

# CONTEMPORARY ISSUES IN BEHAVIORAL AUDITING: A REVIEW OF BEHAVIORAL AUDIT RESEARCH\*

Yrd. Doç. Dr. Naz SAYARI\*\*

Muhasebe Bilim  
Dünyası Dergisi  
Aralık 2017; 19(4); 810-861

## ABSTRACT

810

The purpose of this paper is to provide a comprehensive examination of behavioral auditing studies within the context of audit review and documentation, decision-making and auditor judgment, auditor characteristics and performance and auditor-client relationship. The study evaluates 30 mostly cited behavioral auditing studies for the period 1990-2010. First, prior research subjects are organized in terms of behavioral auditing including four major categories mentioned above. Second, the studies are investigated concerning the issues in psychology literature and related concepts are determined and classified within each context. Third, conceptual framework and variables used in the studies are explained and are followed by an evaluation of instruments, approaches and methods employed in measurement of the variables. Finally findings of the articles are demonstrated by stressing their importance on accounting and auditing literature.

**Keywords:** Behavioral auditing, decision-making, auditor characteristics

**JEL Classification:** M40, M42

## DAVRANIŞSAL DENETİMDE ÇAĞDAŞ KONULAR: DAVRANIŞSAL DENETİM ARAŞTIRMALARI İLE İLGİLİ BİR GÖZDEN GEÇİRME

### ÖZ

Bu çalışmanın amacı davranışsal denetim çalışmalarının, denetim değerlendirmesi ve dokümantasyon, karar alma ve denetçinin değerlendirilmesi, denetçinin karakteri ve performans ve denetçi-müşteri ilişkisi olmak üzere geniş kapsamda incelemesini sunmaktır. Bu bağlamda, 1990-2010 seneleri arasında 30 tane en çok atıf alan davranışsal denetim çalışması incelendi. Öncelikle, davranışsal denetim alanındaki

---

\* Makale gönderim tarihi: 07.10.2017; kabul tarihi: 10.11.2017.

\*\* Orta Doğu Teknik Üniversitesi, İşletme Bölümü, ORCID ID: 0000-0002-6295-7524, sayarin@metu.edu.tr.

geçmiş çalışmalar incelenerek bahsi geçen dört kategoriye ayrıldı. İkinci olarak, bu çalışmalar psikoloji literatürü ve bununla alakalı kavramlar araştırılarak her bir kontekst için sınıflama yapıldı. Üçüncü olarak, yapılan çalışmaların kavramsal çerçevesi, kullanılan değişkenler, ölçüm, yaklaşım ve metodolojisi değerlendirildi. Son olarak, bu çalışmalardan çıkan sonuçlar muhasebe ve denetim literatürü kapsamında incelenerek tablolarda sunuldu.

**Anahtar Kelimeler:** Davranışsal denetim, karar alma, denetçi karakter özellikleri

**JEL Sınıflandırması:** M40, M42

## 1. INTRODUCTION

Primary objective of behavioral auditing is to provide information that is useful to audit firms, regulators and corporations that are subject to external audit. Although behavioral audit literature provide ample evidence about a variety of auditing issues, this study selects four categories that are mostly cited and evaluated; (1) audit review and documentation, (2) decision-making and auditor judgment, (3) auditor characteristics and performance and (4) auditor-client relationship.

Audit review and documentation articles illustrate the importance of identifying control weaknesses and evaluation of consistent evidence in working papers (Agloglia et al. 2009, Ricchiute 1999). They also provide necessary information about the aspects that audit firms should consider in order to strengthen the efficiency of preparer-reviewer relationship (Fedor and Ramsay 2007, Payne et al. 2010, Wilks 2002). Decision-making and auditor judgment is another important subject in behavioral auditing literature that a variety of individual level factors have significant influences on audit the task (Chung and Monroe, 2001). Hence from the theoretical standpoint, it is compulsory to provide necessary solutions to existing problems in auditing tasks, internal control evaluation and analytical procedures which arises from the inadequate operations held in decision-making and judgment processes (Bierstaker and Wright, 2001). Behavioral auditing research further brings into light the importance of auditor characteristic and performance in improving audit quality. Behavioral differences between auditors significantly affect self-rated performance. Consequently, identifying and managing such differences among auditors mitigates audit failures and performance related inefficiencies in audit firms (Donnelly et al. 2003). Similarly, determining the appropriate reporting method (Hackenbrack and Nelson, 1996), choosing between mandatory versus voluntary audit rotation

(Wang and Tuttle, 2009) evaluating the association between client satisfaction and audit quality (Behn et al. 1997) and identifying the perception of auditors regarding clients' preferences (Haynes et al. 1998) are material issues in emphasizing the strategic interaction between audit firms and clients. In this respect auditor-client relationship directly or indirectly affects true value of reporting and audit firms' engagement risk.

