

**The Influence of Contrast Effects on Auditors' Judgments
in Multiple Client Audit Environments**

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ABSTRACT

This study examines whether auditors are susceptible to *contrast effects* such that judgments made on a target client are affected by comparisons with information encountered from a previous client. Our results indicate that auditors assessing the internal audit (IA) quality of a target client after evaluating a strong prior client (i.e., a prior client with a very strong IA function) rated the quality of the target's IA function as being significantly lower in quality than auditors evaluating a weak prior client (i.e., a prior client with a very weak IA function) and auditors not receiving a prior client for evaluation (no prior client condition). In addition, we extend prior psychology and accounting research by examining whether the magnitude and direction of the contrast effects in the initial judgment results in an information trace that carries over to influence directly and indirectly related subsequent judgments for which no information is available to make comparisons. We find that a *comparative difference score* calculated using the auditors' assessments of quality for the target and prior client (i.e., the IA quality assessment for the target client less the assessment for the prior client) significantly affected their decisions to utilize internal auditors on the financial statement audit, even while controlling for auditors' formal IA assessments of the target client. These comparative difference scores also affected subsequent decisions regarding the risk of inventory obsolescence for the target client and the extent of planned audit testing in the inventory area. These findings suggest that the multi-client nature of the audit environment and the interconnectedness of the audit process have the potential to cause unexpected and sometimes dysfunctional outcomes that may affect audit efficiency and effectiveness.

Key Words: multi-client environment, internal audit, context effects, audit checklists.

INTRODUCTION

The multi-client audit context is a pervasive reality in audit practice as auditors are faced with continuously increasing workloads and time pressures. Due to increased use of standardized checklists, auditors encounter large amounts of information that are common across clients, and are expected to make similar but independent audit decisions for such clients. Research on *contrast effects* suggests that such circumstances may induce auditors to use a comparative framework where the decisions associated with a particular client (the target) may not be independent but instead, a function of the extent to which contrasts are made between the target and other current audit clients (Herr 1989; Stapel and Koomen 1998). This research extends accounting literature by examining whether auditors are susceptible to contrast effects in multi-client audit environments. In addition, the interconnectedness of auditing processes provides a unique setting to study the pervasiveness of contrast effects. This study extends prior accounting and psychology literature by investigating whether the magnitude of contrast effects due to comparisons with another client during an initial judgment results in an information trace that carries over to influence subsequent decisions where no comparative information is available.

Psychology research regarding the effects of contextual issues on judgment suggests that individuals in a particular area or domain are affected by comparisons between the information associated with a current judgment and information from other similar judgment tasks (e.g., Herr 1989, Stapel and Koomen 1998). In effect, prior judgment tasks from within a particular domain create a prime or a context against which the information from a target judgment task may be contrasted (Stapel and Koomen 1998; Wedell, Parducci, and Geiselman 1987). Such contrast effects are potentially critical to audit judgment processes because they suggest that the information associated with a given decision task will be evaluated differently depending on the nature of the prior contextual information (e.g., information from another recent audit client).

Thus, while auditors may have cumulative norms against which information can be compared, there is a strong potential for them to use a comparison-based evaluation process which utilizes readily available contextual information. To investigate this issue, we examine whether auditors are susceptible to contrast effects within a multi-client audit environment, as it is within such settings that auditors are often found and comparative contextual information is readily available. Specifically, we examine whether an auditor may evaluate the quality of a target client's internal audit (IA) department more positively (negatively) in situations where the auditor recently evaluated a weak (strong) internal audit department.¹

It is important to note that prior research has focused on the impact of contrast effects on the initial judgment for which the comparative information is available and the comparison process takes place (e.g., Highhouse, Paese, and Leatherberry 1996; Stapel and Koomen 1998). It is an empirical question whether contrast effects will carry-over to subsequent judgments where no information is available against which to make comparisons. The interconnectedness of the audit process provides a unique setting in which to investigate the cascading of contrast effects into subsequent tasks, even in the absence of comparative information. Since the entire audit process is comprised of a set of sequential tasks, the end result of one judgment process is often a direct input into a subsequent decision process (Hogarth 1991; Rau and Moser 1999). In situations where an initial decision is the result of a comparative process, we propose that the comparative decision process can yield both an *evaluative outcome* (i.e., good or bad evaluation) and a *comparative outcome* (i.e., the extent to which the target client is better or worse than the prior client) that may be carried forward and be used as inputs into subsequent audit decisions.

Consider the IA quality judgment where auditors determine their evaluative outcome of the IA department which is influenced by exposure to a prior client. The comparative outcome is an information trace that is directly related to the magnitude and direction of the differences

between the elements involved in the comparative process (prior client's IA department vs. current client's IA department). Prior accounting research has highlighted the role of comparative processes in decision making (Lipe and Salterio 2000; Kida, Smith and Maletta 1998). For example, Kida et al. (1998) found that individuals' overall investment decisions were influenced more by their memory of the relative rankings between the stocks in a set of investments than by their memory for the actual financial metrics. With respect to auditors' IA judgments, this research suggests the potential for an auditor's decision to utilize a target client's IA function or an inventory obsolescence judgment to be affected by more than just the formal IA quality assessment (good or bad evaluative outcome). Rather, the potential exists for the magnitude of the comparative outcome (better or worse) that results from the auditors' assessment of the target client's IA function versus that of the prior client to also affect subsequent planning decisions. Therefore, the current study extends prior accounting and psychology research by examining whether comparative decision processes are strong enough to influence subsequent independent decisions where no comparative information is available. Specifically, we examine the cascading of contrast effects from an initial IA quality judgment on a directly related task (IA usage) and a less directly related task (inventory judgment) for the target client.

