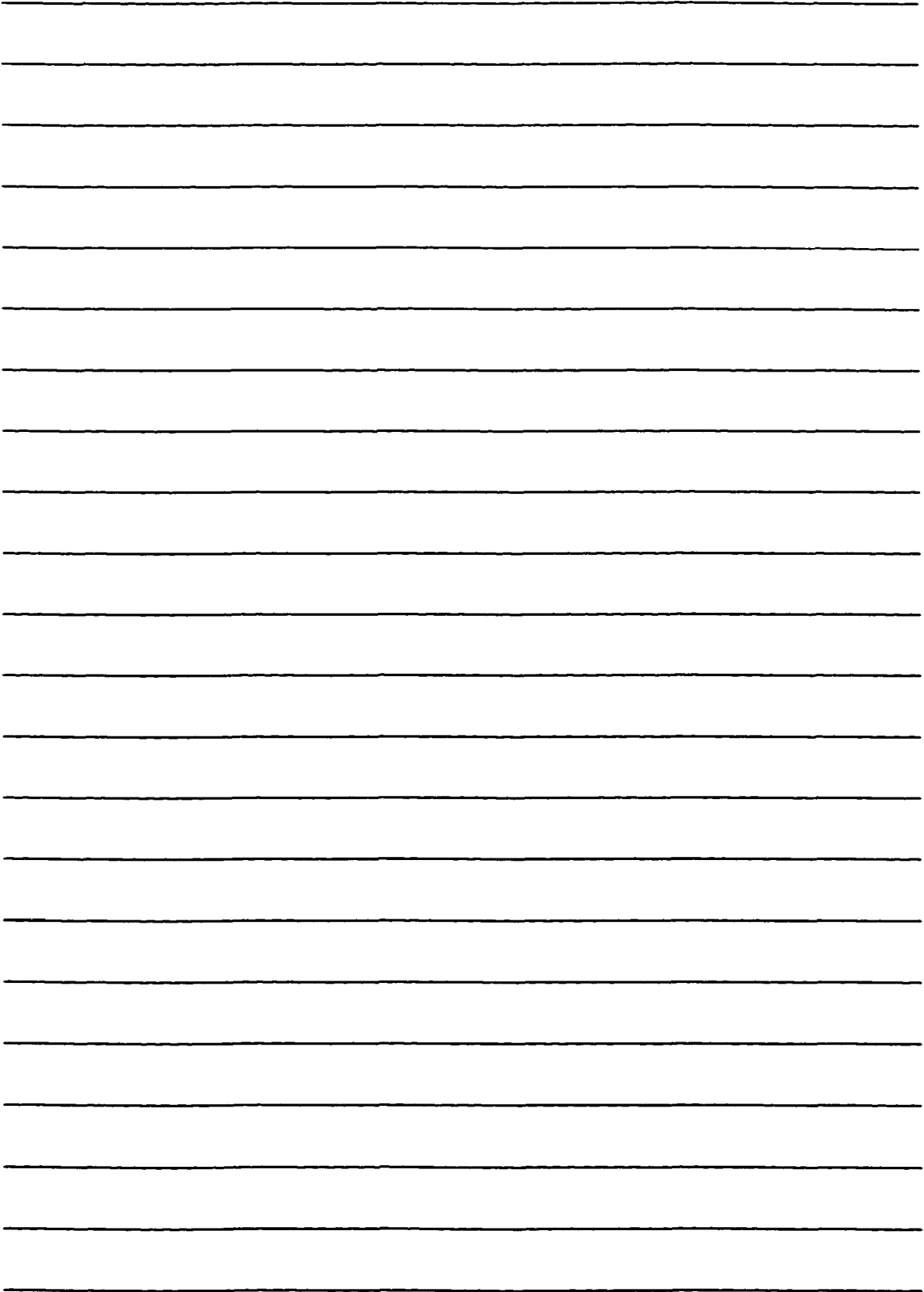
This year we formed new alliances with customers in aerospace, oil and gas and I suppose you heard about that new laser thing-a-ma-bob. These are great areas. Big growth there and our margins are better than in defense, which suits me just fine since I get a percentage of margin for my commission. We probably did around 40% of sales in oil and gas and medical this year. That has to be up from last year, but I don’t remember the figures. I could look them up for you later if you like.”

