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**Effects of expectation and prior involvement on memory  
for audit evidence and judgment: The moderating role of  
accountability**

**Tan, Hun-Tong, Ph.D.**

**The University of Michigan, 1992**

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**EFFECTS OF EXPECTATION AND PRIOR INVOLVEMENT ON  
MEMORY FOR AUDIT EVIDENCE AND JUDGMENT:  
THE MODERATING ROLE OF ACCOUNTABILITY**

by

**Hun-Tong Tan**

A dissertation submitted in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
(Business Administration)  
in The University of Michigan  
1992

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*"... let us light the torch of our awareness and learn again how to drink tea, eat, wash clothes, walk, sit, drive, and work in awareness. We do not have to be swept along by circumstances. We are not just a leaf or a log in a rushing river. With awareness, each of our daily acts takes on a new meaning, and we discover that we are more than machines, that our activities are not just mindless repetitions. We find that life is a miracle, the universe is a miracle, and we too are a miracle."*

by Thich Nhat Hanh,  
in *The Sun My Heart* (1988)

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In loving memory of Madam Fong Chee Hoe.

## ACKNOWLEDGMENTS

My committee members have given me their generous assistance, guidance, and support in the course of this dissertation. For these and much more, I am most grateful. In particular, I am indebted to Robert Libby. He has devoted a significant amount of time to the thesis, to my education, and to my intellectual development as a researcher. Bob has inspired and challenged me to strive for excellence. He represents a combination of excellent scholarship and deep personal responsibility as a teacher. I thank him for being a great teacher and mentor.

Besides guiding me in my dissertation, the other members of my committee have helped me in specific ways: Paul Danos for his support throughout my doctoral education, and for his concern for me as a student; Susan Heckler for her help and encouragement during the crucial initial stages of the dissertation; Marlys Lipe for being a constant source of support and advice, and for reading numerous drafts of the thesis during its formative stages; Frank Yates for first sparking my interest in psychology, and for setting a personal example as a teacher and a researcher.

I also thank the following people for their helpful comments on this dissertation: Joan Luft, Melvin Manis, Steve Salterio, Ed Smith, Keith Smith, Dave Wright, as well as students and faculty in the accounting department at the University of Michigan. I am grateful to Steve Salterio for his assistance in coding the data.

I thank the Nanyang Technological University, the Thomas William Leabo Foundation, and the Paton Accounting Center for their financial support. I would also like to thank Coopers & Lybrand and KPMG Peat Marwick for providing the subjects in the

experiments. Jean Wyer and Toni Ricardi of Coopers & Lybrand have been especially helpful.

My family and friends have been very supportive during this process. In particular, my nanny, Fong Chee Hoe, had been extremely encouraging, despite her deteriorating health. Her death during the course of the doctoral program has been a great loss to me. The love that she has so unconditionally given me is something that I will not be able to repay.

I have been fortunate to be associated with a great group of classmates and fellow Ph.D. students. I have learned much from the faculty members at the University of Michigan. In particular, Rick Bagozzi has a profound impact on my education. I thank him for taking a personal interest in my progress as a researcher, and for being the person he is - genuine and sincere.

To all these friends, I thank them for everything.

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## CHAPTER I

### INTRODUCTION

This dissertation investigates the effects on audit judgment of three salient institutional features of the audit environment: expectations based on prior year's audit judgments, prior involvement with the audit, and accountability induced by review. The first two features result from the prevalence of repeat audit engagements in the private sector and the tendency for individuals to be assigned repeatedly to these engagements. The third feature recognizes that the principal control device employed in auditing is the review process. However, unlike prior studies of review processes, this study focuses on the preventative effect of the threat of review on the reviewee's initial judgments. These three attributes, which among others distinguish audit judgments from many other fields of applied decision research, interact in their effect on audit judgment in a manner such that the prospect of review offsets much of the effects of prior expectations and prior involvement [see relevant discussions by Gibbins and Emby 1984; Ashton et al. 1989; Libby 1989].

Specifically, this dissertation examines the following questions: [1] Do prior expectations affect the auditor's decision-making process? [2] Does prior audit involvement moderate the effect of prior expectations? and [3] Does awareness of a potential review attenuate the effects of prior audit involvement? Two laboratory experiments were conducted to investigate the research questions. A total of two hundred and fifteen audit seniors and audit managers participated in the experiments. Experiment 1 was designed to examine the effects of prior expectations and the moderating role of prior audit involvement. Results indicated that auditors who were involved in making the prior year's audit judgment exhibited some degree of commitment to their prior decisions. Results

showed that with positive expectations, these auditors paid more attention to the current year's audit evidence that was consistent with their prior judgment, compared to auditors who took over the current year's audit from another auditor. The current year's judgments were not significantly different between the two groups of auditors, though there was some evidence that self-generating a prior year's judgment led to smaller deviations from the prior year's judgments. Experiment 2 was designed to investigate the effect of accountability on an auditor's commitment to a prior year's judgment. The experiment provided evidence that when auditors were aware of a potential review by personnel from the executive office, commitment associated with prior audit involvement was reduced.

The experiments were conducted in the context of a financial viability assessment due to its ambiguous nature and the fact that prior research suggests that expectations play their greatest role in ambiguous judgment tasks [Herr et al. 1983]. The importance of this task has also been emphasized by the issuance of SAS 59, which requires the evaluation of financial viability as part of the contents of the audit report. Such a task has been used to test a variety of issues such as the confirmation bias exhibited by auditors in hypothesis testing [Kida 1984], audit expertise [Choo and Trotman 1991], and the review process [Libby and Trotman 1991]. It is hoped that results from this study can be generalized to other contexts with similar characteristics.

The rest of the dissertation is organized as follows. Chapter II describes the three research questions, while Chapter III develops related hypotheses based on prior research. Details of Experiment 1 and Experiment 2 are contained in Chapter IV and Chapter V respectively. Chapter VI contains some concluding remarks and directions for future research.

## CHAPTER II

### ACCOUNTING ISSUES

#### **Prior year's working papers**

Repeat audit engagements are prevalent in public accounting practice. As a result, prior year's working papers are normally available to current members of the audit team. According to AU Section 339.02, working papers document work done by the auditors in the course of the audit, and assist in the conduct and supervision of the audit engagement. Working papers keep a record of procedures applied, tests performed, information obtained, and conclusions reached. Working papers also serve as the primary source of reference for future audits. Arens and Loebbecke [1988, 176] argue that prior year's working papers help in planning and coordinating subsequent audits. Hylas and Ashton [1982] provided evidence that prior year's working papers aid in predicting current year's audit adjustments.

Though prior year's working papers provide an indication of the difficulties faced in previous years, over-reliance may also be a source of difficulty [Mautz 1964]. Loebbecke [1974, 73] maintains that "the first examination for a new client is the most objective one. In subsequent examinations, however, even the best auditor is biased by the preconceptions formed by preceding efforts and findings." Libby [1981] cautioned that reliance on prior year's working papers may result in inadequate adjustments when there are changes in the audit environment. Auditors have been found to be subject to the anchoring and adjustment heuristic [Joyce and Biddle 1981; Mock and Turner 1981]. Wright [1988] examined the issue of whether the use of prior year's working papers could

result in an "anchoring and adjustment" effect in audit judgments. He found that reference to prior year's working papers seemed to encourage the use of inefficient or unnecessary procedures used in previous years. However, there was little evidence to suggest a large anchoring effect.

### **Involvement in prior year's judgments**

On repeat audit engagements, prior year's working papers have often been prepared by current members of the audit team. The extent of repeat audit engagements and the reassignment of the prior year's team members presumably indicates efficiency and/or effectiveness gains from greater familiarity with the client's system and environment. However, concerns have been raised that prior involvement with a client may heighten the tendency to adopt a particular perspective congruent with findings in previous years, and therefore results in lesser relative attention to audit evidence inconsistent with that perspective. In addition, there may be a predisposition against deviating from conclusions recorded in prior year's working papers. This concern may partly explain the mandatory periodic rotation of audit partners in charge of SEC clients [AICPA Report of Progress 1978, 9].

Although involvement with the prior year's audit can vary by degree, for purposes of simplification, two categories are considered here: [1] where the auditor has prior involvement with the client and [2] where the auditor has no prior involvement. Auditors with prior audit involvement are defined as those who generated audit conclusions in previous years. Auditors without prior involvement are defined as those who had no first hand contact with the prior year's audit. Auditors with no prior involvement are further subdivided into two groups: those with access to prior year's working papers and those without access. To the extent that relevant information has been recorded in the workpapers, auditors with no prior involvement but with access to prior year's working

papers possess the same information as those with prior involvement in the audit. The key difference lies in that the evaluations of the former are self-generated, while those of the latter are inherited. The group of auditors without access to prior year's working papers is representative of those who perform the audit of a new client. For this category, the audit is conducted without reference to work done in previous years, whether through direct experience or through evidence documented in the working papers.

The issue examined here is the extent to which prior involvement affects the impact of prior expectations. It may be that auditors who were involved in prior audits tend to adopt a particular perspective or become committed to judgments made earlier in order to achieve consistency. This may result in poorer recall of such facts if less attention is paid to current information which is inconsistent with that perspective.

### **Awareness of review**

As mentioned above, audit practice suggests that staff rotation may be one way to address concerns with the effects of prior involvement. Another practice commonly adopted by public accounting firms is the audit review. Researchers [Solomon 1987; Akresh et al. 1989] and professional bodies [AICPA Section 230.02] have attested to the importance of the audit review process. Generally, audit reviews are performed by members in the audit team. In addition, the SEC Practice Section requires concurrent partner reviews, as well as peer reviews at least once every three years [AICPA Report of Progress 1978].

While past research has emphasized the role of the reviewer in the review process [Trotman 1985; Libby and Trotman 1991], few researchers have focused on the effect of the audit review on the reviewee. This study identifies another source of gain from the review process: awareness of a review may cause the reviewee to be more vigilant in information processing. This argument is consistent with the literature in social

psychology on accountability<sup>1</sup>, where it has been found that when subjects were made answerable for their decisions, they were more effortful in their information processing [e.g., see Tetlock 1983, 1985, 1987]. Extending this line of reasoning, it is conceivable that if an audit review is made salient to the auditor who was involved in the prior year's audit, commitment may be reduced. This study investigates whether awareness of an audit review would ameliorate the effects of prior involvement.

The next chapter develops hypotheses concerning the effects of: (1) expectations based on prior workpapers, (2) prior involvement, and (3) awareness of review on attention to information, as evidenced through recall and audit judgment.

---

<sup>1</sup> Accountability has been invariably described as the "pressure to justify one's opinion to others" [Tetlock 1983, 74]. However, this description does not capture a distinctive characteristic of the review process: review by a superior with greater experience and authority. Thus, in the rest of the paper, accountability as used in an auditing context refers to the awareness of a review.

## CHAPTER III

### HYPOTHESIS DEVELOPMENT

This chapter develops the hypotheses related to expectations, prior involvement, and review awareness. For each construct, the recall hypothesis is first discussed, followed by the judgment hypothesis.

#### **Expectation**

##### *Recall*

While some research has been done on the effects of prior year's working papers on the audit judgment, few studies have examined their effects on memory. Hogarth [1987, 134-135] argues that memory is reconstructive and is affected by expectations. Justification for using recall as a dependent measure is threefold. First, memory for audit evidence is a key input to the audit decision process. Although working papers are available for reference, auditors have been shown to be overconfident in their recognition of facts from working papers [Moeckel and Plumlee 1989]. The large volume of facts that auditors are exposed to in the course of an audit, and the length of time over which these facts are acquired, necessitate reliance on memory in the performance of auditing assignments. Second, recall for different types of evidence is seen as a proxy for selective attention [Lynch and Srull 1982]. Differential attention paid to audit evidence may affect the audit decision process and the auditor's search for other evidence that has bearing on the audit decision. Third, memory measures are used to identify the cognitive process by which the factors such as expectation, prior involvement, and accountability operate.



Specifically, by examining the relation between recall and judgment, it is possible to examine the process producing the judgment effects.

There are various models of memory that describe the process by which prior expectations affect recall and judgment [e.g., Hastie 1984; Graesser and Nakamura 1982]. The most comprehensive model is the associative network model of impression formation by Srull and Wyer [1989]. In their model, during the encoding process, associative links are established among facts, and with a superordinate expectation node. All consistent, inconsistent and irrelevant facts are organized around the prior expectation. Consistent facts have stronger direct associations with the prior expectation as compared to other inconsistent or irrelevant facts. However, there are no direct links between any two consistent facts. On the other hand, even though inconsistent facts have weaker direct associations with the prior expectation, associations are made with both consistent and other inconsistent facts, and with the central expectation. This occurs through the process of inconsistency resolution in which attempts are made to reconcile inconsistent facts with the prior expectation and all other facts, thereby establishing associative links. A final process which has the lowest priority among the cognitive processes in Srull and Wyer's [1989] model is bolstering, whereby features that are consistent with the expectation are reviewed to confirm their validity. The relative number of consistent and inconsistent facts recalled would be a function of the strength of the inconsistency resolution activity compared to the bolstering activity. According to the model by Srull and Wyer [1989], the inconsistency resolution process generally has priority over the bolstering process during information processing. As a result, recall of inconsistent facts is expected to exceed that of consistent facts.