The current paper examines the conceptual framework, method and results of studies in behavioral accounting, focusing on the mostly approached subjects in the literature. We focus our review on behavioral research published in the decade 1990-2010 and selected 30 articles from the journals including *Behavioral Research in Accounting*, *Accounting Horizons*, *Auditing: A Journal of Practice and Theory*, *The Accounting Review*, *Journal of Accounting Research*, *Accounting Organizations and Society* and *Contemporary Accounting Research*.

The remainder of this paper is organized into four sections. In each section we provide a brief summary of the research papers including the research subject, variables used in the experiment and measurement criteria for both dependent and explanatory variables. The first section demonstrates conceptual framework, measurement criteria and corresponding results of the articles covering audit review and documentation. The second section discusses the same procedure for the articles related to decision-making and auditor judgment. The third and the fourth sections evaluate the issues undertaken within the context of auditor characteristic and performance and auditor-client relationship respectively.

<b>Table 1. Audit Review and Documentation</b>			
	Subject	Variables	Measurement Criteria
Agloglia et al. (1999)	Fraud assessment process and task specific performance	<u>Independent variables</u> Three Major Documentation Types: -Supporting Documentation -Balanced Documentation -Component Documentation <u>Dependent variables</u> -Control Environment Weakness	<u>Independent variables</u> Required from participants to structure documentation in one of three ways  <u>Dependent Variables</u> Required an assessment of the impact of 10 randomly ordered fraud risk factors on the ability of the control environment to prevent fraud
Richhiute (1999)	Post-decision recognition bias	<u>Independent variables</u> -Seniors' yes or no substantial doubt decisions -Review condition <u>Dependent variables</u> -% of correctly recognized target sentences to the yes and no decision -% of incorrectly recognized lure sentences to yes and no decision	Evidence sentences that involve a substantial doubt decision adapted from Ricchiute (1992) employed. Participants indicate yes, no to the existence of a substantial doubt about company's ability to continue as a going concern.
Fedor and Ramsay (2007)	Audit review, corrective feedback and reviewer's power	<u>Independent variables</u> Three types of power: -Referent Power -Expert Power -Coercive Power <u>Dependent variables</u> Preparers' Responses: -Performance improvement efforts -Feedback seeking Impression management	<u>Independent variables</u> Hinkin and Schriesheim's (1989) source power items are used.  <u>Dependent variables</u> Items developed by Fedor and Ramsay (2007)
Payne et al. (2010)	Interactive review versus traditional review	<u>Independent variables</u> Audit Review Types: -Written review notes -Interactive review <u>Dependent variables</u>	Participants are asked whether they expect from reviewer to prepare written comments or to

		-Participants' responses to thoroughness of performance -Problem identification	prepare an interview An audit program containing a test of control of uncollectable accounts is employed, a modified version of Ricchiute (1998)
Table 1. Cont'd			
Kennedy and Peecher (1997)	Accuracy of auditors' assessment of their subordinates' technical knowledge	<u>Independent variables</u> -Supervisors' assessment of their own confidence -Technical knowledge gap between supervisors and subordinates <u>Dependent variables</u> -Overconfidence (OC) -Optimism Bias (OB)	<u>Independent variables</u> -Number of correctly answered questions before they assessed subordinates' likelihood of successfully answering questions -Senior-Staff pairs as high knowledge gap and manager-senior pairs as low knowledge gap <u>Dependent variables</u> -OC as the mean difference between two vectors that correspond to questions developed by Yates (1990) -OB is the average of the difference between subordinates' performance index and supervisors' predictions of subordinates performance
Wilks (2002)	Predecisional distortion of information	<u>Independent variables</u> -Partner's concern -Timing when the auditor encountered the partner's concern  <u>Dependent variables</u> Evaluation of evidence	<u>Independent variables</u> -Two statements are given to auditors and required three reasons for auditors' being optimistic or pessimistic in a going concern judgment -Learning the partner's concern before or after they evaluate evidence items