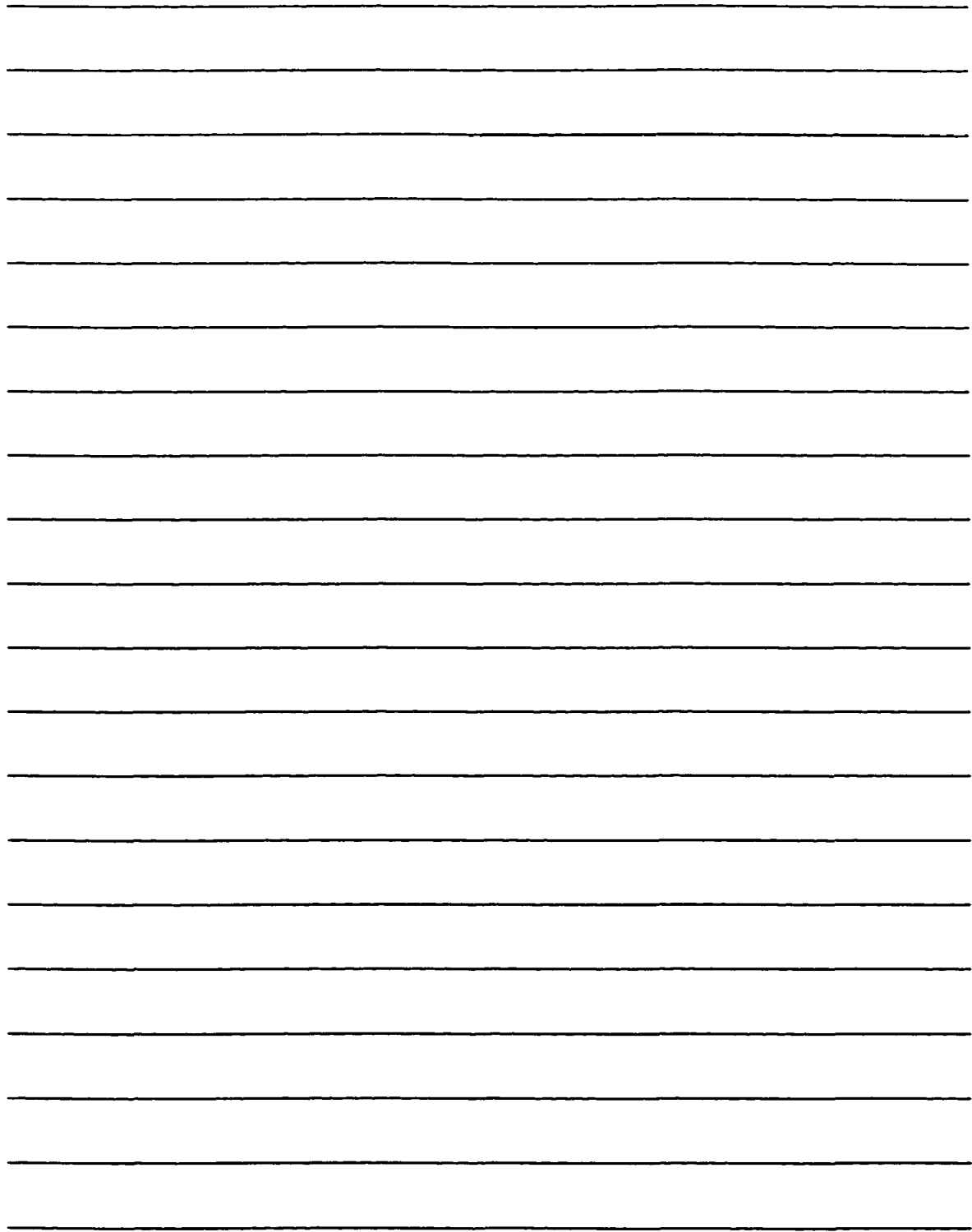
Selected Information From the 1996 Mercer, Inc. Audit Plan

Activity	Budgeted Hours
Hours budgeted to audit tasks related to the sales/revenue cycle	220
Hours budgeted to audit tasks related to current asset accounts	100
Hours budgeted to audit tasks related to current liability accounts	120
Total hours budgeted to Mercer, Inc. audit	960

Section 1

In the space provided below and on the following pages, please explain why the number of hours budgeted to auditing tasks in last year's audit plan should or should not be revised. You do not need to use all of the space provided.