Our results indicate that auditors are highly susceptible to contrast effects in making IA quality assessments. Auditors assessing the IA quality of the target client after evaluating a strong prior client (prior client with a very strong IA function) rated the quality of the target's IA function as being significantly lower in quality than ratings made by auditors evaluating a weak prior client (prior client with a very weak IA function) or no prior client. Comparative outcomes measured as *comparative difference scores* (i.e., the IA quality assessment for the target client less the assessment for the prior client) significantly affected their decisions to utilize internal

auditors on the financial statement audit, even while controlling for auditors' formal IA assessments. Thus, aside from just affecting auditors' IA quality assessments, the comparative outcomes resulting from the contrast effects had an incremental effect on auditors' IA usage decisions. The greater the auditors' perceived positive (negative) comparative difference, the greater (less) the assessment of IA usage, irrespective of the level of assessed IA quality.² Lastly, carry-over contrast effects were even strong enough to affect auditors' assessments of the risk of inventory obsolescence for the target client. Specifically, while controlling for the formal IA quality assessment for the target client, auditors in the weak prior client condition rated the risk of inventory obsolescence for the target to be significantly lower than those in the strong prior condition. Thus, auditors' decisions for the target client were significantly and systematically affected by the presence of a prior client such that the same target client was evaluated as a function of the existence and quality of the prior client's IA function.

The findings of this study have implications for audit practice. While the increased standardization of the audit process and the multi-client nature of the audit environment are a reality, such practices have the potential to cause unexpected and sometimes undesirable outcomes on audit efficiency and/or effectiveness. If auditors are exposed to a prior client with a strong IA group, then they may under-use a target client's IA group which could impact audit efficiency. Alternatively, if auditors are exposed to a weak prior client, then they may over-use a target client's IA group which could impact audit effectiveness. In addition, the findings indicate that, due to the interconnectedness of the audit process, there is a cascading of contrast effects into subsequent audit decisions that also have efficiency and effectiveness implications. In particular, decisions such as assessments of inventory obsolescence are also affected by the contrast effects from prior judgments, such as those involving IA quality. Thus, the efficiency and effectiveness ramifications of contrast effects early in the audit process may be far reaching.

THEORY AND HYPOTHESES

Multi-Client Audit Environment

The multi-client context is a pervasive reality in audit practice as auditors are faced with increasing workloads and time pressures. As such, auditors are often required to work on multiple clients in the same industry using standardized audit methodologies. The result is that auditors encounter large amounts of information that are common across industry clients. More specifically, these conditions often require auditors to make similar decisions across multiple clients using the standardized outputs of mechanisms such as uniform checklists.

Despite the ubiquitous nature of the multi-client environment, there has been little research to address its effects on the efficiency and effectiveness of the audit process. An exception, Lindberg and Maletta (2003) demonstrated that working in a multi-client environment can lead to distortions in memory, where facts relating to prior clients are confused with similar facts that relate to the target client. However, to date, the issue of whether multi-client environments actually affect auditor judgment and decision making has not been examined. Yet, research in social psychology suggests that the nature of the audit decision task in multiple client scenarios may be prone to contextually-based judgment effects.

The Role of Context

Prior cognitive research suggests that judgments are influenced by contextually activated information (e.g., previous experiences) where current judgments are interpreted and then made in terms of the prior context (e.g., Herr 1989; Stapel and Koomen 1998; Wedell, Parducci, and Geiselman 1987). In effect, the context in which a target stimulus is embedded provides an interpretive frame for comparative evaluation (Stapel and Winkielman 1998). This suggests that when possible, individuals will utilize a comparative judgment process when interpreting a target

stimulus. More importantly, it suggests that the same target stimulus can be evaluated differently depending on the context in which it is judged. With respect to the financial statement audit, this suggests that different audit judgments for a particular client may be based on another client or clients being addressed by the auditor at the time of the task.

The role of contextual issues in social cognition and social judgment research (e.g., Higgins 1996; Manis, Nelson, and Shedler 1988), marketing research (e.g., Rashmi and Monroe 2002) and research in strategic decision making (Highhouse, Paese, and Leatherberry 1996; Stapel and Koomen 1998) has been well documented. For example, in a strategic decision making context, Highhouse, Paese, and Leatherberry (1996) found that participants differentially rated the threat associated with an ambiguous strategic decision depending on whether they were initially exposed to a business opportunity or a business threat. Similarly, Adaval and Monroe (2002) found that participants judged a consumer product as less expensive when placed in a high-priced context versus a low-priced context. Research also suggests that decision makers may not be consciously aware that prior contexts are influencing current judgments (e.g., Herr 1989). Rather, decision makers may use the prior context as a standard of comparison without concomitant awareness.

In accounting, Lipe and Salterio (2000) examined judgment effects within a balanced scorecard scenario and found evidence that MBA students "...succumbed to the simplifying strategy of using only common measures in evaluating multiple managers (p. 297)." In essence, they found that even though participants were asked to provide independent evaluations of manager performance (i.e., they were not asked to compare or rank manager performance), comparative processes were utilized such that their evaluative judgments were only based on common measures. The unique measures, which had no basis for comparison within the context of the experiment, were not found to have any effect on participants' evaluative judgments.

Thus, participants resorted to a comparative framework which was evidenced by the fact that common rather than unique information had a greater effect on their judgments.

Due to the recent regulatory changes, auditors are operating at very high workloads using audit methods that are becoming increasingly more standardized. Thus, while auditors may have cumulative norms against which information can be compared, they may either subconsciously or consciously resort to a comparison-based evaluation process which utilizes readily available contextual information (i.e., information from a recently reviewed prior client), even though such comparisons may be normatively inappropriate. A propensity to fall victim to such tendencies will cause audit decisions to be affected by the coincidental nature of a prior client rather than being dominated by the cumulative norms of the auditor. To examine the susceptibility of auditors to such contrast effects, the following hypothesis will be investigated.