The claim in this paper is that prior year's working papers establish expectations for the current year's audit. The literature discussed above predicts that in general, the current year's audit evidence which is inconsistent with these expectations will be better recalled than consistent evidence. It should be noted that positive and negative facts are

facts that are consistent and inconsistent with a positive expectation respectively, and vice versa with a negative expectation. This suggests that the number of positive facts recalled minus the number of negative facts recalled (net-recall) will be smaller with positive expectation than with negative expectation.

H1: Auditors with positive prior year's judgments will have a lower net-recall than those with negative prior year's judgments.

### *Judgment*

Given a prior evaluation, the psychological literature has documented both contrast and assimilation effects on subsequent judgments. Assimilation effects are manifested when evaluations are aligned with an expectation, while contrast effects are said to occur where judgments are made in a direction away from the expectation [Sherif and Hovland 1961]. Studies in the social psychology literature have identified factors determining the dominance of assimilation or contrast effects. These include the discrepancy between the expectation and the stimuli [Sherif and Hovland 1961], and the degree of ambiguity in the task [Herr et al. 1983]. Given prior expectations, the general finding with moderate discrepancies and ambiguous stimuli has been an assimilation effect [Lord et al. 1979; Herr et al. 1983].

In the present study, the assessment of a firm's financial viability is likely to be a complex and ambiguous task. Furthermore, in an auditing context, it is generally the case that discrepancies between prior expectations formed and the current findings for a particular firm are moderate. The previous year's conclusions are generally good predictors of findings in the current period [Kreutzfeldt and Wallace 1986]. In addition, credibility of the source of an expectation has been suggested to facilitate assimilation [Smither et al. 1988]. The prior year's conclusions are a reliable source for forming expectations, since they would have been subject to the entire cycle of the audit review

process. To a certain extent, these conclusions would have been verified by events subsequent to the conclusions. Thus, an assimilation effect is predicted with auditors' judgments of a firm's financial viability; that is, auditors with prior year's audit conclusions would make judgments aligned with that of the previous year. The hypothesis is expressed below:

H2: Auditors with positive prior year's judgments will make more positive current year's judgments than those with negative prior year's judgments.

### **Prior involvement**

Existing audit practice suggests that auditors may become committed to judgments they made in the prior year's audit. Commitment has been defined as "the binding of the individual to behavioral acts" [Kiesler 1971, 30]. Four contributors to commitment have been identified by Salancik [1977], namely, explicitness, publicity, irrevocability, and volition. In an audit context, it may be that these factors serve to commit an auditor to a self-generated prior judgment documented in the working papers. These are discussed below:

*Explicitness.* Explicitness is related to the deniability of the act, and varies with the degree of observability and unequivocality. Actions which are highly observable and unequivocal serve to increase commitment. In the domain of public accounting, the practice of signing off each working paper after its completion ensures explicit identification of a judgment with the preparer of the working paper. In addition, the act of signing off directs responsibility to the preparer of the working paper. Staw [1982] argues that commitment is strengthened where one assumes responsibility for consequences. However, this has been a neglected factor in the commitment literature [Staw 1982, 106].

*Publicity.* Two essential determinants of the publicity of an act are the extent to which others are aware of the action, and the importance of the audience to the individual [Salancik 1977]. In a related vein, the literature on impression management also suggests that the more public one's behavior, the more motivated one is to impression-manage. Besides, the more contact and interaction one expects with other people, the greater will be the attempt to control other people's perception of oneself [Gergen and Wishnov 1965]. In an audit context, prior year's working papers are readily available and accessible to members of the current audit team. Since the opinions of the other members of the current audit team may matter to the auditor who self-generated the prior year's judgment, he/ she may be bound to the prior year's judgments documented in the working papers.

*Irrevocability.* The extent to which an act is revocable or reversible affects commitment. Generally, irrevocable acts strengthen the degree of commitment. Since prior year's working papers are generally not changed, judgments documented therein can be considered irrevocable.

*Volition.* Volition refers to the perceived freedom in performing a task. It is related to the degree of choice, external demands for the action, presence of external basis for action, and the presence of other contributors to action [Salancik 1977]. Volition is said to be present where an individual perceives that an action is freely made without coercion or extraneous constraints playing key roles. In other words, the smaller the pressure to act in a particular manner, the stronger will be the commitment. In addition, Salancik [1977] argues that more responsibility is felt when one solely determines outcomes. Thus, where a prior audit judgment was self-generated, the auditor had the autonomy and choice in determining the appropriate audit plan and judgment. Consequently, volition is present in the act of self-generating a judgment.

The above discussion therefore proposes that prior year's judgments documented in working papers are generally explicit, public, irrevocable, and made volitionally. As a

result, an auditor who performs a repeat audit engagement may become committed to his/her judgment documented in the prior year's working papers.

Not all four contributors are necessary to induce commitment; one or more of the factors can be sufficient to increase the degree of commitment [Kiesler 1971, 33]. This dissertation focuses on the volition aspect because prior research has demonstrated the effectiveness of volition in creating commitment [e.g., see Kiesler 1971; Staw 1976; Staw and Fox 1977]. Wicklund and Brehm [1976] argues that foreseeability of negative consequences may increase commitment. In Staw [1976], negative consequences were manipulated by providing subjects with information that contradicted their initial decisions. Following Staw [1976], negative consequences may be present in this study to the extent that auditors made initial financial viability judgments that were inconsistent with new information about the firm's actual financial position.

Much of the literature [e.g., Kiesler 1971; Salancik 1977] has emphasized the effect of commitment on behaviors and attitudes. The effect of commitment on cognition has, to date, received little research attention. The position taken in this study is that commitment has implications for behavior, beliefs, and cognition. In particular, the effects of self-generating versus inheriting a prior year's judgment are hypothesized to have effects on [1] recall of current year's evidence and [2] the current year's judgment, as described below. No hypotheses are posited for auditors who perform an audit without reference to the prior year's working papers (the New-audit group) as the existing literature provides little guidance in predicting the pattern of responses by this group. Nevertheless, the New-audit group is included in the experiment for completeness. The New-audit group represents another form of prior audit involvement, where the auditor has no access to the prior year's working papers. The unavailability of prior year's working papers may occur for a variety of reasons. The client may be audited for the first time, and therefore, there are no prior audit workpapers. Alternatively, it could be that the client has switched auditors, and prior year's working papers are unavailable.

*Recall*

According to the model by Srull and Wyer [1989], the inconsistency resolution activity generally dominates the bolstering activity, leading to a recall advantage for inconsistent facts. However, given that an initial belief has been formed, a decision-maker who receives new information that is inconsistent with the original belief may attempt to reconcile the new information by counterarguing or identifying reasons to support the original belief [Srull and Wyer 1989, 62]. In this situation, the bolstering activity may be strengthened, leading to increased ease in recalling consistent information. Whether a recall advantage of consistent information over inconsistent information results depends on the relative strength of the bolstering activity compared to the inconsistency resolution activity [Srull and Wyer 1989]. In the present study, to the extent that self-generating an initial judgment results in a psychological commitment, the strength of the bolstering activity may be increased, and the strength of the inconsistency resolution activity may be reduced. Conversely, subjects who inherited a prior year's judgment may be less committed to the initial judgment made by someone else, and hence, the bolstering activity may be weak or non-existent. As a result, the net strength of the inconsistency resolution activity should be stronger for subjects who inherited a prior year's judgment compared to those who self-generated a prior year's judgment. No prediction is made about whether subjects who self-generated a prior judgment will recall a greater number of consistent facts compared to inconsistent facts. This is contingent on whether the bolstering activity actually overwhelms the default inconsistency resolution activity. Rather, it is predicted that self-generating a prior judgment may lead to the recall of relatively more consistent facts than inconsistent facts, compared to inheriting a prior year's judgment. There is some direct evidence for the above argument [Salancik and Kiesler 1971]. The following hypothesis follows from the above discussion:

H3: Auditors who self-generated prior year's judgments will recall relatively more consistent facts than inconsistent facts when compared to those who inherited prior year's judgments.

### *Judgment*

The degree of involvement and attitude change has been found to be inversely related [Sherif et al. 1973]. There is also evidence that individuals who expect to justify their decisions are motivated to demonstrate consistency in their judgments [Hagafors and Brehmer 1983]. Staw [1976] described a phenomenon termed the escalation effect, whereby making an initial judgment results in a psychological commitment in that future decisions are biased towards confirming the decision, or committing more resources to it. He conducted an experiment which showed that subjects who made an initial resource allocation decision for a division consequently allocated more resources to the same division, compared to those who did not make the initial decision. Staw [1981] subsequently presented a model of the commitment process to a course of action, where factors such as the desire to justify a past decision and meet norms for consistency are components. In an auditing context, Church [1991] found similar results using a paradigm similar to Staw's [1976]. In a hypothesis generation task, he found that auditors who were strongly committed to an initial hypothesis as to whether an error was due to the sales cycle or the purchasing cycle subsequently allocated more time to that particular cycle compared to subjects who were less committed. Plumlee [1985] demonstrated that internal auditors who reviewed a system they designed were more likely to under-estimate the seriousness of malfunctions in the system.

Other studies demonstrated that decision-makers are generally committed to their prior decisions. Nisbett and Ross [1980] reviewed studies that showed that decision-makers generally bias facts to be consistent with their prior beliefs. Objective facts that disconfirm one's beliefs would be discredited. Furthermore, in the presence of ambiguity,

an individual with prior beliefs would focus on data that supported his or her position [Gilovich 1983; Lord et al. 1979]. In the area of performance evaluation, Murphy et al. [1985] found that evaluators felt committed to a previous evaluation of a person's performance. Bazerman et al. [1982] reported assimilation effects in making performance ratings of employees, even when the evaluator was aware of changes in the employees' performance.

Commitment may result from a desire to preserve self-esteem and to meet institutional emphases on consistency as a measure of performance. Staw and Ross [1980] have provided some experimental evidence that administrators exhibiting consistent behavior are rated more favorably than those exhibiting inconsistent behavior. In addition, they showed that the effect of consistent behavior on ratings was greatest among administrators. Business school students had the next strongest effect, while psychology students had the weakest effect. Studies in the area of politics have found that consistency is perceived as an important element of leadership, while indecisiveness is viewed as a negative feature [Gallup 1978].

The escalation effect can also be explained in economic terms.<sup>2</sup> Kanodia et al. [1989] present a model of the escalation phenomenon in terms of the reputation effect. In their model, actions of the decision-maker reveal information to observers. Commitment to a previous decision hides information on the capabilities of the decision-maker. When a decision-maker changes a prior decision or switches projects, this may reveal private information about his/ her lack of good judgment. This may be damaging to his/ her reputation and adversely affect his/ her future income in the labor market. As a result, escalation occurs.

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<sup>2</sup> While it could be that psychological and economic theories may independently explain the judgmental implications of prior involvement, no attempt is made to distinguish them. It may well be that in the present context, both factors play important roles.



In the auditing context, changes in opinions over time may be seen to reflect inadequate performance in the past. Since these opinions are clearly documented and easily accessible in the working papers, any opinion change is likely to be noticed and requires justification. Thus, self-generation of a judgment in prior years may lead to a greater tendency to make subsequent decisions consistent with the prior judgment. This leads to Hypothesis 4:

H4: Auditors who self-generated prior year's judgments will make current year's judgments that are more consistent with the prior year's judgments, as compared to those who inherited prior year's judgments.

#### **Awareness of review**

A key feature of the audit environment is the use of the review process as a control device [Trotman 1985; Libby and Trotman 1991]. While existing research has predominantly emphasized the role of the reviewer in the review process, it is conceivable that because the audit review process is an *interactive* process between the reviewer and the reviewee, *awareness* of the fact that the working papers may be reviewed may affect the audit process. Awareness of an actual audit review may raise the stakes involved, since the review process also serves as an input to the performance evaluation process. Thus, inasmuch as the review process affects the quality of the audit by the direct input of the reviewer, it may be that the potential of a review may indirectly affect the audit process. In a sense, awareness of a review may also be viewed as a form of pressure in an audit setting [Ashton 1990] or a form of intrinsic incentive [Libby and Lipe 1992].

The reviewee who is aware of a potential review may be motivated to seek the approval of the reviewer [e.g., Tetlock 1985]. Curley et al. [1986] argued that when the decision-maker is responsible to superiors or peers, decisions are made which are

perceived to be most justifiable to others who may evaluate the decision. The question of what is justifiable in a particular situation is not clear. Two possible effects may arise from the awareness of a potential review of one's work. On the one hand, the reviewee may be cognizant that the reviewer may notice evidence incongruent with his/her decision. Consistent with the literature on accountability, the vigilance of the reviewee may be raised and he / she may become more effortful in information processing [e.g., Tetlock 1983, 1985, 1987]. Research by Tetlock [1983, 1987] showed that where subjects were held accountable for their decisions, they were motivated to consider both sides of an issue in order to hedge against possible criticisms in the future. Johnson and Kaplan [1990] found that auditors who were accountable had greater consensus and self-insight over those who were not accountable. In an audit context, knowledge that the propriety of the decision will be assessed by an independent reviewer with access to the supporting evidence may result in more attention to evidence that is inconsistent with the prior year's judgment, and relatively less attention to consistent evidence. Current year's judgments made by the reviewee may also be more moderate, given that extreme judgments generally require stronger justification. On the other hand, auditors aware of a review may be motivated to present an image of consistency to the reviewer [Abelson 1983], and to establish legitimate grounds for past decisions made [Salancik 1977]. Auditors who were involved in making a prior year's judgment may be cognizant that the reviewer will be examining their judgments made across time. They may therefore be motivated to appear consistent. In this case, auditors will tend to pay more attention to consistent evidence than inconsistent evidence. Furthermore, in the presence of a review, their judgments may be more aligned with the prior year's judgments than if they had not been aware of a review.