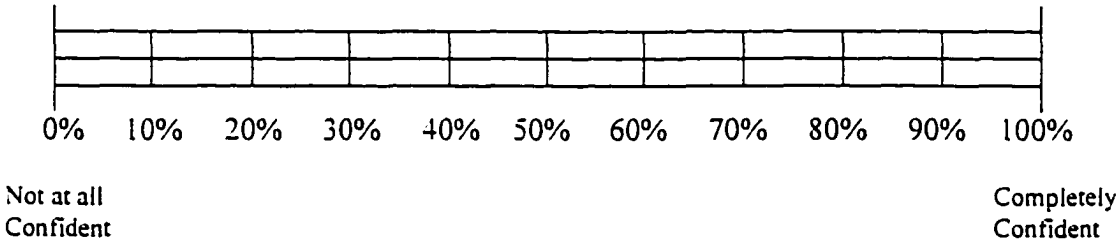
STOP!!

Before proceeding, make sure that you have explained to your satisfaction why budgeted hours from last year's audit plan should or should not be revised.

Please turn the page and continue. Thank you.

Please indicate your response to the following statement using a vertical slash on the scale provided below.

I am confident that I adequately explained why budgeted hours from last year's audit plan should or should not be revised.



Please turn the page and continue with Section 2.

Section 2

Selected information from the 1996 audit plan that was included in the case materials is provided in the table below. In the blank space on each line of the table, next to the hours from the 1996 audit plan, please write the number of hours you believe should be budgeted for these tasks in the 1997 audit plan.

Activity	Budgeted Hours	
	1996	1997
Hours budgeted to audit tasks related to the sales/revenue cycle	220	
Hours budgeted to audit tasks related to current asset accounts	100	
Hours budgeted to audit tasks related to current liability accounts	120	
Total hours budgeted to Mercer, Inc. audit <small>(note: the total hours budgeted to the Mercer, Inc. audit includes hours budgeted to the tasks described above, as well as other tasks. This number should be larger than the hours budgeted to the tasks described above)</small>	960	

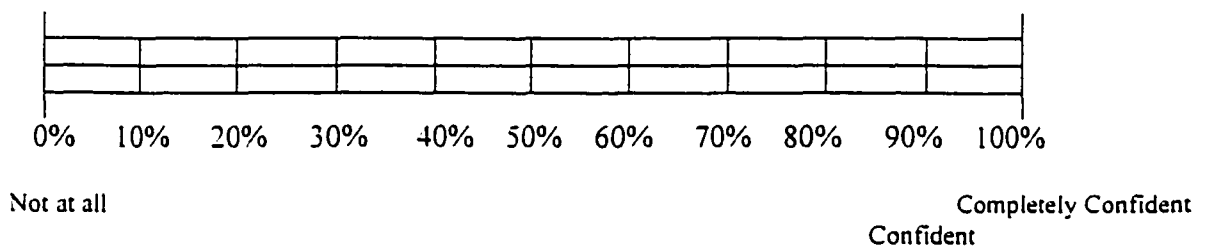
STOP!!

Before proceeding make sure that you have indicated the number of hours that should be budgeted to the 1997 Mercer, Inc. audit, to the sales/revenue cycle, the current asset accounts, the current liability accounts and in total. You should have filled in four blank spaces.

Please turn the page and continue. Thank you.

Please indicate your response to the following statement using a vertical slash on the scale provided below.

I am confident that I have chosen the correct number of budgeted hours for the 1997 Mercer, Inc. audit, the sales revenue cycle, the current asset accounts and the current liability accounts.

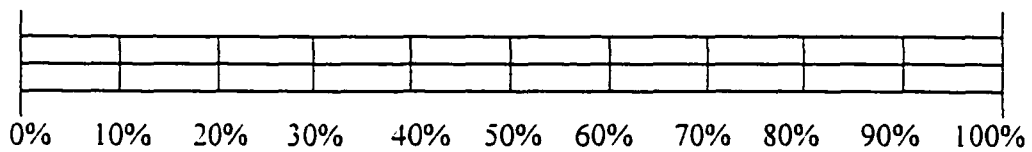


Please turn the page and continue with Section 3.

Section 3

Take a moment to consider the fluctuation in the Gross Margin. In the case, client firm personnel suggested that the increase in the Gross Margin at Mercer, Inc. was due to a change in sales mix during 1997, that is a shift to selling more products with higher gross margin rates and fewer products with lower gross margin rates.