H1: Auditors will be susceptible to contrast effects in multi-client settings such that their assessments of IA quality for a target client will be a function of the IA quality of a prior client.

Initial Decisions, Comparative Outcomes, and Subsequent Audit Decisions

In situations where an initial decision is the result of a comparative process, more than one outcome may be generated and all such outcomes may be carried forward and used as inputs into a subsequent decision. More specifically, comparative decision processes can yield both an evaluative outcome (the formal decision) and a comparative outcome. The comparative outcome is an information trace that is directly related to the magnitude and direction of the differences between the elements involved in the comparative process. Thus, auditors' subsequent processes may be affected by the actual decision outcome that results from a previous comparative decision process (evaluative outcome) and by the strength of the contrast between the elements involved in the comparison (comparative outcome).

Support for the notion of a comparative outcome is based on prior research indicating that comparative processes are used during accounting decision making. For example, using a memory-based study, Kida, Smith and Maletta (1998) sequentially provided decision makers with two sets of financial securities in order to make a single investment decision. In one set, the best security outperformed all other securities by a wide margin based on the financial metrics, while in the other set the best security was only slightly better than the other securities. The sets were constructed such that the security that was only slightly better than the others with which it was grouped was the best overall security across the two sets, based on the values of the financial metrics provided. The security that was significantly better than the others with which it was grouped was the third best security across the two sets. Yet, based on their memories of the securities, 83% of subjects selected this latter security as the best security across both groups. Thus, they not only incorrectly identified the best security overall but they actually selected the third best security for investment. The implication of this study is that the comparison based evaluation performed on each group of securities resulted in subjects using the investments' relative rankings in their final investment decisions. In effect, final investment decisions were affected by both the actual financial metrics and the investments' relative rankings, providing evidence that comparative processes played a role in the decision process.

The current study extends prior accounting and psychology research by proposing that comparative outcomes will carry over from one independent decision to another, especially if the decisions are part of a sequence or series. The financial statement audit process is comprised of sets of sequential decisions. In particular, the audit environment has built-in interrelationships such that one phase of an audit can impact subsequent phases of the audit (Hogarth 1991). Thus, based on the predisposition of auditors and the nature of the audit environment, we argue that auditors will apply available comparative outcomes from a previous decision to a subsequent

decision task even when no comparative information is available. In particular, the propensity of decision makers to perform comparisons in complex evaluation tasks and generate comparative outcomes in conjunction with the sequential nature of audit decisions will cause auditors to utilize both comparative and evaluative outcomes from one decision process in a subsequent decisions task.

In the case of an auditor's IA evaluation, the auditor will assign a level of quality to the IA group (i.e., an evaluative outcome) as a result of the comparison with the prior client's IA group. The auditor will also develop a comparative outcome representative of the difference between the target and the prior IA group (e.g., the extent to which the target is better than the prior). We investigate whether comparative outcomes represented as the comparative difference between the auditors' assessments of quality for the target and prior client (i.e., the IA quality assessment for the target client less the assessment for the prior client) will significantly affect their decisions to utilize internal auditors on the financial statement audit, while controlling for auditors' formal IA assessments (evaluative outcomes). The following hypothesis is tested.

H2: While controlling for the auditor's assessment of IA quality, the extent to which internal audit is used by the external auditors will be a function of the magnitude and direction of the comparative difference that results from the IA quality evaluation process such that, the more negative (positive) the comparative difference the less (more) auditors will use the internal auditors in the performance of the financial statement audit.

We further examine the pervasiveness of the effects of comparative outcomes on subsequent audit decision tasks by determining whether the comparative outcomes from an IA evaluation will carry-over to a subsequent task that is not as directly related to the IA evaluation as the IA usage judgment (i.e., assessment of inventory obsolescence). For example, assume that an auditor does not have any comparative information immediately regarding the evaluation of inventory obsolescence for the target client. However, the auditor does have available the

comparative outcome from the prior judgment where he/she determined that the target IA group was significantly better (worse) in quality than the prior client's IA group. In the absence of available comparative information regarding the issue of obsolescence, the auditor may be prone to access and include the comparative outcome into the current evaluation.

Based on these arguments, we propose that, while controlling for the auditors' actual IA quality assessments, auditors' subsequent assessments of the target client's inventory obsolescence risk will be affected by the magnitude and direction of the contrast effect that results from the comparison between the target and a prior client's IA quality (i.e., the comparative outcome). Thus, the final hypothesis that will be tested is stated as follows:

H3: While controlling for the auditor's assessment of IA quality, the assessed risk of inventory obsolescence for the target client will be a function of the magnitude and direction of the comparative difference that result from the IA quality assessment process such that, the more negative (positive) the comparative difference the greater (lesser) the assessed risk of inventory obsolescence.

METHOD

Participants

Fifty-three auditors with an average of 4.68 years experience (SD =4.49) with Big-4 accounting firms participated in the experiment. Participants consisted of audit staff (17%), seniors (62.3%), managers (11.3%) and partners (9.4%). Since the majority of the participants were of the rank of audit senior and above, these auditors would be familiar with various audit planning decisions made in this study (Abdolmohammadi 1999). Eleven additional auditors participated in pretesting the research instrument.