The above discussion therefore presents two alternative outcomes that are possible when the audit review is made salient. On the one hand, evidence from the accountability literature suggests that commitment may be attenuated in the face of an audit review. On

the other hand, literature on commitment suggests that knowledge of a potential review may increase an auditor's motivation to present an image of consistency. Hypothesis 5 and Hypothesis 6 are proposed to test the former argument.

H5: When a review is made salient, auditors who self-generated a prior year's judgment will recall relatively more inconsistent than consistent facts compared to auditors who are not aware of a review.

H6: When a review is made salient, auditors who self-generated a prior year's judgment will make current year's judgments that are less extreme than auditors who are not aware of a review.

The purpose of Experiment 1 was to test Hypotheses 1 to 4. Later on, in Experiment 2, the manipulation for the Self-generation group was changed to determine whether anticipation of a review would constrain the effects of commitment.

## CHAPTER IV

### EXPERIMENT 1

#### Overview

Figure 1 presents a summary of the experimental procedure. Subjects were randomly assigned to the experimental conditions. Subjects in the Self-generated and Inherited conditions performed a two-stage financial viability prediction task. In Stage 1, these subjects read a set of 13 facts pertaining to the audit of 1988. The first 3 facts contained background information on the firm and were given to all subjects. The other 10 facts were indicative of the financial viability of the firm, and were largely positive if subjects were in the Positive expectation condition, or largely negative if subjects were in the Negative expectation condition. After reading the facts, subjects in the Self-generated condition made an evaluation of the firm's financial viability, while those in the Inherited condition read the evaluation made by the previous auditor. In Stage 2, these subjects read a separate list of 30 facts pertaining to the firm's condition in 1989<sup>3</sup> and then made a

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<sup>3</sup> In this study, there may be proactive interference associated with auditors reading audit evidence from the past two years. Proactive interference occurs when memory for old facts interferes with that for new facts [Blankenship and Whitely 1941]. The experimental task in this study attempts to minimize the amount of proactive interference by limiting the number of facts subjects are exposed to from the previous year. Thus, subjects are given only 13 facts from the previous year's workpapers in Stage 1, but a total of 30 facts from the current year's workpapers in Stage 2.

**Figure 1**  
**Summary of Procedure - Experiment 1**

<b>Self-generated</b>	<b>Inherited</b>	<b>New-audit</b>
<u>Stage 1</u>	<u>Stage 1</u>	<u>Stage 1</u>
Read Stage 1 facts	Read Stage 1 facts	Read Stage 1 facts
Make financial viability judgment	Read financial viability judgment made by previous auditor	-
Sign-off	-	-
Justify judgment	-	-
 <u>Stage 2</u>	 <u>Stage 2</u>	 <u>Stage 2</u>
Read Stage 2 facts	Read Stage 2 facts	Read Stage 2 facts
Make financial viability judgment	Make financial viability judgment	Make financial viability judgment
Sign-off	Sign-off	Sign-off
Free recall of Stage 2 facts	Free recall of Stage 2 facts	Free recall of Stage 2 facts

financial viability assessment.<sup>4</sup> Thereafter, a distraction task was given, followed by free recall of the Stage 2 facts. A debriefing questionnaire was administered at the end of the session.

A New-audit condition was also included, where subjects did not make or read a Stage 1 judgment. Instead, after reading a list comprising both Stage 1 and Stage 2 facts described above, subjects made a financial viability evaluation, completed a distraction task, and responded to a debriefing questionnaire. Though no hypothesis was made pertaining to the New-audit group, the New-audit group was included for completeness since it represents another point on the continuum of an auditor's prior involvement.

## Subjects

Subjects participating in Experiment 1 were employed by six midwestern regional offices of a Big Six public accounting firm. The author made personal visits to each office to administer the experimental sessions. A total of one hundred and twenty-nine auditors participated in Experiment 1. Of these auditors, twelve were involved in the pretests and the remaining one hundred seventeen took part in the main experiment. Subjects participating in Experiment 1 consisted of eighty-three senior associates with a mean experience of 3.5 years, and thirty managers with an average experience of 8.6

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<sup>4</sup> Even though an auditor is only responsible for assessing a firm's financial viability for the coming year [SAS 59], subjects were asked to assess the firm's financial viability three years into the future in Stage 1 [for the Self-generated group] and Stage 2 [for all subjects]. One reason is that this avoids a confound between the expectation manipulation and confirmation/disconfirmation of the Stage 1 judgment. Otherwise, if subjects made or read a Stage 1 judgment for the coming one year, the firm's continued existence at Stage 2 would either confirm [in the Positive expectation condition] or disconfirm [in the Negative expectation condition] the Stage 1 judgment. However, asking for a going concern judgment beyond the coming year would make the task less realistic. In addition, this may reduce the auditor's commitment.

years.<sup>5</sup> While it is clear that the final financial viability assessment is ultimately made by audit partners, the relatively large sample size required for the study necessitated the use of seniors and managers. There is evidence that auditors with about three years of experience are familiar with aspects of a going-concern evaluation such as assessments of a client's business, key operating factors, and profitability [Abdolmohammadi 1991]. Senior audit partners at the regional offices confirmed that managers and seniors with at least three years of audit experience were involved in the various stages of assessing a firm's financial viability.

### **Independent variables**

The design was a 3 X 2 between-subjects ANOVA, with the factors of interest being Involvement and Expectation. The factor Expectation had two levels -- Positive expectation [expectation of viability] and Negative expectation [expectation of failure]. Expectation was manipulated by varying the facts subjects receive in Stage 1. Subjects received either a list of predominantly positive or negative facts, depending on whether they were in the Positive expectation condition or Negative expectation condition. Involvement was a between-subjects factor with three levels: Self-generated, Inherited and New-audit. In the Self-generated condition, subjects made judgments both in Stages 1 and 2. They also signed off after making the Stage 1 judgment, and were instructed to be prepared to justify their initial judgments. Subjects in the Inherited condition read the Stage 1 judgment assigned to them and made a judgment in Stage 2. The New-audit group did not have access to the Stage 1 judgment, and made a judgment only in Stage 2.

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<sup>5</sup> Four subjects did not disclose their experience level. However, the personnel offices from the various regional office had ensured that only auditors with at least three years experience participated in the experiment.

## **Dependent variables**

Two dependent variables were measured: memory for the different types of audit evidence, and judgment of the firm's current financial viability. Memory was measured by counting the number of positive and negative Stage 2 facts recalled. The financial viability assessment was made on a 15-point bipolar scale, with the two extreme anchors being "definitely fail" and "definitely viable" respectively.<sup>6</sup>

## **Stimulus Materials**

### *Stage 1 facts*

Stage 1 facts were selected to portray either a predominantly positive or negative expectation of the firm's financial viability. Thirteen facts were presented in Stage 1. The first three facts gave background information on the firm. The remaining ten facts provided cues on the firm's profitability, liquidity, and financial support of the firm's bankers and shareholders.

### *Stage 2 facts*

The stimuli for Stage 2 of the experiment consisted of statements describing facts that were either positive, negative, or irrelevant to the evaluation of a firm's financial viability. The stimulus sentences were selected from a larger set that had been subjected to pretesting. Forty-one statements were initially developed. Reference was first made to past studies dealing with financial viability predictions [Kida 1984; Choo and Trotman 1991]. Because one of the concerns of the study was the impact of prior year's working

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<sup>6</sup> The advantage of the bipolar scale is that it is sensitive to variations in judgments. One problem is that subjects are not really forced to make a firm position on the client's financial viability. This may reduce a subject's commitment to the decision.



papers on the current year's judgment, the content of the sentences had to be congruent with those normally found in working papers. In addition, key financial ratios were incorporated into some of the relevant facts to increase the realism of the stimuli. These requirements precluded the use of certain stimuli from past studies, or necessitated a change in their form and structure. Stimuli were also developed by referring to the audit manual of a Big Six public accounting firm and to Value Line reports to determine industry characteristics. In addition, an attempt was made to keep the length of each sentence equal as far as possible.

In pretesting the Stage 2 materials, instruments were distributed to a group of twelve auditors working in the local office of a Big Six firm. The twelve auditors included seven audit seniors [mean experience of 3.1 years] and five audit managers [mean experience of 6.3 years]. Subjects rated the 41 facts on their implications for the firm's financial viability, using a 15-point bipolar scale. The correlations of each subject's rating with the other subjects were computed. The mean correlation was 0.64, indicating a fair degree of consensus.

One criterion which the Stage 2 facts had to meet was that the strengths of the positive and negative facts had to be roughly equal. The rationale for this restriction is to provide some assurance that any differential memory for facts was not due to dissimilarity in the absolute strengths of the positive and negative facts. The criterion was met by selecting two sets of facts, one with positive ratings and one with negative ratings, such that their mean absolute ratings were not significantly different. Based on the criteria discussed earlier, a set of 30 facts was selected. Positive facts had a mean rating of 2.76 and negative facts a mean rating of -2.73. The difference between the absolute mean ratings was not significantly different [ $p > 0.6$ ]. Irrelevant facts were those facts that were

essentially neutral, with a mean rating of 0.29.<sup>7</sup>

Thus, the final Stage 2 list which subjects read consisted of 30 statements: 10 indicating financial distress, 10 indicating financial viability and 10 irrelevant to the financial viability of the firm. Of the 10 irrelevant facts, 3 were positioned at the start and 3 at the end of the passage. These fillers were to compensate for primacy and recency effects in memory [Crowder 1976]. The other 4 irrelevant facts were distributed throughout the rest of the list to serve as distractors and make the task less transparent. Other than the restriction that the first and last three facts be irrelevant, order of the other facts was random across subjects.

## **Procedure**

### *Stage 1*

Subjects received a set of materials that contained the instructions and facts used in the experiment. The instructions indicated that they were in charge of the audit of a company named Keppel Inc., a small manufacturer of packaging products. Subjects first read a list of facts pertaining to the audit of 1988. Subjects either made a judgment, read the prior auditor's judgment, or made no judgment at all after reading these facts, depending on whether they were in the Self-generated condition, Inherited condition, or New-audit condition, respectively.

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<sup>7</sup> Irrelevant facts were chosen from facts that had mean scores centered on 0. Another criterion used was that a significant number of zeroes must have been assigned by subjects. Thus, even though one statement had a mean score of -0.17, it was not chosen as it had only three zeroes assigned. The final list of irrelevant facts has an average of 6.7 zeroes given by subjects.

*Stage 2*

Following the procedure in Stage 1, subjects were given audit evidence gathered in the 1989 audit. After that, all subjects made an evaluation of the financial viability of the firm, and then signed off on the working papers. In making the evaluation in 1989, subjects were allowed to refer to all the materials they had read to this point. Thereafter, a distraction task comprising the evaluation of an internal control system of a different firm was administered. The task lasted five minutes. Subjects were then instructed to make a free recall of all the 1989 facts. The duration of the recall was self-paced. Following the free recall, they completed a debriefing questionnaire, after which they were debriefed on the purpose of the study.

*Manipulation of Positive and Negative Expectations*

Expectation was operationalized by the facts provided at Stage 1. Positive and negative expectations were manipulated by presenting subjects with Stage 1 facts that were predominantly indicative of financial viability or financial failure, respectively. All subjects read thirteen facts in Stage 1, comprising three facts relating to background information of the firm, and ten facts relevant to the financial viability assessment in the previous year's audit. Subjects in the Positive Expectation treatment read seven positive facts and three moderately negative facts. Subjects in the Negative Expectation treatment received seven negative facts and three moderately positive facts.<sup>8</sup>

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<sup>8</sup> Expectations were set up to be moderate based on past studies which have demonstrated that subsequent judgments are more closely aligned with expectations when the expectations are moderate [e.g., see Herr et al. 1983].

*Manipulation of Self-generated condition*

The Self-generated group was first given the instructions in Stage 1: "You are the in-charge auditor of Keppel Inc.. Below are some of the salient facts documented in the working papers that you gathered as part of the audit for 1988." After reading the facts in Stage 1, they were asked to make an assessment of the firm's financial viability. Subjects were instructed to sign off after making the Stage 1 judgment. The subjects in the Self-generated condition were also asked to be prepared to defend their Stage 1 judgments to the partner-in-charge of the audit. The specific instructions were: "You should be prepared to defend the judgment you have just made to the partner-in-charge. Carefully review the 1988 facts and your judgment in preparation of your justification to the partner-in-charge. Spend a few minutes to think of the reasons you would put forth to the partner to justify your evaluation."<sup>9</sup>

Having the subjects in the Self-generation group sign off after the Stage 1 judgment was a close representation of actual audit procedures. In practice, auditors are expected to sign off current year's working papers they have prepared. However, this is not required for prior year's working papers referred to in the course of the current year's audit. Thus, subjects in the Inherited treatment who received a prior auditor's evaluation did not sign off after reading the latter's judgment, although all subjects signed off after making the Stage 2 judgments. The requirement for subjects to justify their initial judgments was thought to increase their conviction about the appropriateness of, and commitment to, their initial decision [Hagafors and Brehmer 1983]. In the experiment, auditors were not really justifying their decisions to any person of importance. However, past research has shown that it may be adequate to require subjects to consider justifications for their decisions, although to no one in particular [e.g., Hagafors and

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<sup>9</sup>Even though the subjects were told to *think* about the reasons for their Stage 1 judgments, all subjects wrote down their justification.