What percent of the increase in gross margin is explained by the change in the sales mix, as described by client firm personnel? Please indicate your response using a vertical slash on the scale provided below.



Explains none
of the increase

Explains all of
the increase

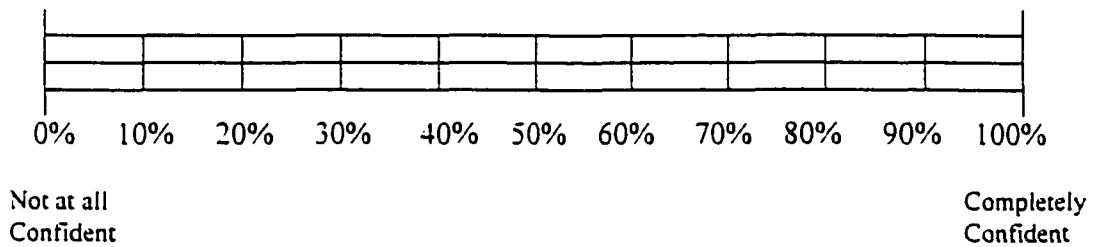
Stop!!

Before proceeding make sure that you have indicated the percent of the increase in gross margin that is explained by the change in sales mix, as described by client firm personnel.

Please turn the page and continue. Thank you.

Please indicate your response to the following statement using a vertical slash on the scale provided below.

I am confident that I correctly estimated the percent of the of the increase in gross margin that was caused by the change in sales mix, as described by client firm personnel.

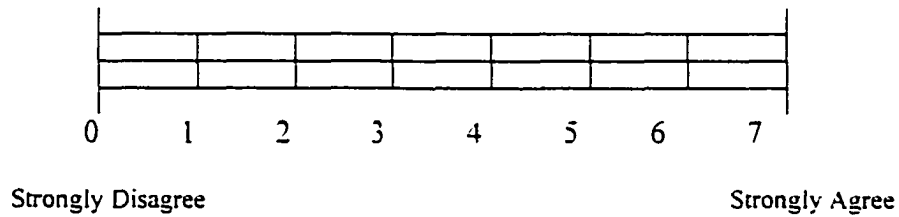


Please turn the page and continue with Section 4.

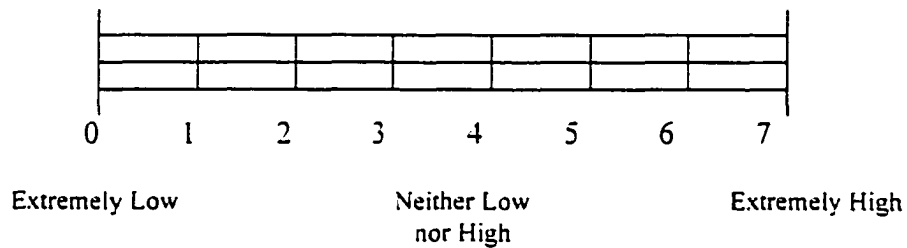
Section 4

Consider each of the following statements. Indicate your response to each statement by making a vertical slash on the scale that immediately follows the statement.

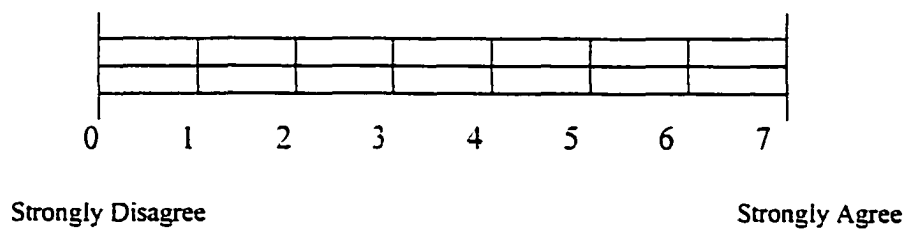
1. I expect my responses to be reviewed by audit partners.