Overview of the Study

To study the impact of audit decisions in a multi-client environment, auditors were randomly divided into three treatments; prior client with a strong IA staff (strong prior client

group), prior client with a weak IA staff (weak prior client group), and no prior client. The strong (weak) prior client group was provided with information indicative of a strong (weak) IA staff for the prior client. Auditors in the no prior client treatment received no information on the prior client. Auditors in the two prior client groups were required to evaluate the strength of the IA staff of the prior client (Prior Company). Thereafter, participants in all three groups were asked to evaluate the strength of the target IA group (Target Company). The audit participants were then asked to determine the extent to which they would rely on the Target Company's IA group as assistants in performing the external financial statement audit. This was followed by an evaluation of the Target Company's inventory to assess the potential obsolescence risk of one of its items and the extent of testing in the inventory area.

Experimental Materials and Procedures

Assessment of Prior Client's IA Staff

Auditors in the prior client groups read background information on the Prior Company and a summary of non-audited financial information for the year. The information indicated that the audit of the client was at the planning stage and documentation of the internal control procedures had been prepared but no compliance testing had been made. In addition, participants were told that the company had made no significant accounting policy changes, or reported any extraordinary items or other unusual non-operating activities over the last three years.

Thereafter, auditors in the prior client groups were given information on the IA department of the Prior Company to consider for audit planning. The information items were selected from a survey by Felix, Gramling, and Maletta (1998) which had reported the factors used by external auditors to evaluate the strength of IA staff. In total, auditors were given information on eleven factors. These factors were examined by two Big-4 audit partners who

verified that the information was the type that external auditors typically use to evaluate a client's IA staff. The information included items such as the percentage of internal auditors that passed the CPA exam, the time internal auditors spend on financial statement reporting activities versus operational efficiency, and the turnover level in the company's IA department.

In the weak prior client group, all the information on the IA staff indicated that the client had a weak IA staff. In the strong prior client group, the same information indicated that the client had a strong IA staff. For example, auditors in the weak prior client group were told that 30% of the internal auditors have passed the CPA exam, while auditors in the strong prior client group were told that 90% of the internal auditors have passed the CPA exam. We conducted pretests to verify that the information would be perceived as strong or weak by the two groups.³

After reading information on the IA staff, the auditors provided their assessment of the overall level of quality of the Prior Company's IA department (0 = Very Low - 100 = Very High). The IA quality assessments of auditors in the main experiment indicate that auditors in the strong prior client group rated the prior client's IA quality statistically higher than the weak prior client group (mean = 77.50, SD = 19.42 vs. mean = 30.26, SD = 9.05, $p < .001$). Finally, auditors rated the extent to which they would be willing to use the Prior Company's IA in the performance of the external financial statement audit (0 = No Use of Internal Audit - 100 = Very High Level of Use).

Assessment of the Target Client's IA Staff

Auditors in all groups then read information on a different client (Target Company) including general background information and a summary of non-audited financial information for the year. They were subsequently given eleven information items on the IA department of the Target Company. The information cues were the same as those provided to auditors in the prior

client groups when evaluating the IA of the Prior Company. However, all information on the IA staff of the Target Company indicated that the client had a moderately strong IA staff.⁴ We used a moderate scenario for the target client since prior psychology research indicates that contrast effects are most salient in ambiguous situations (Fiske and Taylor 1991; Herr, Sherman, and Fazio 1983). After reading information on the IA staff, the auditors provided their assessment of the overall level of quality of the Target Company's IA department (0 = Very Low - 100 = Very High) and the extent to which they would be willing to use the Target Company's IA group in the performance of the external audit (0 = No Use of Internal Audit - 100 = Very High Level of Use).

Assessment of the Target Client's Inventory

Following the IA assessment, auditors were asked to perform a preliminary obsolescence risk assessment of the Target Company's inventory. Given the salience of contrast effects in ambiguous situations (Fiske and Taylor 1991; Herr, Sherman, and Fazio, 1983), we used an inventory task that both supported and discounted the existence of inventory obsolescence. Auditors were told that during the audit of last year's financial statements, emphasis was placed on evaluating the potential obsolescence of the Target Company's largest selling product. Further, they were told that the client's competition was in the process of producing and marketing a technologically superior product that could make the client's product obsolete. Thereafter, participants received additional information in the form of an audit memo which they were told had been compiled by a member of their audit team. The audit memo contained detailed information that both supported and refuted the existence of inventory obsolescence in the target year. The information covered the technology, production, and marketing aspects of the inventory in question. For example, while the information indicated that the competition had

developed a technologically superior product that would be sold at a lower price than the client's product (supporting inventory obsolescence), it was also noted that the client had an international market in which it could sell the inventory and the competition's product would not be available for 8-20 months (refuting inventory obsolescence).⁵ In addition to the inventory obsolescence information, the audit memo told all participants that the client's preference was for no write-down of inventory and no disclosure of the inventory issue. After reading the audit memo, participants were asked to indicate the likelihood that the Target Company may have an obsolescence problem (0 = Very Unlikely - 100 = Very Likely). In addition, participants provided an assessment of the extent of audit testing that was required in this area (0 = Limited Audit Testing - 100 = Extensive Audit Testing).

The final case materials were mailed to a contact partner at each firm. Each partner received a randomized set of instruments and was responsible for disseminating and collecting the instruments. The final instrument consisted of the task instructions, IA assessment for the prior client groups (Prior Company), IA assessment of the target client (Target Company), the inventory obsolescence task (Target Company), and some post-experimental demographic questions. The demographic questions addressed years of audit experience, rank, and the years of experience in auditing manufacturing clients.