Brehmer 1983; Ashton 1990]. The Self-generated group was given five minutes to read the Stage 2 facts.

*Manipulation of Inherited condition*

Subjects in the Inherited condition were first given the instructions: "As part of your firm's new program to have periodic rotation of audit staff, you have been newly assigned as the in-charge auditor of Keppel Inc.. Below are some of the salient facts documented in the working papers that the previous auditor gathered as part of the audit for 1988." The subjects then read the Stage 1 facts. In contrast to subjects in the Self-generated condition, they did not make a judgment at this stage. Instead, they read the median Stage 1 judgment made by subjects in the Self-generated condition. The Self-generated group's median Stage 1 judgment was assigned to the Inherited group to preclude an alternative explanation for the results of the experiment: that any systematic differences obtained between the Self-generated group and the Inherited group was due to dissimilarities in the Stage 1 judgments. However, running the Self-generated treatment prior to the Inheritance treatment necessitated a constraint in terms of the randomization of subjects across conditions.<sup>10</sup>

The Inherited group was not asked to sign off after reading the prior auditor's judgment, nor were they asked to defend their prior auditor's judgment. Subjects were given five minutes to read the Stage 2 facts, after which they made a judgment.

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<sup>10</sup> Alternatively, the Inherited group could have been assigned the average Stage 1 judgments from conducting a pretest. However, this procedure would give rise to the possibility that the Stage 1 judgments assigned to the Inherited group may be different from that made by the Self-generated group. Interpretation of the results would have been difficult in that situation.

*Manipulation of New-audit condition*

The New-audit group was given the Stage 1 facts and the Stage 2 facts simultaneously. Subjects were not instructed to make a judgment after reading the Stage 1 facts nor were they given the prior auditor's judgment. Subjects were given seven minutes to read both the Stage 1 and Stage 2 facts. They then made a judgment.

**Data Analysis***Manipulation check*

As a manipulation check on the Expectation treatment, the Stage 1 judgments made by the Self-generated group were compared across the Positive expectation and Negative expectation conditions. The mean Stage 1 judgment under Positive expectation was 4.0, while that under Negative expectation was -2.0. The t-statistic was significant [ $p=0.000$ ], thus suggesting that the manipulation was successful.

*Recall [Hypotheses 1 and 3]*

Recall of positive and negative facts was scored using a lenient gist criterion. This meant that subjects' recall need not be verbatim, and would be considered correct if they recalled the substantial meaning of the original statements. Double recalls and intrusions were not coded.<sup>11</sup> The researcher and a rater who was unaware of the particular treatment condition he was rating independently scored the recalls. The independent rater had 4 years of audit experience. Using Cohen's [1960] kappa measure, an inter-rater reliability of 0.96

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<sup>11</sup> In the course of completing the debriefing questionnaire, subjects were given the entire list of facts and asked to rate them on the extent each fact was indicative of financial viability or failure. A very small percentage (0.5%) was incorrectly rated. Reclassifying or ignoring facts recalled that had incorrect ratings had no significant effect on the memory results. Including intrusions from Stage 1 facts tended to weaken the results reported in the paper.

[ $p < 0.001$ ] was obtained. The small number of differences was subsequently reconciled. Descriptive statistics for the recall measures and the other dependent measures are presented in Table 1.

The dependent variable used to test Hypotheses 1 and 3 was the "net-recall" measure, which deducted the number of negative facts recalled from the positive facts recalled for each subject. A 2 X 2 [Expectation by Involvement] ANOVA was first run, with the two levels of Expectation being Positive and Negative expectations, and the two levels of Involvement being the Self-generated and Inherited conditions. Results are shown in Table 2.

As predicted by Hypothesis 1, a significant main effect for Expectation was obtained [ $p = 0.001$ ]. Subjects in the Positive expectations condition had a lower net-recall than those in the Negative expectations condition. The Expectation main effect should be interpreted in the light of the Expectation X Involvement interaction. Consistent with Hypothesis 3, a significant Expectation X Involvement interaction was obtained [ $p = 0.034$ ]. Simple contrasts show that in the Positive expectation condition, the Self-generated group had a larger net-recall score than the Inherited group [ $p = 0.021$ ]. The simple effect for Involvement at the Negative expectations level was not significant [ $p = 0.486$ ]; that is, there was no significant difference in the net-recall score between the Self-generated group and the Inherited group within the Negative expectation condition. Analysis showed that in the Negative expectation condition, the proportion of positive facts recalled for the Self-generated group and the Inherited group was 0.55 and 0.58 respectively, reflecting the fact that both groups recalled more positive facts than negative facts. Choo and Trotman [1991] also found a similar result in that experienced auditors in their experiment recalled more positive items than negative items in the presence of going-concern problems. However, these findings are at odds with Kida [1984], who found that auditors focused more on negative items than positive items, regardless of how the initial expectation was formed. Several procedural differences between Kida [1984] and this study [e.g., listing of positive

**Table 1**  
**Experiment 1 - Cell Means**

<i>Expectation</i>	<i>Involvement</i>	<i>Number of Subjects</i>	<i>Net-recall</i>	<i>Proportion recalled</i>	<i>Stage 2 Judgment</i>
Positive	Self-generated	23	0.22 (2.54)	0.51 (0.13)	2.30 (1.85)
Positive	Inherited	19	-1.32 (1.73)	0.44 (0.09)	2.87 (1.65)
Positive	New-audit	17	0.00 (1.73)	0.51 (0.11)	3.71 (0.99)
Negative	Self-generated	19	0.90 (2.18)	0.55 (0.10)	-0.37 (2.28)
Negative	Inherited	19	1.37 (1.57)	0.58 (0.09)	-0.58 (1.86)
Negative	New-audit	20	0.40 (2.01)	0.53 (0.17)	0.10 (2.77)

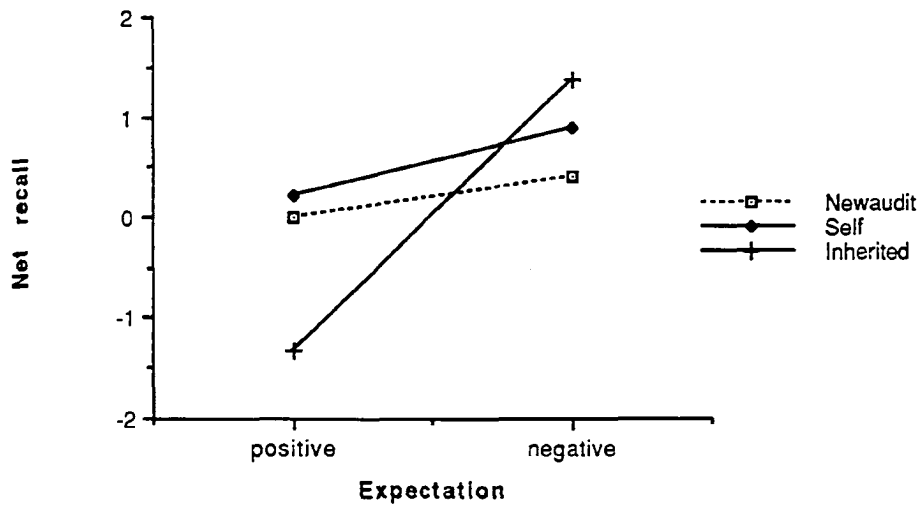


**Table 2**  
**Experiment 1 - Expectation by Involvement**  
**with Net-recall as Dependent Variable**

*Panel A. ANOVA results*

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F-statistic</i>	<i>Probability</i>
Expectation	56.12	1	56.12	15.07	0.001
Involvement	5.57	1	5.57	1.30	0.258
Expectation X Involvement	20.00	1	20.00	4.66	0.034
Error	326.23	76	4.29		

*Panel B. Graphical representation*



and negative items versus recall, the use of different stimuli etc.] may have contributed to the difference in results. Auditors in Kida's [1984] were also more experienced than those participating in this study and the study by Choo and Trotman [1991]. However, analyses revealed no differences in the pattern of recall between seniors and managers in this study.

Similar results were obtained when the dependent measure was the proportion of positive facts recalled, with the denominator being the sum of positive and negative facts recalled. In addition, another analysis was made with three levels of the Involvement factor, namely Self-generated, Inherited, and New-audit. Planned contrasts were made between the Self-generated group and the Inherited group. Similar results were again obtained.

#### *Judgment [Hypotheses 2 and 4]*

The analyses for Hypothesis 2 and Hypothesis 4 were made by running an ANOVA on Expectation [Positive/ Negative] and Involvement [Self-generated/ Inherited], with the Stage 2 judgment as the dependent variable. Table 3 contains the results for this test. Hypothesis 2 was supported in that a significant Expectation main effect was obtained [ $p=0.000$ ], thereby providing another check on the validity of the Expectation manipulation. However, contrary to Hypothesis 4, a nonsignificant interaction was obtained [ $p=0.371$ ]. A 3 X 2 ANOVA with three levels of the Involvement factor [Self-generated, Inherited, and New-audit] and two levels of the Expectation factor [Positive, Negative] was also run. Planned contrasts between the Self-generated group and the Inherited group yielded similar conclusions.

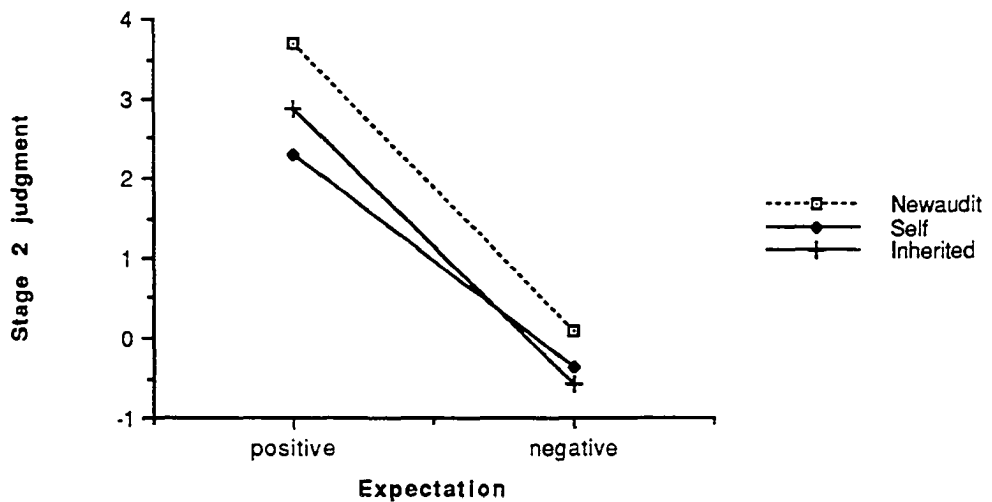
The non-significant interaction may have arisen from the method of analysis. Although assigning the median Stage 1 judgment of the Self-generated group to the Inherited group equalizes the average Stage 1 judgments across both groups, it does not equalize the variance. Thus, while all the subjects in the Inherited condition within an expectation condition were assigned a particular Stage 1 judgment, subjects in the Self-

**Table 3**  
**Experiment 1 - Expectation by Involvement**  
**with Stage 2 Judgment as Dependent Variable**

*Panel A. ANOVA results*

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F-statistic</i>	<i>Probability</i>
Expectation	186.00	1	186.00	50.51	0.000
Involvement	0.62	1	0.62	0.17	0.683
Expectation X Involvement	2.98	1	2.98	0.81	0.371
Error	279.84	76	3.68		

*Panel B. Graphical representation*



generated condition made a wide range of Stage 1 judgments. Past research has shown that the level of the initial judgment may affect the extent of the adjustment in subsequent judgments. When the discrepancy between the initial expectation and the current year's evidence (stimuli) is large, there may be a tendency towards a contrast effect; that is, subsequent judgments are displaced from the initial expectation [Manis et al. 1988; Manis and Paskewitz 1984; Herr et al. 1983]. In particular, some subjects in the Self-generated conditions may have made extreme Stage 1 judgments, and then experienced a contrast effect when they read the Stage 2 judgments.<sup>12</sup> This may have created a bias against finding any effects. Furthermore, a more sensitive measure may be necessary. The prediction was that self-generation would result in judgments that were more consistent with those of the prior year. A broad interpretation is that the *absolute* deviation of Stage 2 judgments from the Stage 1 judgments is smaller for the Self-generated condition than for the Inherited condition.

To investigate whether the level of the Stage 1 judgment made a difference, subjects in the Self-generated condition within each expectation condition were divided into three groups: those who made the median Stage 1 judgment [Median group], above the median Stage 1 judgment [Above-median group], and below the median judgment [Below-median group]. Assuming that the median judgment is moderate, then judgments above it may be considered extreme. This leads to the prediction of a contrast effect: the absolute deviation and Stage 2 judgment of subjects with extreme Stage 1 judgments would be respectively larger and lower than those with median Stage 1 judgments. Results are shown in Table 4.

In the Positive expectations condition, the Above-median group had significantly

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<sup>12</sup> The presence of a contrast effect may also suggest that these subjects were not strongly committed to their initial judgments.