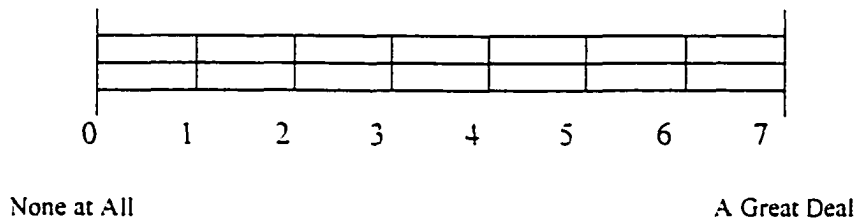
2. Control risk at Mercer, Inc is



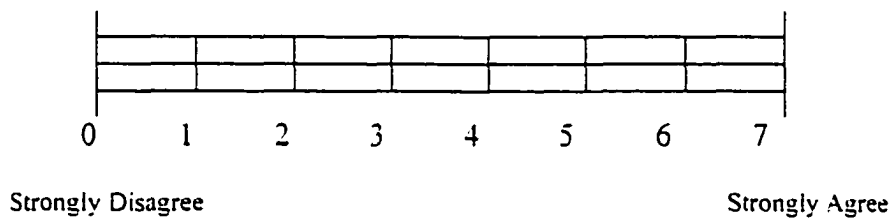
3. I felt pressure to justify my decisions.



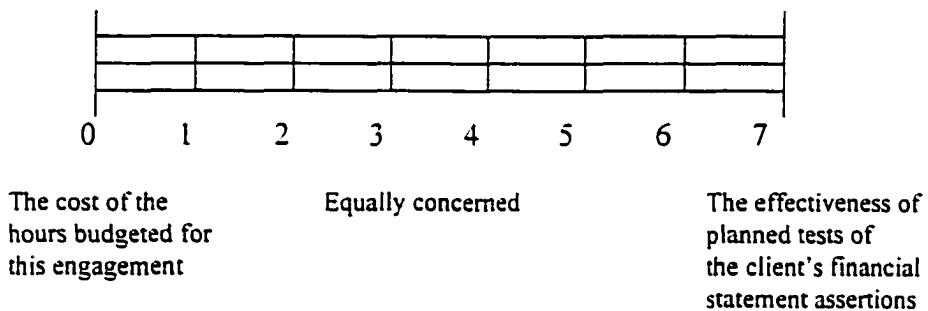
4. The amount of effort I exerted was



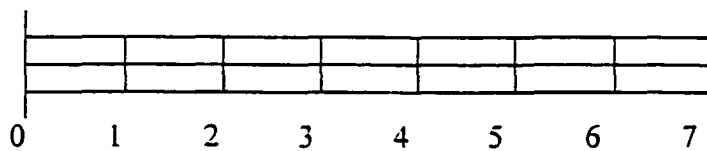
5. I felt personally responsible for the quality of my judgment.



6. I was primarily concerned with



7. I assumed that the audit partner on this engagement would primarily be concerned with

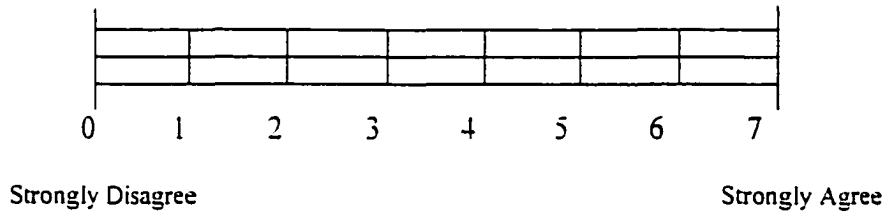


The cost of the hours budgeted for this engagement

Equally concerned

The effectiveness of our planned tests of the client's financial statement assertions

8. I felt pressure to finish the case quickly.



STOP!!

Before proceeding, make sure that you have indicated your response to all eight statements in Section 4 of this case.

Please turn the page and continue with Section 5

Section 5 Background Questionnaire

Please answer the following questions about your background.

1. What is your current position at McGladrey & Pullen, LLP? (Check the response below which is most similar to your position.)

- _____ Partner - Audit
- _____ Manager - Audit
- _____ Manager - Management Services
- _____ Senior (In-charge) - Audit
- _____ Senior (In-charge) - Management Services
- _____ Senior (In-charge) - Tax
- _____ Staff- Audit
- _____ Staff - Management Services
- _____ Staff - Tax
- _____ Other Accounting _____(specify)
- _____ Student

2. How many years and months of total AUDIT experience do you have?

_____ Years and _____ Months

3. In what industries (or industry groups) do you have audit experience and how long did you work in that industry?

Industry (please specify)	Length of Audit Experience in each Industry		
_____	_____	Years and	_____ Months
_____	_____	Years and	_____ Months
_____	_____	Years and	_____ Months
_____	_____	Years and	_____ Months
_____	_____	Years and	_____ Months

4. In the past three months, in what industries (or industry groups) do you have audit experience?

Industry (please specify)

5. Check all of the following post-secondary (after high school) degrees that you hold:

Date Received	Degree	Subject
_____	No Degree	
_____	Associate Degree	_____
_____	Bachelor Degree	_____
_____	Master Degree	_____
_____	Doctorate	_____
_____	Expected Degree (specify)	_____

STOP!!