RESULTS

Hypothesis 1: Auditor Susceptibility to Contrast Effects

The first hypothesis examines whether auditors are susceptible to contrast effects in multi-client settings such that their assessments of IA quality for a target client will be a function of a comparison between the internal auditors of the target and a prior client. To test this hypothesis, a regression analysis was performed with auditors' IA quality assessments for the

target client (Target Company) specified as the dependent variable (T_IAQUAL). The main independent variable was prior condition (PRIOR) where 1 represents the condition in which the prior client (Prior Company) had a strong IA group, 2 is the condition in which no prior client was provided and 3 is the condition in which the prior client had a negative IA group. The number of years of auditor manufacturing experience (MANF_EXP) and the auditor's RANK (1 = staff, 2 = senior, 3 = manager, 4 = partner) were specified as control variables. Descriptive statistics and correlation analyses for these variables are presented in Tables 1 and 2, respectively.

Based on our hypothesis, contrast effects would be demonstrated if the coefficient for PRIOR is significant and positive, as auditors' evaluations of the Target Company should be the lowest when PRIOR equals 1 and the highest when it equals 3. The results (see Panel A of Table 3) indicate that the two control variables (MANF_EXP and RANK) are not significant and, more importantly, indicate that PRIOR is highly significant ($p=.001$) with a positive coefficient (11.223). Thus, hypothesis 1 is supported as auditors' assessments of the Target Company's IA quality are significantly affected by the presence of a prior client's IA function.

A second test of H1 was performed with auditors' actual assessments of the IA quality of the Prior Company (P_IAQUAL) specified as the main independent variable instead of the categorical variable PRIOR. This variable captures each auditor's actual perception of the quality of the Prior Company's IA group and thus, is the best test for contrast effects. MANF_EXP and RANK were also included as control variables. Support for H1 would be evidenced by a negative coefficient for P_IAQUAL, indicating that auditors' assessments of the Target Company's IA quality are inversely affected by the quality of the Prior Company's internal auditors. In effect, the higher the auditor's assessment of the IA group for the Prior Company, the lower will be their assessment of the quality of the IA group for the Target Company. Consistent with H1, the

results (see Panel B of Table 3) indicate that P_IAQUAL is significant at the $p=.001$ level with a negative coefficient (-.352). Thus, H1 is highly supported in both sets of analyses, indicating that auditors are susceptible to contrast effects.

Hypothesis 2: Comparative Outcomes and IA Usage

H2 examines whether the use of internal auditors in the financial statement audit will be a function of the magnitude and direction of the contrast effects that result from the IA quality evaluation process such that, the more negative (positive) the comparative outcome measured as a comparative difference, the less (more) auditors will use the internal auditors in the performance of the financial statement audit. To examine this hypothesis, a regression analysis was performed with auditors' decisions to utilize the Target Company's IA group (T_IA_USE) as the dependent variable and the comparative difference measure (COMP_DIFF) as the main independent variable. COMP_DIFF was calculated by subtracting each auditor's actual assessment of the IA quality of the Prior Company (P_IAQUAL) from their assessment for the Target Company (T_IAQUAL). Auditors' assessments of IA quality for the Target Company were included as a control variable in the analysis along with MANF_EXP and RANK. Support for H2 would be evidenced by a significant and positive coefficient for the COMP_DIFF variable. The results (see Table 4) indicate that T_IAQUAL is significant ($p=.05$) and positive (.395), indicating that the higher the auditors' assessments of IA quality for the Target Company, the more they were willing to utilize the Target Company's IA group in performing the financial statement audit. The results also indicate that MANF_EXP and RANK were not significant at conventional levels. Most importantly, consistent with H2, COMP_DIFF is significant ($p=.03$) and positive (.191) indicating that auditors' comparative difference scores affected their decisions to use the Target Company's IA in performing the financial statement audit. Thus,

while controlling for auditors' IA quality assessments, the comparative differences that resulted from the comparative process of evaluating the Target Company's IA group had a significant effect on their subsequent decisions to use internal auditors in the financial statement audit.

Hypothesis 3: Comparative Outcomes and Inventory Obsolescence

H3 examines whether auditors' subsequent assessments of the risk of inventory obsolescence for the Target Company is also a function of the contrast effects that result from the IA quality evaluation for the Target Company such that, the more positive (negative) the comparative outcome measured as a comparative difference between the Target Company and the Prior Company, the lower (higher) the risk of inventory obsolescence determined by the auditor. To examine this hypothesis, a regression analysis was performed with auditors' assessments of the inventory obsolescence risk for the Target Company (T_INVRSK) as the dependent variable and the comparative difference measure (COMP_DIFF) as the main independent variable. COMP_DIFF was again calculated by subtracting each auditor's actual assessment of the IA quality of the Prior Company (P_IAQUAL) from their assessment for the Target Company (T_IAQUAL). Auditors' assessments of IA quality for the Target Company were included as a control variable in the analysis along with MANF_EXP and RANK. Support for H3 would be evidenced by a significant and negative coefficient for the COMP_DIFF variable. Consistent with H3, the results (see Table 5) indicate that COMP_DIFF is significant ($p=.037$) and negative ($-.219$) indicating that auditors' comparative difference scores from their IA quality assessments affected their decisions regarding the Target Company's risk of inventory obsolescence. In particular, the more auditors perceived the Target Company's IA group to be better than the Prior Company's, the less they assessed the Target Company's risk of inventory obsolescence. Interestingly, T_IAQUAL is only significant at the $p=.20$ level, suggesting that

auditors' formal IA quality assessments do not greatly affect their subsequent decisions regarding the risk of inventory obsolescence. Instead, the results indicate that the comparative difference scores had more of an effect on the subsequent decision process than the actual metric from the evaluation.⁶