**Table 4**  
**Experiment 1 - Stage 2 judgment and Absolute deviation of**  
**Self-generated subjects by Level of Stage 1 judgment**

**Positive expectation**

*Absolute deviation*

Stage 1 judgment	Number of cases	Absolute deviation	Standard deviation	t-statistic	p-value
Median	8	0.6250	0.916		
Above median	9	2.833	1.936	-3.06	0.010
Below median	6	1.500	1.517	-1.25	0.247

*Stage 2 judgment*

Stage 1 judgment	Number of cases	Stage 2 judgment	Standard deviation	t-statistic	p-value
Median	8	3.375	0.916		
Above median	9	2.556	1.740	1.23	0.240
Below median	6	0.500	1.761	3.65	0.008

**Negative Expectation**

*Absolute deviation*

Stage 1 judgment	Number of cases	Absolute deviation	Standard deviation	t-statistic	p-value
Median	5	1.500	1.323		
Above median	5	1.900	1.817	-0.40	0.702
Below median	9	2.389	1.799	-1.06	0.314

*Stage 2 judgment*

Stage 1 judgment	Number of cases	Stage 2 judgment	Standard deviation	t-statistic	p-value
Median	5	-0.900	1.746		
Above median	5	2.200	1.789	2.77	0.024
Below median	9	-1.500	1.696	0.62	0.551

Note: t-statistic compares the median group with the other groups

larger absolute deviations [one-tailed  $p=0.005$ ] than the Median group, although the difference in the Stage 2 judgments was not significant [one-tailed  $p=0.120$ ]. The Below-median group did not have absolute deviation measures that were significantly different from the Median group, but had significantly lower Stage 2 judgments [two-tailed  $p=0.008$ ]. In the Negative expectation condition, no significant difference was observed for the absolute deviation measure. The Stage 2 judgments made by the Median group were significantly less positive than those made by the Above-median group [two-tailed  $p=0.024$ ], but not significantly different from the Below-median group. The above analysis provided some evidence that the Stage 2 judgments of subjects in the Self-generated condition may vary as a function of the level of their Stage 1 judgments. Since the Inherited group was assigned the median judgment, responses made by Self-generated subjects with median Stage 1 judgments were compared to those made by subjects in the Inherited condition. As hypothesized, the absolute deviation of the Self-generated group was smaller than that of the Inherited group, as indicated by a marginally significant main effect for Involvement [ $p=0.090$ ]. Neither the Expectation main effect nor the interaction term was significant. However, no significant differences in the Stage 2 judgment or net-recall measure<sup>13</sup> between the two groups were detected.

#### *Comparison with the New-audit group*

Besides making an explicit Stage 1 judgment, the Self-generated group also differed from the New-audit group in two aspects: [i] subjects in the Self-generated group were asked to be prepared to justify their Stage 1 judgment, and [ii] they were also required to sign off after making the Stage 1 judgment. Past research [Dreben et al. 1979; Belmore 1987] has demonstrated a primacy effect during impression formation in that expectations

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<sup>13</sup> The small number of observations in the Self-generated condition may have severely attenuated the power of the analysis to detect any differences.

are formed based on the initial items read. Thus, the New-audit group may have formed an initial judgment based on the Stage 1 facts, even though they were not explicitly told to do so. Comparison of the responses made by the Self-generated group and the New-audit group would therefore provide some evidence on whether justification and signing off incrementally increased commitment to the Stage 1 judgment. If commitment was indeed increased, an Involvement [Self-generated, New-audit] by Expectation interaction in terms of net-recall and the Stage 2 judgment should be obtained. A 2 X 2 [Involvement by Expectation] ANOVA was performed for each of the dependent variables. The interaction was not significant for both net-recall [ $p=0.762$ ] and judgment [ $p=0.329$ ]. Comparisons were also made between the New-audit group and the Inherited group. A significant Involvement by Expectation interaction was obtained with net-recall as the dependent measure [ $p=0.016$ ], although the Stage 2 judgment was not significantly different [ $p=0.864$ ]. These results suggest that preparation to justify the Stage 1 judgment and signing off did not marginally increase the commitment of the Self-generated group.<sup>14</sup> Furthermore, one common characteristic among the Self-generated group and the New-audit group was that subjects made judgments without reading the prior year's judgment made by another auditor. Thus, it may be concluded that when auditors make decisions personally without reference to the perspective of another auditor, they have the tendency to recall relatively more consistent evidence than inconsistent evidence. In addition, personal involvement in the entire decision process appears to lead to the same outcome, whether the involvement exists in one or two stages.

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<sup>14</sup> There was a significant difference between the Self-generated group and the New-audit group in terms of the total number of positive and negative facts recalled [mean=10.71 and 8.54,  $p=0.000$ ]. This result could have arisen because the Self-generated group was subject to less proactive interference relative to the New-audit group in that the latter read both Stage 1 and Stage 2 facts simultaneously.

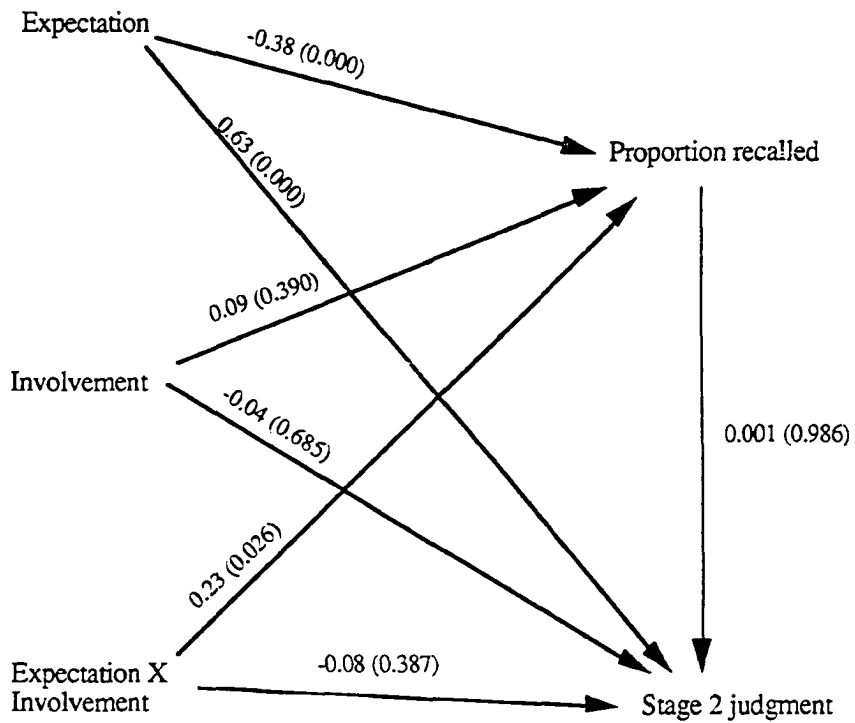
*Relation between recall and judgment*

To test the relation between recall and the Stage 2 judgment, a path analysis was conducted. Figure 2 shows the causal model that was tested. The recall measure used was the proportion of positive facts recalled, which is consistent with memory measures used in other studies examining the relation between memory and judgment [Hastie and Park 1986]. The path that is of concern is the path leading from recall to judgment. This path coefficient was not significant [ $p=0.986$ ]. While this result suggests the absence of any memory-judgment relation, it is possible that a primacy effect in retrieval affected the judgment. This implies that the first few items recalled would have the greatest impact on judgment; that is, a judgment is rendered after considering the first few items. On the other hand, subjects were asked to write down everything they could recall during the experimental session, which may have masked the memory-judgment relation. To test this argument, recall measures were cumulatively computed for the first few items recalled; that is, for the first item recalled, first two items recalled, first three items and so on. The recall measure was computed up to the first nine items recalled, as most subjects did not recall more than nine positive and negative facts. Separate path analyses were conducted for each measure. Table 5 shows the path coefficient for the path leading from recall to judgment and the associated p-values.

The memory-judgment relation showed a trend of increasing strength for the first two to six items recalled, after which it declined. Significant path coefficients were obtained for the fifth to eighth items recalled. These results demonstrate that the most salient evidence recalled affected the judgment made, particularly after a criterion level of evidence has been considered.



**Figure 2**  
**Experiment 1 - Detailed Path Analysis of Memory-Judgment Relation**  
(Path coefficients with significance in parentheses)



**Table 5**  
**Experiment 1 - Path coefficients associated with**  
**path leading from Proportion recalled to Stage 2 judgment**

<i>Proportion recalled computed based on</i>	<i>Path coefficient</i>	<i>Probability</i>
First item recalled	0.12	0.177
First 2 items recalled	0.04	0.624
First 3 items recalled	0.08	0.373
First 4 items recalled	0.13	0.140
First 5 items recalled	0.20	0.035
First 6 items recalled	0.22	0.025
First 7 items recalled	0.16	0.094
First 8 items recalled	0.16	0.091
First 9 items recalled	0.03	0.494

## Discussion

Experiment 1 was designed to investigate the effects of prior year's working papers and prior involvement on auditors' memory and judgment. Results suggest that prior year's working papers affected the recall of auditors who inherited a prior year's judgment in that they recalled relatively more inconsistent than consistent current year's evidence. This pattern was not apparent in the recall of auditors who personally made the prior year's judgment. Results also showed that the judgments of auditors were aligned with the prior year's judgments. Furthermore, although there was evidence that prior involvement moderated the effects of expectations on recall, analyses showed that the effects of involvement was apparent only when expectations were positive. The effect of prior involvement on judgment is less clear. Initial analysis found no differences between current year judgments made by subjects in the Self-generated and the Inherited conditions. However, when subjects in the Self-generated and Inherited conditions were matched based on the level of the Stage 1 judgments, there was marginally significant evidence that the Self-generated group made Stage 2 judgments that had smaller deviations from the Stage 1 judgments than those in the Inherited condition.

The lack of effects on the Stage 2 judgments raises the possibility that commitment may not be at play in the experiment. Furthermore, some of the experimental procedures may have been biased against finding a commitment effect. These include asking for a judgment for a client's viability three years into the future, and requiring auditors to make a judgment rather than a forced choice about the client's viability. However, several reasons mitigate against the argument that commitment was not present. First, the key manipulations in the experiment were based on prior research which demonstrated commitment [e.g., Staw 1976]. Furthermore, as Kiesler [1971, 30] mentioned, "people are referred to as more or less committed to some behavior, rather

than being simply committed or not". The results using the recall score and to a smaller extent, the absolute deviation measure, suggest that the Self-generated group was more committed than the Inherited group. The pattern of results obtained thus suggests the plausibility of commitment as a source of explanation for the results, particularly when it is not immediately obvious what other constructs offer better explanatory power [see discussion by Sternthal et al. 1987]. The null effect on judgment does suggest that the level of commitment may have been relatively weak.

One limitation of the present experiment was that there were really no negative consequences faced personally by subjects in the Self-generated condition. The experiment did not specifically examine how an actual review of the prior year's judgment would affect the audit decision process. Although auditors in the Self-generated condition were asked to be ready to defend their judgments to the "partner-in-charge" of the audit, it was apparent that their decisions would not be reviewed by an *actual* audit partner, since the partner was a hypothetical one in this artificial setting. Experiment 2 was designed to examine the issue of how awareness of an actual review would moderate the effects found in Experiment 1.

## CHAPTER V

### EXPERIMENT 2

The previous experiment provided some evidence that a particular organizational characteristic in public accounting, repeat audit engagements, affected the auditor's information processing such that there was a tendency to remain consistent across time. The purpose of Experiment 2 was to investigate how another organizational feature in the audit environment, the review process, may moderate the effects observed due to repeated engagements. Specifically, it examined the implications of making the existence of a potential review of the audit working papers salient. Consistent with Hypotheses 5 and 6, the experiment provides a test of whether commitment is exacerbated or reduced when the potential of a review is made salient. This was achieved by making two changes to the manipulation in the Self-generated condition:

[1] Auditors in the Self-generated group in Experiment 1 were not told that their responses would be reviewed. In Experiment 2, auditors in the Self-generated condition were informed that some of their responses would be reviewed by personnel from the executive office.<sup>15</sup>

[2] In Experiment 2, auditors in the Self-generated condition were required to support their findings by means of written rationale memos to justify their Stage 1 decisions. This instruction was different from that given in Experiment 1 where auditors were told to think about the supporting reasons. However, since

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<sup>15</sup> Authorization was obtained from a senior partner at the executive office to carry out this particular manipulation. A summary of the results was subsequently sent to the partner for his review.

the Self-generated group in Experiment 1 actually wrote down the reasons, no substantive difference was introduced by the requirement of a written memo.

Experiment 1 demonstrated that there were essentially no differences between subjects in the Self-generated condition and the New-audit condition, in terms of their net-recall and the current year's judgments. Thus, the New-audit treatment would serve as an appropriate control group in Experiment 2.<sup>16</sup> The design of Experiment 2 was a 2 X 2 between-subjects ANOVA. The factors were Involvement [Self-generated, New-audit] and Expectation [Positive, Negative]. Other than changes in the Self-generated condition noted above, all other manipulations were identical to those in Experiment 1. The manipulation for the New-audit group remained unchanged and served as a baseline for comparison with the Self-generated group.<sup>17</sup>

## Procedure

The changes made to the Self-generated treatment were incorporated in the instructions given in Stage 1. As in Experiment 1, the Self-generated group first read Stage 1 facts that had either positive or negative implications for the client's financial health. They then made an evaluation based on the facts they had read and were instructed to write a rationale memo to support their judgment. They were also informed

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<sup>16</sup> It would have been conceptually clearer to use the Self-generated group [without review] as the control group. However, because there was no substantive difference between the Self-generated [without review] group and the New-audit group in terms of the memory and judgment effects, it was justifiable operationally to use either group as the control group.