Make sure that you have responded to all questions in Section 5 of this case.

Please turn the page.

You have completed the auditing case. Thank you for participating in this study. If you wish to receive a copy of the results from this study please fill in the address label below.

Name	
Title	
Firm	
Address	

Informed Consent

Please read the following statement and sign below.

I have read a description of the study and understand that it will take no more than 60 minutes. My participation in this study is voluntary and I may discontinue my participation at any time. My responses will be identified as mine. They will be reviewed by University of Illinois accountancy faculty and McGladrey & Pullen, LLP audit partners. I have been provided with instructions on what to do if I wish to receive a copy of the results of this study.

Signature

Date

Appendix B. Coding Instructions

Coding Instructions

Parsing (performed by Susan)

Step 1) Identifying idea units.

An idea unit is a series of words used to communicate a distinct and discrete perception, evaluation, procedure, or fact. In general, idea units will involve individual case facts, thoughts, procedures to be performed, conclusions and reasons for conclusions.

Examples:

Case fact: "sales are up 30%"; "debt has changed significantly"

Thoughts: "I believe total hours should increase"

Procedure to be performed: "Additional hours should be allocated to A/R existence testwork"

Conclusion: "*The sales/revenue cycle appear to present audit risk which, should lead to a revised allocation of audit hours.*"

Reason for conclusion: "Although sales have increased significantly, no additional hours are necessary in this area in the budget *because this increase was expected.*"

Step 2) Separating idea units.

Idea units are separated with carriage returns and indentations. All units are distinguished from the unit prior and the unit following with a carriage return. (i.e. a carriage return signifies the point where one idea unit ends and another begins). When two or more ideas units are clauses within the same sentence, of equal weight, stature or importance to the sentence, and, in effect, form a list, the units are separated with a carriage return, and are all indented an equal amount. When a single idea unit is too long to fit on one line without an automatic carriage return, the unit is enclosed in [square brackets].

Examples:

Ideas units that are of equal weight or stature are separated by carriage return.

"In addition, past due testwork should be performed in greater detail.

Audit work on debt can be decreased

due to less debt at year-end (less disclosures etc.).”

Note: this quote is comprised of two sentences. The first sentence contains only one idea unit. The second contains two idea units.

...[T]he units are separated with a carriage return, and are all indented an equal amount.

“Based on prior years experience
and curent year operating results,
I believe that total hours budgeted should increase.”

Note: this quote is comprised on one sentence with three idea units. The first two units are separated by a carriage return and are also indented to indicate that they constitute a list of reasons for the conclusion/belief the auditor expresses in the third idea unit.

When a single idea unit is too long to fit on one line without an automatic carriage return, the unit is enclosed in [square brackets].

“[The additional testwork to be performed will require an extra 100 hours to be added to the budget.]”

Coding Scheme One
Concerns with Effectiveness and Concerns with Efficiency (Cost)

Step 1) Identification.

At the top of the page write your initials in the space immediately below "C1" (for "code 1").

Step 2) Understanding Idea Units.

Each essay you are coding has been separated into idea units. You should begin by reading the description of how this was done (in the "Parsing" instructions).

Step 3) Identifying and Coding the Effectiveness-Efficiency (Cost) Theme of Idea Units

The written responses you will be reading present arguments that budgeted hours from the prior year's audit plan should be increased, decreased, stay the same, or reallocated (i.e. increased in some areas and decreased in others).

These arguments relate to one of two broader themes: a "concern for audit effectiveness" or a "concern for audit efficiency". Your job as coder is to determine whether each individual idea unit reflects a greater concern for audit effectiveness or audit efficiency. To do this you should keep in mind the following definitions: a "concern with audit effectiveness" relates to the sufficiency and competency of audit testwork; a "concern with audit efficiency" relates to keeping the cost of the audit testwork (including planning and review) down, so long as substantive plans will likely provide sufficient competent evidence.