			<u>Dependent variables</u> Going concern evidence items developed by Ricchiute (1997)
Reimers and Fennema (1999)	Information source objectivity among reviewers and preparers	<u>Independent variables</u> Objectivity of source of information  <u>Dependent variables</u> Revision of allowance	<u>Independent variables</u> An independent credit agency is identified as a highly objective source developed by Joyce and Biddle (1981) <u>Dependent variables</u> Preparers are asked to calculate the allowance for uncollectible accounts , reviewers checked for the allowance calculated by the preparers. Participants are asked whether they revised the allowance

## 2. CONTEMPORARY ISSUES IN BEHAVIORAL AUDITING

### 2.1 Audit Review and Documentation

Considering auditors' requirement to assess effectiveness of their clients' controls Agoglia et al. (2009) examine the fraud assessment process and the role of task specific experience of review team. They investigate whether task specific experience moderates the effect of workpaper documentation structure which in turn affects audit team's ability of identifying control weaknesses. In this respect they define three major documentation types; supporting documentation in which preparers use supporting evidence for their assessments to document control environment's ability in preventing fraud, balanced documentation in which preparers use both important positive and negative evidence about control environment and finally component documentation, that preparers use important positive and negative evidence considering components of control environment. Here researchers' aim is to evaluate differences that would likely to arise between two approaches relating documentation structure: holistic approach that covers supporting and balanced documentation and judgment decomposition that breaks judgments into components and represents component documentation. They predict that auditors who prepare component documentation will detect control environment weaknesses better than auditors who use supporting and balanced documentation. They also expect that task specific experience of preparers would likely to decrease the effect of documentation type in the assessment of control weaknesses. Finally they predict that for component documentation, as the task specific experience of the reviewer increases, the difference between preparers and reviewers in terms of control weakness assessment will be greater than for supporting and balanced documentation. 108 auditors from international accounting firms are selected randomly in which half of them are assigned as preparers and other half as reviewers. They used ANOVA with three documentation structure types as independent variables and participants' mean assessments of control environment weaknesses as dependent variable. Results show that component documentation structure preparers inappropriately determine control weaknesses than preparers of supporting and balanced documentation structure. Moreover it is observed that component group put more attention on positive evidence that lead them to more favorable assessments of control weaknesses. According to quality assessments, component group was also found to be of lower

quality assessment than other groups. As a consequence results indicate that component documentation structure is less effective at identifying control weaknesses.

Ricchiute (1999) examines post-decision recognition bias and tests whether decision bias occurs among audit seniors as a consequence of what they remember and document in working papers. He also investigates whether biased documentation of seniors' further lead to decision biases among partners. Prior literature findings reveal that audit seniors' memories may be inaccurate since psychology reports that a decision maker's post-decision memory better captures facts that are consistent with their decisions (Moeckel and Plumlee 1989, Libby and Trotman 1993). Considering the persuasion perspective, in the review process preparers selectively remember, incompletely document in order to persuade the reviewer to strengthen their reputation. Under this theoretical framework, the researcher predicts that auditors seniors will be more likely to recognize target sentences correctly that are presented as evidence and which are also consistent with their substantial doubt decisions. He conducts two experiments. In the first experiment he tests audit seniors' recognition memories and its effect on prior audit decisions in a computer equipped training room. Sample size comprises of 40 audit seniors to whom evidence sentences are given that involves a substantial doubt decision that are ordered randomly for each subject. During the experiment it is required from participants to decide whether there is substantial doubt and to provide demographic data for both target and lure sentences. Finally it is requested to document the sentence in the working papers according to their importance level. They conduct a multivariate analysis in which the independent variables are identified as the seniors' yes or no substantial doubt decisions and review condition and dependent variables are the percentage of correctly recognized target sentences referring to the yes and no decision and the percentage of incorrectly recognized lure sentences referring to yes and no decision. It is observed that audit seniors are more likely to recognize target sentences correctly or recognize lures incorrectly, consistent with their substantial doubt decisions. The results suggest that audit seniors' memories are dependent on their prior decisions. In the second experiment, Ricchiute tests whether audit seniors' recognition bias affect audit partners' decisions. Participants comprise of 60 audit partners and distributed to three treatment groups according to their years of experience. The results show that audit partners' decisions are affected by audit seniors' recognition of evidence and documentation in working papers.