A final regression analysis was performed to determine whether auditors' assessments of inventory obsolescence would translate into differences in the actual amount of inventory testing planned by the auditors for the Target Company. T_TEST, the level of audit testing planned in the inventory area for the Target Company, was specified as the dependent variable (0 - limited testing to 100 - extensive testing), with the risk of inventory obsolescence (T_INVRSK) and the extent of IA usage on the audit (T_IA_USE) as independent variables. MAN_EXP and RANK were also included as control variables. The logical expectation is that the level of risk will be positively correlated with the amount of planned audit testing in the inventory area. The results (see Table 6) indicate that T_INVRSK is significant ($p=.005$) with a positive coefficient (.265). Thus, auditors' assessments of the risk of inventory obsolescence are significantly affected by auditors' susceptibilities to contrast effects which in turn, significantly affect auditors' planning decisions. This finding is important because it further highlights the overall ramifications of context based contrast effects on the interconnected nature of the decision making processes faced by auditors.⁷

SUMMARY

In this paper, we examine the influence of contrast effects on auditors' judgments in a multi-client environment. Our results indicate that auditors are highly susceptible to contrast effects in making IA quality assessments. After evaluating a strong prior client, auditors assessed the IA quality of a target client as being significantly lower in quality than auditors evaluating a

weak prior client and those not receiving a prior client. Comparative outcomes measured as difference scores using the auditors' assessments of quality for the target and prior client (the IA quality assessment for the target client less the assessment for the prior client) significantly affected their decisions to utilize internal auditors as assistants on the financial statement audit, even while controlling for auditors' formal IA assessments. In effect, aside from solely affecting auditors' IA quality assessments, contrast effects had an incremental effect on auditors' decisions regarding IA usage. The greater the auditors' perceived positive (negative) comparative outcome, the greater (less) the assessment of IA usage, irrespective of the level of assessed IA quality. Contrast effects from the IA quality evaluation were also found to affect auditors' assessments of the risk of inventory obsolescence for the target client. Specifically, while controlling for the formal IA quality assessment for the target client, auditors in the weak prior client condition rated the risk of inventory obsolescence for the target to be significantly lower than those in the strong prior condition. Thus, auditors' decisions for the target client were significantly and systematically affected by the presence of a prior client such that the same target client was evaluated as a function of the existence and quality of the prior client's IA function. These results extend both accounting and psychology research by demonstrating the cascading of contrast effects into subsequent decisions for which no comparative information is available.

The results have implications for audit practice. While the multi-client nature of the audit environment and the increased standardization of the audit process are a pervasive reality, such practices have the potential to cause unexpected and sometimes dysfunctional outcomes that may affect audit efficiency and/or effectiveness. For example, if auditors are exposed to a prior client with a strong IA group, then they may under-use a target client's IA group which could impact

audit efficiency. Alternatively, if auditors are exposed to a weak prior client, then they may over-use a target client's IA group which could impact audit effectiveness.

The findings also indicate that due to the interconnectedness of the audit process, there is a cascading of contrast effects into subsequent audit decisions that also have efficiency and effectiveness implications. In particular, decisions such as assessments of inventory obsolescence are also affected by the contrast effects from prior judgments, such as those involving IA quality. Thus, the efficiency and effectiveness ramifications of contrast effects early in the audit process may be far reaching. Based on this potential, future research should investigate mechanisms/training approaches that may serve to minimize the occurrence of contrast effects. Actions as simple as educating auditors about the nature of such tendencies and the circumstances that increase their likelihood may limit their effects on the audit process.

Potential limitations of this study provide several productive areas for future research. For example, auditors in this study were only exposed to two clients. The external validity of this stream of research could be improved by increasing the numbers of clients to which auditors are exposed. In future research, each auditor could be exposed to multiple firms, and asked to make subsequent judgments for them. This research would lend additional insight into contrast effects and the multi-client nature of the audit. While this study focused on two general types of audit tasks, assessments of IA and inventory, future research could examine the influence of contrast effects for other types of audit tasks. Such research would indicate the pervasiveness and limits of contrast effects on audit judgment. Since this is the first study to examine the influence of the multi-client environment on auditor judgment, future research could examine the influence of other types of decision biases which may influence auditors' decision making while working on multiple clients. This research would enhance our understanding of the pervasive nature of the multi-client environment and its impact on audit efficiency and effectiveness.

ENDNOTES

1. Hereafter, the term contrast effects will refer to situations in which comparisons occur between the target and prior contextual information. It should be noted that context based effects can result in both “assimilations” (i.e., target is rated similar to the context) or “contrasts” (i.e., target is rated different to the context). Research indicates that numerous factors can influence whether assimilation or contrast effects will occur (Foti and Hauenstein 1993). Context information has been found to be used as a reference frame and result in contrast effects when this information belongs to the same category as the target issue (Stapel and Koomen 1997, 1998). For example, Stapel and Koomen (1997) found that when evaluating an ambiguous target person, contrast effects occurred when participants were primed with a friendly or hostile person exemplar (e.g., Hitler or Ghandi) and assimilation effects occurred when participants were primed with a friendly or hostile animal exemplar (e.g., shark or puppy). In addition, Canan and Knight (1996) found that assimilation effects occurred when participants did not actually rate previous performance in the experiment and contrast effects occurred when participants did rate the previous performance in the experiment. Finally, Wedell, Parducci and Geiselman (1987) found that contrast effects are more likely to occur in successive ratings while assimilation effects are more likely to occur in simultaneous ratings. In a multi-client context, it is likely that auditors will be making successive similar judgments on various clients, conditions leading to contrast effects.

2. We define a positive comparative difference as a situation where the current client is evaluated more favorably than the prior client. Similarly, we define a negative comparative difference as a situation where the current client is evaluated more unfavorably than the prior client.