You should classify idea units into one of the two categories above by using a "+" at the end of an idea unit to indicate a "concern for audit effectiveness" and a "-" at the end of the idea unit to indicate a "concern for audit efficiency".

You should strive to code idea units without respect to the context in which they are used whenever possible. This will not always be possible because idea units are used within the context of the argument. When necessary, you should consider the context of the argument to classify the idea unit.

Use the following list of examples to familiarize yourself with the coding scheme.

I would devote some time to cost of sales +
and selling +
and administrative expenses +

... the integrity of management seems to be questionable -
coupled with the low internal control procedures strength. +
These factors tell me that potential fraudulent reporting may be a possibility. -
As the sales mix has changed +
It would be appropriate to increase the audit hours relating to the sales revenue cycle. -
We would need to document the new products, +
alliances, -
contracts that have been developed during the year +
and ensure that the related sales -
and cost of sales have been properly accounted for. +

[note: it would be difficult to code the fourth through seventh idea units in the previous group without reading the argument that is begun in the third unit. However, clearly, when reading the context in which the units are used, the third through seventh units refer to additional audit work the writer believes must be done to maintain an appropriate level of audit effectiveness.]

An increase of 30 hours would be appropriate for the following reasons: +
A change in sales mix +
and margins. +
Due to the significant changes +
and the integrity rating given by the partners +
this extra time is warranted to ensure proper revenue recognition. +

Current assets seemed to have remained relatively stable -
thus significant testwork is not necessary. -

[note: the first idea unit is coded with a "-". The argument that is being made is that audit risk is sufficiently low to not increase testwork. The use of an audit risk (inherent or control risk) idea unit, supports not increasing or reducing hours, and thus exhibits a concern with audit effectiveness.]

[...I believe that the hours budgeted to the entire audit of 960 could be revised to a lower amount for the reasons:] -

- Company has been a client of KPMG for numerous years, -
therefore the audit should be smoothly -
1. Company ranked fairly high in management's survey. -
 2. Company has good controls in place. -

[note: the "-" is used to code the last two idea units in this segment for the same reason as stated above. Since the first idea unit clearly states hours should be reduced, a concern with audit cost is exhibited. The second and third idea units also are coded with a "-" because they are used in the context of an efficiency argument—the company has been a client for years, therefore, KPMG knows the client well and can perform the work more efficiently (i.e. at a lower cost).]

this client has been a client for 10 years -
and typically a 5%-10% budget reduction is necessary -
as most of the workpaper has been streamlined -

I would probably take 20-40 hours from current liabilities. -

Step 4) Counting

Count the number of “+’s” and “-’s” used to code each subject’s answer. Record these totals in the boxes labeled (+’s) and (-’s) respectively, at the top of the page. Then record the sum of these two numbers of “Total Units” indicated in the box at the top of the page. Note: Uncodable statements should not be included in any totals reported for this coding scheme.

Coding Scheme Two Integrative Complexity

Step 1) Understanding Integrative Complexity

Read Chapter 27: Conceptual/integrative Complexity by Peter Sudfeld, Philip E. Tetlock and Siegfried Streufert in Motivation and Personality: Handbook of Thematic Content Analysis edited by Charles P. Smith

This chapter explains the concept of integrative complexity. It also explains the rating scales used to code for integrative complexity. This chapter should be read sufficiently to understand and begin applying the coding scheme.

Step 2) Learning to Code

Read Appendix I in Motivation and Personality: Handbook of Thematic Content Analysis edited by Charles P. Smith

This appendix includes materials that have already been coded by expert coders. You should follow the instructions in the appendix to learn how to code so that your ratings are consistent with the expert ratings provided. The appendix includes some explanations from the expert coders for why particular passages were assigned a given rating.

Step 3) Obtaining Consistency between Coders

When you have completed the code training by reading the assigned chapter and appendix you should code the sample set of materials from the experiment. You will discuss your codes with the primary investigator (Susan) to work toward agreement in the coding.

Step 4) Identification

When you have completed steps 1-3 you are ready to code the remaining experimental materials. At the top of each written response, in the space immediately below the "C3" (for "code 3") write your initials.

Step 5) Coding the Experimental Materials

Read each written response and assign an integrative complexity score. Write the assigned score in the box labeled **IS** at the top of each response.