Audit review is an important issue in evaluating audit quality control and auditor training. Fedor and Ramsay (2007) investigate audit review and corrective feedback aspect of review relationship considering the effect of preparer's perceptions and reviewer's power. Corrective feedback refers to an organizational tool that determines the difference between organization's performance expectation from the employee and employee's performance. In this respect the researchers examine auditor's responses to corrective feedback through audit workpaper review. Power is defined as the "ability or potential to influence" (Fiol et al. 2001). They use three types of power to evaluate their implications on preparer's responses to corrective feedback: Referent power refers to one's influence over others, in which the powerholder is respected or admired by them. Expert power is the ability to affect others in an action because of specific knowledge or experience. Coercive power refers to exerting authority to others by fear, punishment or by suppression of free will. Preparers' responses are also investigated at three categories; preparers seeking performance improvement efforts, preparers seeking impression management and preparers seeking feedback. Researchers predict that referent and expert power will be positively related to performance improvement efforts, feedback seeking and impression management while coercive power is expected to be negatively related. To test the hypotheses they conduct a survey to 156 auditors from Big 6 audit firms regarding a specific recent review. Hinkin and Schriesheim's (1989) power assessment items are used in the survey. Researchers employ factor analysis for each power type and then run three separate regression models in which dependent variables are performance improvement efforts, feedback seeking and impression management. Results show that referent power is significantly and positively related with performance improvement efforts, feedback seeking and impression management while expert power is found to be positively related only with feedback seeking. Additionally it is observed that coercive power is significantly and negatively related with performance improvement efforts and feedback seeking. Results indicate that audit review provides attempt to improve performance and to seek for feedback over preparers. Overall results demonstrate that power has a significant effect on responses to review. Specifically participants perceive that their supervisors (reviewers) possess more expert power, similar referent power and less coercive power. Researchers state that perception of higher levels of expert power exhibits highly trained preparers. Since seniors and managers do not have hiring or firing responsibility, preparers are likely to perceive less coercive power for their reviewers.

To Winograd et al. (2000) a review can be fulfilled in two aspects: a reviewer (senior auditor) discusses the review notes face to face or the reviewer sends review notes to the auditor by email. Right alongside with these approaches, Rich et al. (1997a) demonstrates another approach, interactive review in which the reviewer meets with the auditors face to face and takes review notes during the interview and then shares it with the preparer. In line with the theoretical framework Payne et al. (2010) test whether the interaction review possesses greater accountability than traditional review (written review). They conduct a partial accounts receivable audit program to a sample of 117 auditors. In a between participants design, they define written review notes and interactive review as independent variables and participants' responses to thoroughness of performance and problem identification as dependent variables. They use path analysis in order to examine the effect of review types on preparers' performance on the audit procedures. The results show that interactive review increases audit effectiveness. The findings are useful for audit firms since using interactive review processes would facilitate identifying items that are indicative of fraud.

Technical knowledge is also an important issue in an audit review process since the level of technical knowledge has a significant effect on both reviewer's judgment and preliminary work of preparer's. Kennedy and Peecher (1997) examine accuracy of auditors' assessment of their subordinates about technical knowledge. Einhorn (1982) observed that auditors who overestimate their own knowledge are more likely to underestimate the need for guidance in the short run. Similarly auditors who overestimate others' knowledge are more likely to assign inadvertent tasks to unqualified subordinates or likely to review subordinate workpapers carelessly. In this respect Kennedy and Peecher predict that auditors are overconfident about their own technical knowledge. They further hypothesize that supervisors' overconfidence in their own knowledge is positively correlated with their assessments of subordinates' knowledge. Finally they predict that an increase in supervisors' overestimation of subordinates' knowledge will also contribute to an increase in the knowledge gap between supervisors and their subordinates. Researchers conduct an experiment for 42 auditors in which 15 of them are staff, 16 are seniors and 11 are managers. In order to make sure of the external validity of the supervisor-subordinate pairs they require from seniors and managers to select a staff or senior with whom they worked the most. Forming supervisor-subordinate pairs provide capturing the knowledge gap between high knowledge gap group where seniors assess the staff and low

knowledge gap group where managers assess seniors. Questionnaire contains general accounting auditing questions such as basic ratio analysis, reasons of account balance fluctuations and financial statement effects of errors and irregularities. Kruskal-Wallis test results reveal that there isn't a significant difference of performance between seniors and managers. Additionally, one factor ANOVA results show that magnitude of overconfidence does not exhibit significant difference due to level of profession. They further calculate optimism bias across professions and find that in both of the groups (low and high knowledge gap) supervisors are optimistic about their subordinates. However they also observed that supervisors in high knowledge group are more optimistic than supervisors in low knowledge gap group. The results indicate that managers who rely on their own knowledge use a more valid source of knowledge to judge seniors than seniors who judge staff.