<sup>17</sup> Studies using the accountability paradigm in social psychology and accounting [e.g., Johnson and Kaplan 1990] have typically employed as a control group, one where subjects are assured of anonymity, which is not reflective of the actual accounting setting. In this study, subjects in both New-audit and Self-generated conditions were not told that their responses would be anonymous, and instead had to sign off their working papers. This particular operationalization results in a bias against finding significant differences arising from accountability.

that a sample of their responses would be reviewed by personnel from the executive office of the public accounting firm. After completion of the instructions in Stage 1, subjects advanced to the Stage 2 procedures, which were identical to those in Experiment 1. That is, they read the Stage 2 facts, made an evaluation of the firm's financial viability, performed a distraction task, did a free recall task, and then completed a debriefing questionnaire. The procedure for the New-audit group remained unchanged from Experiment 1.

### **Subjects**

Subjects were eighty-six auditors from another Big Six public accounting firm, including eighty-three audit seniors [mean experience of 3.1 year] and an audit manager with 4.9 years of experience. Two subjects did not disclose their experience level.<sup>18</sup> The experiment was conducted during one of the firm's national training sessions.

### **Results**

A check on the Expectation manipulation was first made by comparing the Stage 1 judgments of the Positive Expectation and Negative Expectation groups in the Self-generated condition. They were significantly different [ $p=0.000$ ].

Descriptive statistics for the dependent measures are shown in Table 6. The net-recall scores were subjected to a 2 X 2 [Expectation by Involvement] ANOVA. The results

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<sup>18</sup> These subjects were either audit seniors or managers. The training course was designed for audit seniors, with some managers as instructors.

**Table 6**  
**Experiment 2 - Cell Means**

<i>Expectation</i>	<i>Involvement</i>	<i>Number of Subjects</i>	<i>Net-recall</i>	<i>Proportion Recalled</i>	<i>Stage 2 Judgment</i>
Positive	Self-generated	22	0.00 (1.85)	0.51 (0.16)	1.86 (2.01)
Positive	New-audit	21	0.43 (1.96)	0.58 (0.25)	2.81 (2.46)
Negative	Self-generated	22	0.818 (2.11)	0.54 (0.14)	0.93 (2.35)
Negative	New-audit	21	-0.40 (2.19)	0.48 (0.26)	-0.86 (1.64)



are presented in Table 7. A marginally significant interaction [ $p=0.065$ ] was obtained.<sup>19</sup> The Self-generated group paid relatively more attention to inconsistent facts compared to the New-audit group, though the difference was significant in the Negative expectation condition [ $p=0.028$ ], but not in the Positive expectation condition [ $p=0.249$ ]. Likewise, as Table 8 shows, a significant interaction emerged when the dependent measure was the Stage 2 judgment [ $p=0.004$ ]. Under the Positive expectation condition, the judgment made by the Self-generated group was less positive than that made by the New-audit group [ $p=0.015$ ]. The converse was true when expectations were negative [ $p=0.008$ ].

Analyses were also conducted to determine the plausibility of some alternative explanations for the results. One possible confound is that the experience levels of the auditors varied between the two experiments. Auditors participating in Experiment 1 were generally more experienced [4.86 years] than those participating in Experiment 2 [3.12 years]. Furthermore, about a quarter of the subjects in Experiment 1 were managers, while almost all the subjects in Experiment 2 were seniors. Thus, the differences between Experiment 1 and Experiment 2 could have arisen from experience differences; that is, experience may have differentially affected the Expectation by Involvement interaction. To address this issue, the data from Experiment 2 were re-analyzed by conducting 2 X 2 [Expectation by Involvement] MANCOVA's for the Stage 2 judgment and net-recall score, with months of experience as a covariate. The experience covariate was not significant for either dependent variable. Furthermore, the results were similar to that obtained in the

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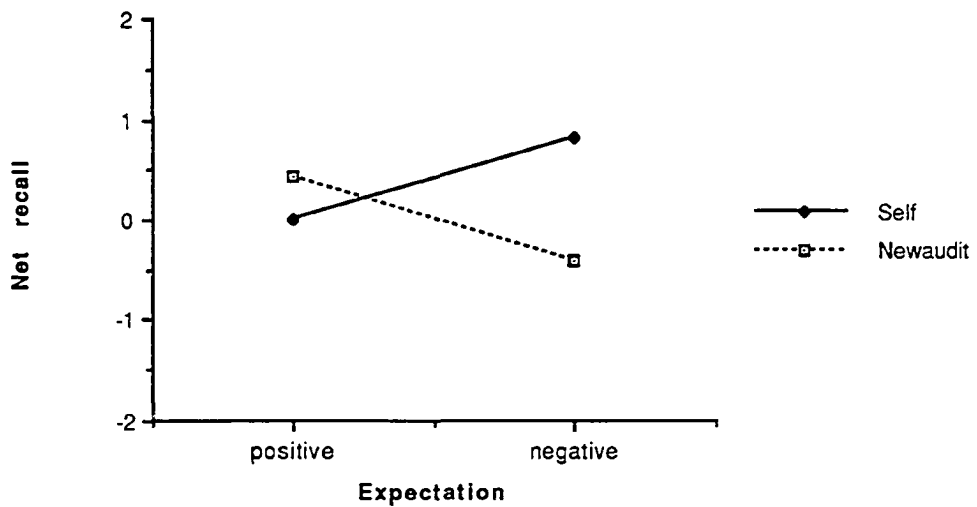
<sup>19</sup> The interaction using the "proportion recalled" measure was not significant [ $p=0.164$ ]. However, further analysis revealed that the distribution of the "proportion recalled" variable was highly skewed and nonnormal [ $p=0.121$  using the Shapiro-Wilks statistic]. The data was first subjected to a logarithmic transformation which normalized the distribution [ $p=0.021$  using the Shapiro-Wilks statistic]. The ANOVA analysis was then repeated using Log [proportion recalled] as the dependent variable. The Involvement by Expectation interaction was marginally significant [ $p=0.081$ ].

**Table 7**  
**Experiment 2 - Expectation by Involvement**  
**with Net-recall as Dependent Variable**

*Panel A. ANOVA results*

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F-statistic</i>	<i>Probability</i>
Expectation	0.00	1	0.00	0.00	0.991
Involvement	3.31	1	3.31	0.80	0.373
Expectation X Involvement	14.38	1	14.38	3.50	0.065
Error	333.22	81	4.11		

*Panel B. Graphical representation*

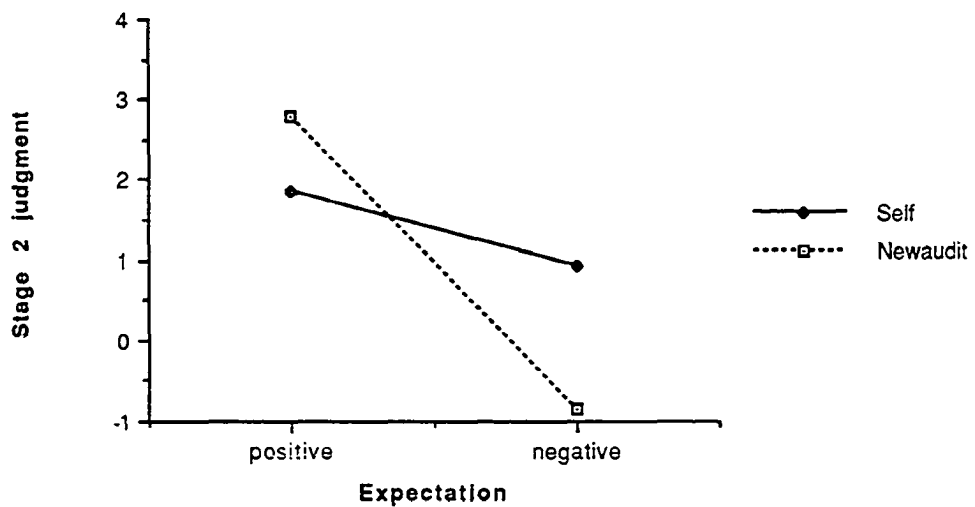


**Table 8**  
**Results of Experiment 2 - Expectation by Involvement**  
**with Stage 2 Judgment as Dependent Variable**

*Panel A. ANOVA results*

<i>Source</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F-statistic</i>	<i>Probability</i>
Expectation	113.60	1	113.60	24.80	0.000
Involvement	3.82	1	3.82	0.83	0.364
Expectation X Involvement	40.18	1	40.18	8.77	0.004
Error	375.55	82	4.58		

*Panel B. Graphical representation*



original analysis without the covariate. Similar results were obtained when the analysis of covariance was repeated with the data from Experiment 1. In addition, the data from Experiment 1 were subjected to a 2 X 2 X 2 ANOVA, with Expectation [Positive, Negative], Involvement [Self-generated, Inherited] and Rank [Seniors, Managers] as independent variables. The three-way interaction was not significant for either the Stage 2 judgment or net-recall measure, and the results previously reported for the Expectation by Involvement interaction remained unchanged. These analyses argue against the influence of experience on the pattern of results obtained for Experiments 1 and 2.

Another possible confound is that the auditors in Experiments 1 and 2 came from different public accounting firms; the difference in the results for Experiments 1 and 2 may therefore have arisen from firm differences.<sup>20</sup> Since the manipulation for the New-audit group remained unchanged in the two experiments, comparison of the responses of the New-audit group would determine whether firm differences could explain the results. To address this issue, the responses of the New-audit groups across both experiments were compared. The Stage 2 judgment and net-recall score for the New-audit group in Experiments 1 and 2 were subjected to a 2 X 2 ANOVA, with two levels of Firm (New-audit [Experiment 1], New-audit [Experiment 2]), and two levels of Expectation [Positive, Negative]. None of the interaction terms were statistically significant [ $p=0.950$  for the Stage 2 judgment,  $p=0.178$  for the net-recall measure], thus reducing the plausibility that firm effects were responsible for the results.

Comparisons were also made between the two Self-generated groups across experiments. The differences between the responses of the two New-audit firms within each Expectation condition were taken as estimates of firm effects. These estimates were subtracted from the responses of the Self-generated group [Experiment 2] to adjust for

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<sup>20</sup> The firms providing subjects in Experiments 1 and 2 differed in the structure of their audit technologies [see Kinney 1986].

firm effects. Planned contrasts were conducted to examine if there were differences between the Self-generated conditions between experiments, after adjusting for firm effects. Results were marginally significant for the Stage 2 judgment [ $p=0.082$ ], and non-significant for the net-recall measure [ $p=0.141$ ]. One limitation of this comparison should be noted. Firm effects were assumed to be additive. It could be that review awareness may interact with firm differences, though the exact nature of the interaction is unknown.

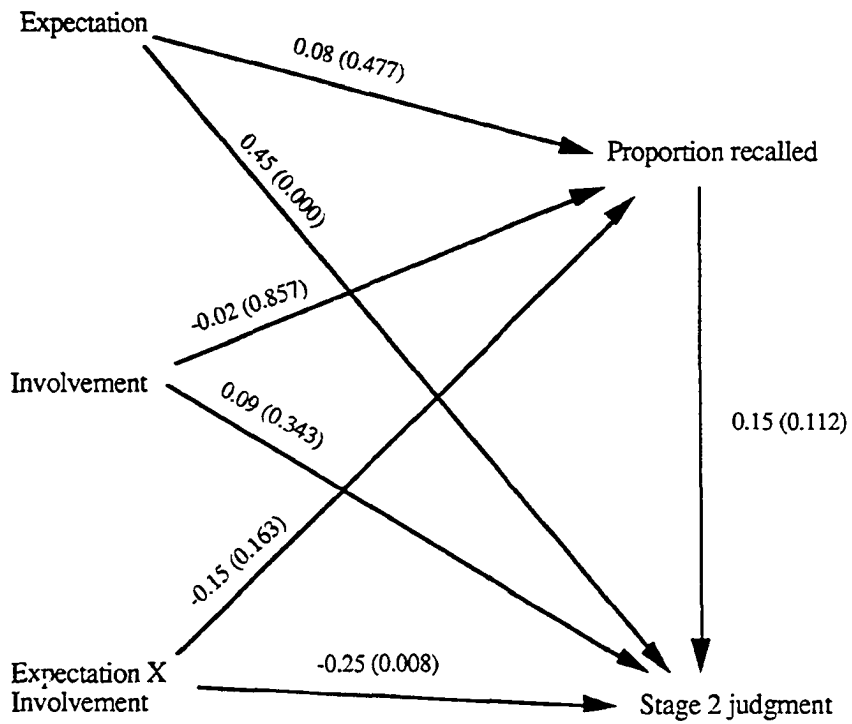
Overall, the results showed that auditors made more moderate judgments when the prospect of a review was made salient. Recall results in Experiment 2 were consistent with the notion that with review awareness, auditors were more vigilant in information processing in the negative expectation condition. However, this finding should be tempered by between-experiment comparisons which found the recall results to be non-significant.

#### *Relation between memory and judgment*

As in Experiment 1, path analyses were conducted to examine if a relation between the proportion of positive facts recalled and the Stage 2 judgment exists. Again, the path leading from recall to judgment was not significant [ $p=0.112$ ], when the recall measure was the proportion of all positive facts recalled [see Figure 3].