SubjNo	Total Units	(+)'s	(-)'s	C1	C2	IS
PM086						

Based on prior years experience (+)
and current year operating results, (+)
I believe that total hours budgeted should increase. (+)
Since sales are up 30% (+)
and debt has changed significantly, (+)
I believe total hours should increase (+)
by approximately 10% or 100 hours. (+)
The budgeted hours should be re-allocated as follows: (+)
sales/revenue, 300; (+)
current assets, 150; (+)
current liabilities 150;(+)
Since the sales mix has changed significantly, (+)
time should be given to gaining an understanding of (+)
the new revenue/receipts cycle (+)
and the changes in gross margin. (+)
Additional hours should be allocated to A/R existence testwork (+)
since the client has (+)
a new customer base (+)
and greater revenue. (+)
In addition, past due testwork should be performed in greater detail. (+)
Audit work on debt can be decreased (-)
due to less debt at year-end (less disclosures etc.). (-)
Confirmations of all current (+)
and prior year debt should be sent.(+)
The search for unrecorded liabilities is critical (+)
to gain assurance (+)
that changes in gross margin are not due to not recording liabilities appropriately.(+)
Interest expense should be recalculated (+)
based on debt outstanding (+)
to verify management's explanations. (+)
Joint ventures should be reviewed (+)
for disclosure requirements (+)
and possible unrecorded liabilities. (+)
[The additional testwork to be performed will require an extra 100 hours to be added to the budget.] (+)

Note that in the middle of the essay, which is obviously, primarily, concerned with audit effectiveness, two idea units are labeled with a (-)!!!

VITA

Susan Marie Mertzlufft
405 W. Park # 7
Urbana, Illinois 61801
(217) 367-2405

Education

PhD in Accountancy, University of Illinois, expected May 2000
Bachelor of Arts in Anthropology, Grinnell College 1986

Educational Honors

University Alumni Fellowship Recipient, University of Illinois 1993-1997
Kansas State Society of CPA's Scholarship 1991

Teaching Experience

Teaching

Instructor—University of Illinois Champaign-Urbana, Illinois. 1997-1998, 1999-2000. Accounting control systems. Responsible for developing course, teaching, and supervising grading.

Discussion Leader and Lecturer, VIIPS and VIBES Program—University of Illinois Champaign-Urbana, Illinois 1996-1997. Lectured large groups and led small group discussions in programs designed for international students entering MBA and other graduate business programs

Instructor—University of Illinois Champaign-Urbana, Illinois. 1993-1996; Responsible for designing, teaching, and grading intermediate financial accounting sequence.

Grading

Teaching Assistant—University of Illinois 1998-1999. Auditing. Responsible for grading.

Teaching Assistant—Wichita State University Wichita, Kansas. 1991-1992. Advanced financial accounting and master's level financial accounting theory course.

Teaching Awards and Evaluations

University of Illinois Panhellenic Teaching Award 1995
Incomplete List of Instructors Rated Excellent 1994
Summer 1999 4.5/5
Fall 1999 3.3/5

Research Experience

Research Assistant--University of Illinois Champaign-Urbana, Illinois. 1995-1996. Performed data analysis, designed and coordinated experimental research projects, co-authored research grant proposal "Task Contingent Preferences for Information" with Associate Professor Dan N. Stone. Proposal funded by University of Illinois Research Board.

Research Projects

"The Effects of Audit Review on Auditors' Justifications and Judgments"
Dissertation.

Accounting Controls "From the Inside": Shirley Jackson's "My Life with R.H. Macy" with Dan N. Stone and Adel Ibrahim, under review, AAA meetings

Professional Experience

Assistant Director, VIBES Program--University of Illinois Champaign-Urbana, Illinois 1998. Scheduled lecturers and small group discussion leaders in program for professional international students entering graduate business programs.

Internal Auditor--Wichita State University 1990. Performed compliance, operational and financial audits. Documented and analyzed university payables systems.

Bookkeeper--Chromatech Corporation Wichita, Kansas. 1987-1990.

Professional Honors

CPA, State of Kansas

Professional Association Membership

American Accounting Association
Auditing Section, American Accounting Association

Member Beta Alpha Psi 1990-1991

Professional Association Service

Session Leader, Midwest Section Meeting, American Accounting Association,
April 2000

Interests

Teaching

Auditing, Systems, Financial

Research

Auditor judgment and decision making. The effects of control and motivation.
Risk assessment.

Other

Ballroom dancing. Cooking. Football. Sewing. Crafts. Reading.