Since audit review takes place between supervisors and their subordinates, it is important to determine behavioral differences among these parties in order to take steps through strengthening the audit review process. Wilks (2002) examines the review process between supervisors and subordinates and investigates whether subordinates tend to agree with supervisors' views under pre-decisional distortion effect in case supervisors share their disclosures earlier in the review process. Pre-decisional distortion of information happens when supervisors guide subordinates before subordinates evaluate evidence themselves. Since subordinates are likely to interpret evidence in an overly consistent manner with supervisors' opinions, the tendency of agreement with supervisors increases. Pre-decisional distortion perceive decision-making as a sequential discrimination process where individuals obtain feature of alternatives, evaluate value of differences between them and combine the resulting evaluation with prior knowledge to come up with an updated judgment. The researcher conducts two experiments. In the first experiment he predicts that auditors who know before they evaluate evidence for which the partner is concerned about undue pessimism (optimism) will evaluate evidence more favorably (unfavorably) than auditors who do not know the partner's concern. Wilks further predicts that pre-decisional distortion will also have a significant effect on judgments. He tests whether auditors that learn partner's concern about undue pessimism (optimism) before evaluating evidence, would likely to judge clients to continue as a going concern more (less) than auditors who learn the partner's concern after the evaluation of evidence. The sample size comprises of 60 audit managers from Big 5 audit firms. Experiment

covers reading and evaluating 20 evidence items related to a client's going concern and then to come up with a going concern judgment. Wilks uses Ricchiute's (1997) evidence items and employed a two by two between subject factorial design where the independent variables are the partner's concern and the time when the auditor learned the partner's concern. He analyzes the auditors' average evaluations using GLM and finds that auditors who obtain partner's concern about optimism (pessimism) before the evaluation interpret evidence more favorably (unfavorably) than auditors who receive partner's concern after the evaluation. The results indicate that partner's concern significantly affects auditor's evaluation. Wilks also finds a significant interaction between partner's concern and time which reveals that auditors' judgments are affected from partner's concern if it is known before the evaluation. Considering these outcomes, the researcher states that audit conclusions will be adversely influenced by the unconscious distortion of evidence of subordinates towards their supervisors' views. He asserts that incase supervisors do not consider this increased tendency of subordinates agreeing with their supervisors, the audit errors will also increase. In the second experiment, Wilks tests whether auditors expect managers to judge clients to continue as a going concern more in cases when the partners concerned about undue pessimism rather than undue optimism. For the second experiment 120 audit seniors were attended from Big 5 audit firms. Two by two between subject factorial design is employed where the independent variables are partner's concern and time when the manager is aware of the partner's concern. In line with the predictions GLM results show that participants (seniors) anticipate subordinates' agreement with the supervisor's view. The results suggest that the increased tendency of subordinates to agree with supervisor's views will increase the frequency of audit errors. As a consequence audit training programs should focus on necessary interventions about how to prevent pre-decisional distortions and how to increase the anticipation of supervisors for the fact that their views consciously or unconsciously influence subordinates' evidence evaluations. Similarly, to determine behavioral differences among preparers (subordinates) and reviewers (supervisors) Reimers and Fennema (1999) examine whether sensitivity to source objectivity of information differs among these parties in the audit working papers. Information source is determined as either the audit firm or the client's chief financial officer. Information source objectivity refers to level of independency of the source provided. According to auditing standards in order the sources to be independent and objective, they should be obtained outside an entity. Social psychology literature observes