When the cumulative recall measures were used, results similar to Experiment 1 were obtained. As Table 9 shows, marginally significant recall-judgment relationships were obtained when the recall measures were the first five to the first eight items recalled. These results therefore reinforce the conclusion that a judgment is rendered based on the first few items, after consideration of a criterion amount of evidence.

**Figure 3**  
**Experiment 2 -Detailed Path Analysis of Memory-Judgment Relation**  
(Path coefficients with significance in parentheses)



**Table 9**  
**Experiment 2 - Path coefficients associated with**  
**path leading from Proportion recalled to Stage 2 judgment**

<i>Proportion recalled computed based on</i>	<i>Path coefficient</i>	<i>Probability</i>
First item recalled	0.07	0.479
First 2 items recalled	0.06	0.509
First 3 items recalled	0.06	0.553
First 4 items recalled	0.12	0.222
First 5 items recalled	0.16	0.094
First 6 items recalled	0.18	0.053
First 7 items recalled	0.17	0.077
First 8 items recalled	0.17	0.077
First 9 items recalled	0.15	0.114

## Discussion

Experiment 2 provided some evidence that the potential of a review made auditors in the Self-generated condition more vigilant in information processing, as compared to auditors in the New-audit situation. Additionally, the judgments made by subjects in the Self-generated condition were less extreme than those made by subjects in the New-audit situation. This set of results is particularly striking when they are compared to the findings in Experiment 1. In Experiment 1, there were essentially no differences in the net-recall or Stage 2 judgments between the Self-generated group and the New-audit group. In Experiment 2, the only manipulation change made were that the subjects in the Self-generated group had to write a rationale memo and were cognizant of a review. In this case, there was evidence that the Self-generated group was more alert to inconsistent facts than the New-audit group, and made judgments that were more moderate. These results offer some insight on the effects of the anticipation of a review on the audit decision process. Awareness of a potential review of one's work resulted in less extreme judgments, possibly because more conservative judgments would serve as a hedge against criticisms. Results also suggest that review awareness causes more attention to be paid to evidence inconsistent with one's original evaluation. However, interpretation of the recall results must be made in the light of between-experiment analyses which found the recall results to be non-significant. Hence, the finding that review awareness causes more attention to be paid to inconsistent evidence must be considered tentative.



## CHAPTER VI

### CONCLUSIONS

This dissertation attempted to study the impact of expectations, prior involvement, and review awareness on the audit decision-making process using two experiments. The set of results in Experiment 1 and Experiment 2 can be interpreted in terms of the intrinsic incentives [Libby and Lipe 1992] or pressures [Ashton 1990] that auditors face in their work. As Ashton [1990] noted, pressures can have different effects in different contexts. In Experiment 1, there was some evidence that prior involvement with an audit client creates social pressures or incentives [Abelson 1983] to remain consistent across time. The results in Experiment 2 suggest boundary conditions on the effects of prior involvement, in that the tendency to be consistent was reduced when a review was made salient.

As with any study employing a laboratory setting, there are limitations in terms of the realism of the audit task and setting. Nevertheless, it should be noted that in actual organizational settings, premiums are placed on the enhancement of self-image, and organizational norms often dictate what "appropriate" behavior is. Consequently, prior involvement is likely to have magnified effects over that obtained in the laboratory. Time pressure and other forms of organizational stressors may also lead to a regression towards the employment of well-reinforced expectations. There are other limitations to the study. First, the effect of time has not been examined in this dissertation. Commitment has been discussed in the context of involvement in prior year's work. The time lapse between repeat engagements and participation in several audit engagements during this time may moderate or reduce the effects of prior involvement. On the other

hand, auditors may be more committed to hypotheses generated within a particular audit engagement. Second, involvement has been restricted to the context of making an audit judgment in the previous year. In practice, being on the audit team itself is one form of involvement. The impact of other forms of participation in the prior year's audit on the current year's audit is not examined. Third, with respect to the accountability manipulation, auditors are generally acquainted with their reviewers. Hence, the prospect of a review may not be particularly threatening to raise the vigilance of the auditor. Furthermore, knowledge of the views of the reviewer could lead to a shift towards the anticipated views of the reviewer [e.g., see Tetlock 1983].

It may be argued that since an auditor's work is generally subjected to the review process, the effects of commitment may not be present. A caveat to this conclusion is that the prospect of a review was made especially salient in this experiment, prior to the encoding of new facts and the formation of the current year's judgment. In addition, the stakes involved in a review by personnel from the executive office may be higher or lower than that involved in a review by members of the audit team.

As suggested earlier, rotation of staff may be one way to deal with concerns over an auditor's prior involvement with an audit client. The results of Experiment 1 allow us to draw some conclusions on the implications of rotation of audit staff.<sup>21</sup> First, rotation should result in better attention to the current year's facts that are inconsistent with the prior year's evaluation. Second, the impact of rotation on the audit judgment is less clear, although there is some evidence that the new auditor is less disposed to make the current

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<sup>21</sup> This paper does not adopt a normative stand on the desirability of rotation of audit engagements. Rather, it attempts to provide evidence on the memory and judgmental implications. Ultimately, questions of desirability must be answered by each public accounting firm with reference to the issues of efficiency and effectiveness. The effects of expectation and prior involvement need not necessarily be negative. Use of prior expectations can be efficient and economical. Likewise, prior involvement with a particular client may result in improved understanding and knowledge of its operations.

year's judgments consistent with the prior year's judgments. Besides rotation of audit staff, the relatively high turnover rate in public accounting firms also provides a natural mechanism to constrain the level of an auditor's involvement with a particular client. Results in Experiment 2 suggest another way of dealing with concerns over prior involvement: make the potential of a review particularly salient.

## **APPENDICES**

## APPENDIX 1

## PRETEST RATINGS OF STAGE 2 FACTS

The long-retired founder of the company, Andrew Beal, passed away in September 1989. 0.75

His son, Paul, who had assumed his father's duties for some time, is now officially the managing director of the company. 0.50

Paul Beal has made few significant changes to the company's operations or policies. -0.50

The accounts receivable turnover is 46 days, compared to an industry average of 66 days. 2.92

Sales for this year was 7.3% below the budget. -2.08

Goods returned due to defects as a percentage of sales is 5.6% compared to an industry average of 3.9%. -2.75

An improved heat-resistant container will be introduced within the next few months, and is estimated to add 10% to existing sales. 3.17

A new state value-added tax to be passed later this year, may adversely affect the company's performance. -2.25

The company was able to take advantage of about 80% of suppliers' discounts this year, compared to 55% last year. 2.08

Keppel Inc. has a somewhat reliable internal control system. The audit would place moderate reliance on the system. 1.18

This year's trading condition was helped by strong growth in the plastic containers sector. 2.75

The company's debt-equity ratio is 4.8 compared to an industry average of 2.2. -3.45

14% of Keppel's accounts receivable was written off this year owing to the bankruptcy of a customer, Ganda Inc. -2.83

Keppel Inc. leased some new equipment this year to ensure that its technology is competitive with other firms in the industry. 1.75

During the year, John Dewey, the marketing manager, retired and was succeeded by Arnold Speltz. -0.58

Management and labor representatives indicate that there is a possibility that factory workers will strike this year to demand higher wages. -3.00

Competition and excess industry capacity in the slow growth areas of metal and glass containers will decrease profit margins. -2.83

Suppliers to the firm indicate that the usual trade credit to the firm will be available. 1.5

Keppel Inc. has obtained a three-year purchase commitment from Straits Trading, Inc. that would add 9% to existing sales. 3.42

The accounting department is generally felt to be adequately staffed. 1.33

Keppel's share of the market within Michigan this year was 3.7%, down from 4.6% in the previous year. -2.75

Management has made specific plans to implement some cost-cutting measures over the next few months. 2.00

Discussions with Keppel Inc.'s attorney indicate that a material liability from litigation may arise this year. -3.50

Management intends to phase out the slow-growth glass-container division to focus resources on other sectors with better margins. 2.75

In early June, a fire resulted in losses of about \$35,000, which has since been paid by the insurance company. -0.33

The price of soda ash, a key cost component, is expected to rise further in the months ahead. -1.83

This year, inventory turnover was 62 days compared to an industry average of 85 days. 2.91

New product regulations may have adverse impact on some of its competitors' products, and benefit Keppel Inc. indirectly. 2.36

Keppel Inc. has not paid dividends since 1985. 1.25

Hoover Inc. has signed a two-year contract to supply resin, a key raw material, to Keppel Inc. at a favorable price. 2.67

Profits and cash dividends from an associated company have increased over the last 3 years. 2.58

The existing property owned by Keppel Inc. has now appreciated 30% in value over its acquisition cost in 1985. 1.42

Competitors have been aggressive in their marketing in the last two years. -1.50

A variable bonus scheme was introduced late this year, whereby the magnitude of year-end bonuses was dependent on the firm's performance. 2.00

Discounts have been offered on some lines of products to increase turnover. -0.17

Preference dividends have been paid on time. -1.33

Management is optimistic that the results for the next year will show an improvement over the current year. 1.58

As in previous years, the company's main clientele was located within Michigan. 0.58

As in the past few years, the company did not make any changes in accounting methods this year. 0.00

Until recently, only the sales order and inventory system was computerized. 0.33

Keppel Inc.'s completed the computerization of its payroll system this year. 1.00

**APPENDIX 2**  
**EXPERIMENTS 1 AND 2**

**STAGE 1 FACTS (NEGATIVE EXPECTATION CONDITION)**

Keppel Inc. is a small manufacturer of packaging materials located in Dearborn, Michigan.

It makes a variety of glass containers, plastic containers and home canning products.

Most key executives of the company have been with the firm for the last 10 years.

4 years of consecutive losses have reduced net worth from a high of \$1 million to \$0.4 million.

Had the newly revised state property tax been effective in 1988, this would have reduced 1988's loss from \$220,000 to \$170,000.

Management indicated that the some banks are not very receptive to granting the company additional credit .

Keppel Inc.'s working capital is below the industry average.

It is uncertain if existing shareholders would inject new capital into the firm if required.

Preference dividends have been in arrears since 3 years ago.

Competitors have not been aggressive in their marketing in the last two years.

Management plans to implement some cost cutting measures over the next few years.

Management is not optimistic that the results for the next year will show any improvement over the current year.

Keppel Inc. has been forced to take an unfavorable position in can pricing due to the weak demand for metal cans.



**APPENDIX 3**  
**EXPERIMENTS 1 AND 2**

**STAGE 1 FACTS (POSITIVE EXPECTATION CONDITION)**

Keppel Inc. is a small manufacturer of packaging materials located in Dearborn, Michigan.

It makes a variety of glass containers, plastic containers and home canning products.

Most key executives of the company have been with the firm for the last 10 years.

4 years of good performances have increased net worth from \$0.4 million to \$1 million.

Had the newly revised state property tax been effective in 1988, this would have reduced 1988's profit from \$220,000 to \$170,000.

Management indicated that there would be no problems in arranging additional credit.

Keppel Inc.'s working capital is above the industry average.

It is likely that shareholders would inject additional capital into the company if the need arises.

Preference dividends have been paid on time.

Competitors have been aggressive in their marketing in the last two years.

Management has no immediate plans to restructure any of its operations.

Management is optimistic that the results for the next year will show an improvement over the current year.

Keppel Inc. has been able to take a favorable position in can pricing due to the strong demand for metal cans.

**APPENDIX 4**  
**EXPERIMENTS 1 AND 2**

**STAGE 2 FACTS**

(Key to alphabets in parentheses : P= Positive , N= Negative, R= Irrelevant. Subjects were not be shown the key.)

The long-retired founder of the company, Andrew Beal, passed away in September 1989. (R)

His son, Paul, who had assumed his father's duties for some time, is now officially the managing director of the company. (R)

Paul Beal has made few significant changes to the company's operations or policies. (R)

The accounts receivable turnover is 46 days, compared to an industry average of 66 days. (P)

Sales for this year was 7.3% below the budget. (N)

Goods returned due to defects as a percentage of sales is 5.6% compared to an industry average of 3.9%. (N)

An improved heat-resistant container will be introduced within the next few months, and is estimated to add 10% to existing sales. (P)

As in previous years, the company's main clientele was located within Michigan. (R)

A new state value-added tax to be passed later this year, may adversely affect the company's performance. (N)

The company was able to take advantage of about 80% of suppliers' discounts this year, compared to 55% last year. (P)

This year's trading condition was helped by strong growth in the plastic containers sector. (P)

The company's debt-equity ratio is 4.8 compared to an industry average of 2.2. (N)

During the year, John Dewey, the marketing manager, retired and was succeeded by Arnold Speltz. (R)

Management and labor representatives indicate that there is a possibility that factory workers will strike this year to demand higher wages. (N)

Keppel Inc. has obtained a three-year purchase commitment from Straits Trading, Inc. that would add 9% to existing sales. (P)

Discussions with Keppel Inc.'s attorney indicate that a material liability from litigation may arise this year. (N)

Hoover Inc. has signed a two-year contract to supply resin, a key raw material, to Keppel Inc. at a favorable price. (P)

Keppel Inc. has a somewhat reliable internal control system. The audit would place moderate reliance on the system. (R)

Management intends to phase out the slow-growth glass-container division to focus resources on other sectors with better margins. (P)

The price of soda ash, a key cost component, is expected to rise further in the months ahead. (N)

This year, inventory turnover was 62 days compared to an industry average of 85 days. (P)

14% of Keppel's accounts receivable was written off this year owing to the bankruptcy of a customer, Ganda Inc.. (N)

In early June, a fire resulted in losses of about \$35,000, which has since been paid by the insurance company. (R)

New product regulations may have adverse impact on some of its competitors' products, and benefit Keppel Inc. indirectly. (P)

Keppel's share of the market within Michigan this year was 3.7%, down from 4.6% in the previous year. (N)

Competition and excess industry capacity in the slow growth areas of metal and glass containers will decrease profit margins. (N)

Profits and cash dividends from an associated company have increased over the last 3 years. (P)

As in the past few years, the company did not make any changes in accounting methods this year. (R)

Until recently, only the sales order and inventory system was computerized. (R)

Keppel Inc. completed the computerization of its payroll system this year. (R)

## APPENDIX 5

## EXPERIMENT 1

## INSTRUCTIONS TO SUBJECTS IN SELF-GENERATED CONDITION

**Stage 1**

You are the in-charge auditor of Keppel Inc.. Below are some of the salient facts documented in the working papers that you gathered as part of the audit for 1988.