3. The strong and weak versions of the IA cues were pretested using 18 senior auditing students. Based on the cues, participants were asked to rate the quality of the client's IA staff on a one hundred-point scale. The results indicated that participants given the strong version of the instrument evaluated the level of quality of the client's IA staff to be significantly higher (mean rating = 81.11) than participants given the weak version of the instrument (mean = 25.55, $t = 11.39$, $p < .001$).
4. Ten additional senior auditing students were used to pretest the moderate version of the IA cues. Results indicated that participants given the moderate version of the instrument rated it significantly higher (mean = 65.00) than the weak version of the instrument pretested earlier (mean = 25.55), and significantly lower than the strong version of the instrument (mean = 81.11, p -values $< .001$).
5. The inventory obsolescence task had been used in prior research and was modified for the present study (see Anderson et al. 1997; Moreno and Bhattacharjee 2003). In addition, two partners, one senior manager, and six seniors pretested the inventory task. The pretest indicated that the information provided was realistic and typical of inventory information that auditors encounter during an audit. They also confirmed that the inventory task contained information that both supported and discounted the existence of inventory obsolescence.
6. The analysis presented in Table 5 was also performed excluding the COMP_DIFF variable but still including T_IAQUAL. Consistent with the original regression, T_IAQUAL was not significant at conventional levels. A final analysis included the COMP_DIFF variable and excluded T_IAQUAL. Also consistent with the original analysis, COMP_DIFF was still significant at the $p < .05$ level.
7. This analysis was also performed including the COMP_DIFF variable. It was not significant.

TABLE 1**Descriptive Statistics****Panel A: Continuous Variables**

Variable	Mean	Std. Deviation	Minimum	Maximum
T_IAQUAL	58.86	16.10	10	90
T_IA_USE	44.81	19.48	0	90
T_INVRSK	59.90	19.15	20	100
T_TEST	73.77	14.61	40	100
P_IAQUAL	53.24	28.14	10	100
MANF_EXP	4.63	3.42	0	11

Panel B: Categorical Variables

Variable		# of Responses	Percentage
PRIOR	1 = positive prior	18	34.0
	2 = no prior	16	30.2
	3 = negative prior	<u>19</u>	<u>35.8</u>
		<u>53</u>	<u>100.0</u>
RANK	1 = staff	9	17.0
	2 = senior	33	62.3
	3 = manager	6	11.3
	4 = Partner	<u>5</u>	<u>9.4</u>
		<u>53</u>	<u>100.0</u>

Note:***Continuous Variables***

T_IAQUAL	Auditor assessment of overall internal audit quality of the Target Company, which ranges from 0 (very low) to 100 (very high).
T_IA_USE	Auditor assessment of overall willingness to use internal auditors of the Target Company on the financial statement audit. Scores range from 0 (very low) to 100 (very high).
T_INVRSK	Auditor assessment of risk of inventory obsolescence for the Target Company. Scores range from 0 (very unlikely) to 100 (very likely).
T_TEST	Auditor assessment of the extent of audit testing required for the inventory area for the Target Company. Scores range from 0 (limited testing) to 100 (extensive testing).
P_IAQUAL	Auditor assessment of overall internal audit quality of the Prior Company, which ranges from 0 (very low) to 100 (very high).
MANF_EXP	Number of years of auditor manufacturing experience.

Categorical Variables

PRIOR	Prior condition (1 = prior client has strong internal audit group, 2 = no prior client provided, 3 = prior client has negative internal audit group).
RANK	Auditor rank within firm (1 = staff, 2 = senior, 3 = manager, 4 = partner).

TABLE 2
Correlation Matrix

	T_IAQUAL	T_IA_USE	T_INVRSK	T_TEST	P_IAQUAL	MANF_EXP
T_IAQUAL	1.000	.611	-.219	.066	-.602	-.280
T_IA_USE	.611	1.000	-.177	.048	-.603	-.303
T_INVRSK	-.219	-.177	1.000	.357	.319	-.049
T_TEST	.066	.048	.357	1.000	.023	-.197
P_IAQUAL	-.602	-.603	.319	.023	1.000	.168
MANF_EXP	-.280	-.303	-.049	-.197	.168	1.000

Bolded cells: Correlation is significant at the 0.05 level (2-tailed).

Note:

Continuous Variables

T_IAQUAL	Auditor assessment of overall internal audit quality of the Target Company, which ranges from 0 (very low) to 100 (very high).
T_IA_USE	Auditor assessment of overall willingness to use internal auditors of the Target Company on the financial statement audit. Scores range from 0 (very low) to 100 (very high).
T_INVRSK	Auditor assessment of risk of inventory obsolescence for the Target Company. Scores range from 0 (very unlikely) to 100 (very likely).
T_TEST	Auditor assessment of the extent of audit testing required for the inventory area for the Target Company. Scores range from 0 (limited testing) to 100 (extensive testing).
P_IAQUAL	Auditor assessment of overall internal audit quality of the Prior Company, which ranges from 0 (very low) to 100 (very high).
MANF_EXP	Number of years of auditor manufacturing experience.

Categorical Variables

PRIOR	Prior condition (1 = prior client has strong internal audit group, 2 = no prior client provided, 3 = prior client has negative internal audit group).
RANK	Auditor rank within firm (1 = staff, 2 = senior, 3 = manager, 4 = partner).

TABLE 3

Regression Results for Hypothesis 1

Panel A: Test of Hypothesis 1

Model: $T_IAQUAL = \beta_0 + \beta_1 \text{PRIOR} + \beta_2 \text{MAN_EXP} + \beta_3 \text{RANK} + \varepsilon$

Variables	Hyp	Expected Sign	β	Std. Error	t-value	Sig.	VIF
CONSTANT			47.246	6.538	7.226	.001	
PRIOR	H1	+	11.223	2.022	5.551	*.001	1.013
MAN_EXP			-.524	.583	-.898	.373	1.382
RANK			-4.039	2.455	-1.645	.106	1.376

*Hypothesized factor significant at the $p \leq .05$ level

Model:

R Square = .458 Adjusted R Square = .425

F- Ratio = 13.79 Signif. F < .0001

Panel B: Alternative Test of Hypothesis 1

Model: $T_IAQUAL = \beta_0 + \beta_1 P_IAQUAL + \beta_2 \text{MAN_EXP} + \beta_3 \text{RANK} + \varepsilon$

Variables	Hyp	Expected Sign	β	Std. Error	t-value	Sig.	VIF
CONSTANT			84.697	8.370	10.119	.001	
P_IAQUAL	H1	-	-.352	.085	-4.170	*.001	1.033
MAN_EXP			-.192	.855	-.224	.824	1.324
RANK			-2.841	4.153	-.684	.499	1.310

*Hypothesized factor significant at the $p \leq .05$ level

Model:

R Square = .379 Adjusted R Square = .322

F- Ratio = 6.70 Signif. F < .001

Note:

T_IAQUAL Auditor assessment of overall internal audit quality of the Target Company, which ranges from 0 (very low) to 100 (very high).

PRIOR Prior condition (1 = prior client has strong internal audit group, 2 = no prior client provided, 3 = prior client has negative internal audit group).

P_IAQUAL Auditor assessment of overall internal audit quality of the Prior Company, which ranges from 0 (very low) to 100 (very high).

MANF_EXP Number of years of auditor manufacturing experience.

RANK Auditor rank within firm (1 = staff, 2 = senior, 3 = manager, 4 = partner).

TABLE 4
Regression Results for Hypothesis 2

Model: $T_IA_USE = \beta_0 + \beta_1 COMP_DIFF + \beta_2 T_IAQUAL + \beta_3 MAN_EXP + \beta_4 RANK + \varepsilon$

Variables	Hyp	Expected Sign	β	Std. Error	t-value	Sig.	VIF
CONSTANT			37.868	16.026	2.363	.024	
COMP_DIFF	H2	+	.191	.099	1.939	*.030	3.307
T_IAQUAL		+	.395	.236	1.671	*.050	3.322
MAN_EXP			-.871	.809	-1.076	.290	1.326
RANK			-6.607	3.954	-1.671	.104	1.329

*Hypothesized factor significant at the $p \leq .05$ level

Model:

R Square = .633 Adjusted R Square = .587
F- Ratio = 13.77 Signif. F < .0001

Note:

T_IA_USE Auditor assessment of overall willingness to use internal auditors of the Target Company on the financial statement audit. Scores range from 0 (very low) to 100 (very high).

COMP_DIFF T_IAQUAL minus P_IAQUAL.

T_IAQUAL Auditor assessment of overall internal audit quality of the Target Company, which ranges from 0 (very low) to 100 (very high).

MANF_EXP Number of years of auditor manufacturing experience.

RANK Auditor rank within firm (1 = staff, 2 = senior, 3 = manager, 4 = partner).

TABLE 5

Regression Results for Hypothesis 3

Model: $T_INVRSK = \beta_0 + \beta_1 COMP_DIFF + \beta_2 T_IAQUAL + \beta_3 MAN_EXP + \beta_4 RANK + \varepsilon$

Variables	Hyp	Expected Sign	β	Std. Error	t-value	Sig.	VIF
CONSTANT			35.874	19.266	1.862	.072	
COMP_DIFF	H3	-	-.219	.119	-1.846	*.037	3.307
T_IAQUAL		-	.241	.284	.849	.202	3.322
MAN_EXP			-2.337	.973	-2.403	.022	1.326
RANK			10.381	4.753	2.184	.036	1.329

*Hypothesized factor significant at the $p \leq .05$ level

Model:

R Square = .267 Adjusted R Square = .176
 F- Ratio = 2.918 Signif. F < .036

Note:

T_INVRSK Auditor assessment of risk of inventory obsolescence for the Target Company which ranges from 0 (very unlikely) to 100 (very likely).
 COMP_DIFF T_IAQUAL minus P_IAQUAL.
 T_IAQUAL Auditor assessment of overall internal audit quality of the Target Company, which ranges from 0 (very low) to 100 (very high).
 MANF_EXP Number of years of auditor manufacturing experience.
 RANK Auditor rank within firm (1 = staff, 2 = senior, 3 = manager, 4 = partner).

TABLE 6

Regression Results for Audit Testing

Model: $T_TEST = \beta_0 + \beta_1 T_INVRSK + \beta_2 T_IA_USE + \beta_3 MAN_EXP + \beta_4 RANK + \varepsilon$

Variables	Expected Sign	β	Std. Error	t-value	Sig.	VIF
CONSTANT		46.558	10.958	4.249	.001	
T_INVRSK	+	.265	.099	2.687	*.005	1.047
T_IA_USE		.110	.106	1.036	.306	1.248
MAN_EXP		-1.301	.643	-2.023	.049	1.415
RANK		5.834	2.804	2.080	.043	1.511

*Factor significant at the $p \leq .01$ level

Model:

R Square = .232 Adjusted R Square = .168
 F- Ratio = 3.63 Signif. F < .012

Note:

- T_INVRSK Auditor assessment of risk of inventory obsolescence for the Target Company which ranges from 0 (very unlikely) to 100 (very likely).
- T_IA_USE Auditor assessment of overall willingness to use internal auditors of the Target Company on the financial statement audit. Scores range from 0 (very low) to 100 (very high).
- T_TEST Auditor assessment of the extent of audit testing required for the inventory area for the Target Company. Scores range from 0 (limited testing) to 100 (extensive testing).
- MANF_EXP Number of years of auditor manufacturing experience.
- RANK Auditor rank within firm (1 = staff, 2 = senior, 3 = manager, 4 = partner).

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