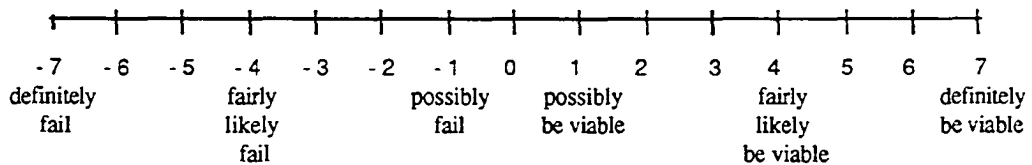
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Stage 1 facts presented  
(see Appendices 2 & 3)

---

Make an evaluation of the financial viability of Keppel Inc. BY THE END OF 1992. Indicate your judgment by marking a cross on the line below.

In my opinion, BY THE END OF 1992, Keppel Inc. will:



Name: \_\_\_\_\_

You should be prepared to defend the judgment that you have just made to the partner-in-charge. Carefully review the 1988 facts and your judgment in preparation of your justification to the partner-in-charge. Spend a few minutes to think of the reasons you would put forth to the partner to justify your evaluation.

**Stage 2**

You are again the in-charge auditor for this year's (1989) audit of Keppel Inc.. You have gathered the facts below as part of the current year's audit. Read them carefully. Further instructions will be given later. You have 5 minutes to read.

---

Stage 2 facts presented  
(see Appendix 4)

---

**Instructions for judgment, recall and net-ratings tasks**  
(see Appendix 8)

## APPENDIX 6

## EXPERIMENT 1

## INSTRUCTIONS TO SUBJECTS IN INHERITED CONDITION

As part of your firm's new program to have periodic rotation of audit staff, you have been newly assigned as the in-charge auditor of Keppel Inc.. Below are some of the salient facts documented in the working papers that the previous auditor gathered as part of the audit for 1988.

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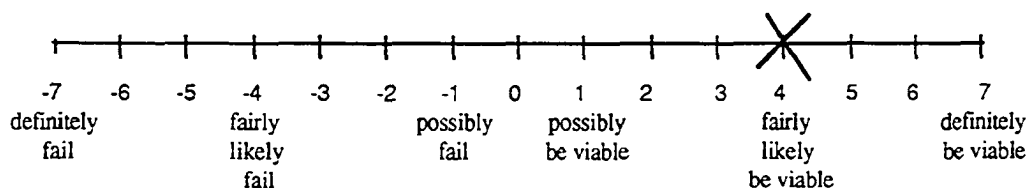
Stage 1 facts presented  
(see Appendices 2 & 3)

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The previous auditor made an evaluation of the financial viability of Keppel Inc. BY THE END OF 1992 and marked the cross on the line below.

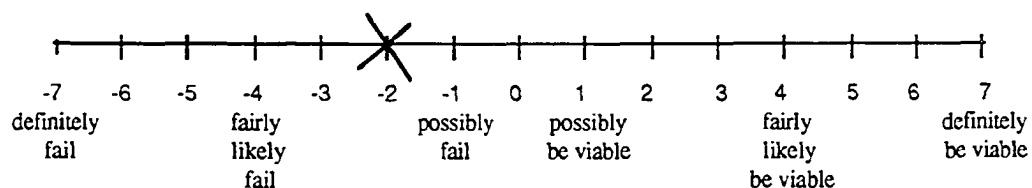
(subjects are shown either one of the scales below, depending on the Expectation condition)

*Positive expectation condition*



or

*Negative expectation condition*



**Stage 2**

You are the new in-charge for this year's (1989) audit of Keppel Inc.. Below are some of the facts gathered as part of the current year's audit. You will be asked to assess the financial viability of Keppel Inc. by the end of 1992 later on. You have 5 minutes to read.

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Stage 2 facts presented  
(see Appendix 4)

---

**Instructions for judgment, recall and net-ratings tasks**  
(see Appendix 8)

**APPENDIX 7****EXPERIMENTS 1 AND 2****INSTRUCTIONS TO SUBJECTS IN THE NEW-AUDIT CONDITION**

You are the in-charge auditor for this year's (1989) audit of Keppel Inc.. Below are some of the facts documented in the prior year's (1988) working papers and the current year's (1989) working papers. You will be asked to assess the financial viability of Keppel Inc. by the end of 1992 later on. You have 7 minutes to read.

1988 working papers

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Stage 1 facts presented  
(see Appendices 2 and 3)

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1989 working papers

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Stage 2 facts presented  
(see Appendix 4)

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**Instructions for judgment, recall and net-ratings tasks**  
(see Appendix 8)

**APPENDIX 8**

**EXPERIMENT 2**

**INSTRUCTIONS FOR SUBJECTS IN SELF-GENERATED CONDITION**

You are the in-charge auditor of Keppel Inc.. Below are some of the salient facts documented in the working papers that you gathered as part of the audit for 1988.

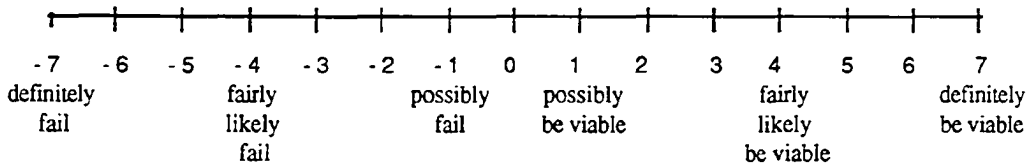
---

Stage 1 facts presented  
(see Appendices 2 & 3)

---

Please make an evaluation of the financial viability of Keppel Inc. BY THE END OF 1992. After making the evaluation, please write a short rationale memo indicating the basis for your evaluation. A random sample of these responses will be reviewed by personnel from the KPMG executive office in relation to another project. Please sign-off so that you may be contacted if necessary.

In my opinion, BY THE END OF 1992, Keppel Inc. will:





Rationale memo

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Name: \_\_\_\_\_

Office: \_\_\_\_\_

**Stage 2**

You are again the in-charge auditor for this year's (1989) audit of Keppel Inc.. You have gathered the facts below as part of the current year's audit. Read them carefully. Further instructions will be given later. You have 5 minutes to read.

---

Stage 2 facts presented  
(see Appendix 4)

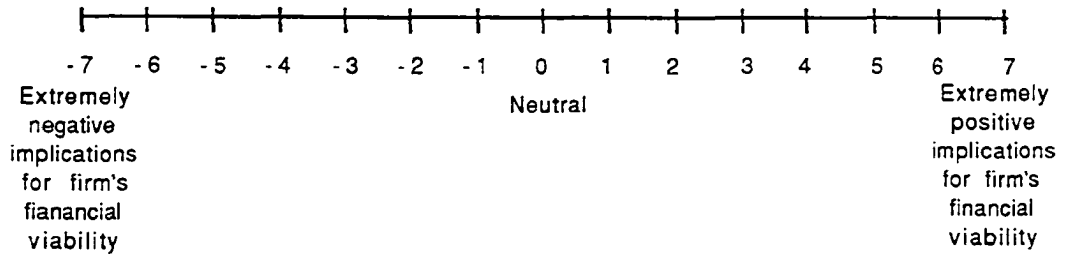
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**Instructions for judgment, recall and net-ratings tasks**  
(see Appendix 3)



**Relevance ratings**

You will be shown the facts you read earlier on. Please rate each individual fact on its implications for the firm's financial viability by the end of 1992 and write down the number corresponding to the scale below. You should put the number in the space provided before the start of each sentence.



## APPENDIX 10

## EXPERIMENTS 1 AND 2

## INSTRUCTIONS AND MATERIALS FOR DISTRACTION TASK

*As part of a separate study, we are also interested in how auditors make internal control evaluations. Presented below are some facts pertaining to a company which we shall identify as AB Chemicals. Please rate each individual fact on whether it is a positive aspect of the internal control system (P), a negative aspect of the internal control system (N), or essentially irrelevant to the internal control evaluation (I). Put the appropriate letter (P, N or I) on the line before each statement. You will be given 5 minutes for this task. Note that AB Chemicals is NOT the same firm that we have been focusing on for the financial viability assessment, namely Keppel Inc..*

- \_\_\_\_\_ AB Chemicals is a medium sized company that manufactures chemicals for the paper industry.
- \_\_\_\_\_ Its purchasing department is headed by Mr. Charles Wirth who has four clerks working for him.
- \_\_\_\_\_ The duties of these clerks are to decide on the requirements and place the purchase orders.
- \_\_\_\_\_ Purchase orders are authorized by the clerks who placed the order.
- \_\_\_\_\_ The Incoming materials warehouse is staffed by the supervisor, Mr. Ted Haskins and three loader operators.
- \_\_\_\_\_ Goods received are physically verified by the loaders and a receiving report is then prepared.
- \_\_\_\_\_ Access into the warehouse area is controlled.
- \_\_\_\_\_ The suppliers' invoices are received directly by the purchasing department from the incoming mail sort.
- \_\_\_\_\_ The purchase clerk who placed the purchase order is responsible for matching the invoices with the receiving report.
- \_\_\_\_\_ The purchasing clerk approves the invoices for payment and forwards them to the Accounts Department.
- \_\_\_\_\_ The Accounts department is staffed by Mr. John Doe, the Accounts supervisor with a clerical assistant.
- \_\_\_\_\_ The accounts clerk manages funds movements and does bank reconciliations.
- \_\_\_\_\_ Cheques made out and the supporting documents are reviewed by Mr. John Doe before he signs them.
- \_\_\_\_\_ Paid invoices are marked "Paid" by the accounts clerk.

- \_\_\_\_\_ The accounting for Accounts Payable is done on a batch process mode.
- \_\_\_\_\_ Once a month the subsidiary ledgers are printed and reconciled with the control ledger.

**Based on the above facts, how would you describe the internal control system of AB Chemicals? Circle the appropriate number.**

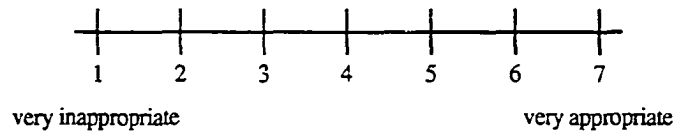
1. Very weak internal control system
2. Weak internal control system
3. Fairly weak internal control system
4. Average internal control system
5. Fairly strong internal control system
6. Strong internal control system
7. Very strong internal control system

**APPENDIX 11**

**EXPERIMENT 1**

**ADDITIONAL QUESTIONS FOR  
SELF-GENERATED GROUP AND INHERITED GROUP**

To what extent do you think that the first judgment you made in 1988 was appropriate?



Please elaborate on your response in the space below.

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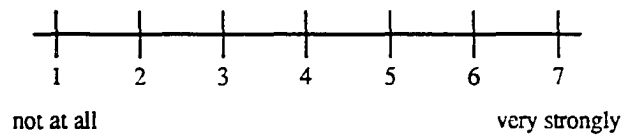


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When you were asked to make another judgment in 1989, to what extent did you feel inclined to maintain the judgment that you made in 1988? Mark a cross on the line below.



Please elaborate on your response in the space below.

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**APPENDIX 12**  
**EXPERIMENTS 1 AND 2**  
**DEBRIEFING QUESTIONNAIRE**

This is the final part of the study. Please answer the following questions as best as you can.

1. Length of experience: \_\_\_\_\_ months  
 Position in firm: \_\_\_\_\_  
 Office of affiliation: \_\_\_\_\_

2. Consider the audit assignments in the past year that you have been assigned. What percentage of assignments were repeated engagements? \_\_\_\_\_ %

3. What is your estimate of the percentage of all firms that fail? \_\_\_\_\_ %

4. On average, what is your expectation, if any, of the financial viability of a new client which you have not audited in the past? Circle one response.

Expectation of failure

No expectation

Expectation of  
viability

5. How interesting did you find this study to be? Circle the appropriate number.

Extremely Boring	1	2	3	4	5	6	7	Extremely Interesting
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6. Were there any aspects of the instructions in this study that you did not understand?

Circle one response. Yes No.

If your response was 'yes', please elaborate in the space below.

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7. Please list any other comments that you may have on the study.

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*Thanks so much for your patience and time. Your cooperation is deeply appreciated.*



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