that individuals who less frequently involve in initial decision-making are more likely to give weight to source of the information as well as its objectivity. Considering this finding, researchers predict that reviewers would be more likely to be sensitive to source objectivity of information than preparers. They conduct an experiment to 165 audit seniors and managers from five international accounting firms where 80 served as reviewers and 85 served as preparers. The experimental task includes accounts receivable aging schedule and historical collection of information. Preparers are asked to calculate the allowance for uncollectable accounts and to the reviewers identical information is provided with the allowance calculated by a subordinate. Researchers asked subjects whether they will revise the allowance. The results show that although there is no difference among the preparers and reviewers considering the proportion of revisions, reviewers are found to be more sensitive to the source of information than preparers. When the information came from the client, auditors in the reviewer role revise their estimates fewer than auditors in the preparer role. The results indicate that auditors who involve in the initial decision-making process are not sensitive to the information source objectivity. The outcomes support the potential benefit of the review process considering the fact that reviewers are more alert to the source objectivity than preparers.

<b>Table 2. Decision-making and Auditor Judgment</b>			
Author	Subject	Variables	Measurement Criteria
Robertson (2010)	The effect of ingratiation on auditor judgment	<u>Independent variables</u> -Ingratiation -Client incentive to influence the auditor  <u>Dependent variables</u> Probability of proposing an adjustment	<u>Independent variables</u> -whether the client attempted to ingratiate to the auditor or not -Observed by the effect of an adjustment to the inventory account on the client' ability to meet its EPS forecast <u>Dependent variables</u> The probability that the auditors will propose an adjustment for the client's inventory account
Cianci and Bierstaker (2009)	Importance of mood on decision-making and judgment	<u>Independent variables</u> Type of Mood: -Negative -Positive - Neutral <u>Dependent variables</u> -The number of correct causes of fluctuations in financial statement ratios -The likelihood of recommending to the client that inventory been written off	<u>Independent variables</u> Assessed by the participants' responses to Positive Affect Negative Affect Scale (PANAS) <u>Dependent variables</u> A series of statements on a scale were given to decide to report 25 extra items, potentially obsolete inventory to be written off and correct causes of fluctuations in financial statement ratios
Anderson et al. (2003)	Decision aid between auditors and clients	-The likelihood of reporting to the auditor supervisor that 25 extra items were sampled <u>Independent variables</u> Source of explanation: -client -decision aid <u>Dependent variables</u> Rate of explanation	Auditors in the decision aid or in the treatment group rated the likelihood that the explanations provided by the decision aid or the client accounted for all of the fluctuations in the inventory turnover ratio
Table 2. Cont'd			
Chung and Monroe (2001)	Audit judgment differences due to	<u>Independent variables</u>	<u>Independent variables</u> Number and

	audit task complexity and gender	-Gender -Level of task complexity  <u>Dependent variables</u> Accuracy of judgments	consistency of cues determined task complexity. Low complexity condition included 4.170 word whereas high complexity condition included 5.140 words. <u>Dependent variables</u> Employed case materials developed by Pincus (1991). Number of correct judgments made by the participants determined accuracy
Emby and Lowe (2002)	The effect of outcome information and hindsight effect on audit partner's judgment	<u>Independent variables</u> Outcome knowledge: -Negative -Positive -No outcome knowledge <u>Dependent variables</u> -Quality of judgment -Evidence ratings	<u>Independent variables</u> Three conditions are provided for each outcome knowledge based on Lowe and Reckers (1994) <u>Dependent variables</u> -Individual and aggregate ratings are utilized asking participants the likelihood of the company as a going concern -Participants are asked the importance of factors that the partner would consider in reaching his/her decision
Lowe and Reckers (2000)	Outcome knowledge as the difference between hindsight and foresight effect	<u>Independent variables</u> Four outcome conditions: -Foresight(no outcome knowledge) -Hindsight -Foresight+single outcome -Foresight+multiple outcomes <u>Dependent variables</u> -Assessment of inventory	<u>Independent variables</u> -Basic case narrative but no outcome information or decision aids provided -Case narrative followed by an explanation of outcome -Basic case narrative with a decision aid -Basic case narrative with a decision aid where multiple outcomes can be generated

		obsolescence -necessity to financial statement adjustment	<u>Dependent variables</u> -asked participants about assessment of inventory obsolescence -asked participants “to what extent would you insist upon full or some adjustment of inventory before providing an unqualified audit opinion?”
Table 2. Cont'd			
Bierstaker et al. (1999)	Effect of problem representation shift on auditor decision process	<u>Independent variables</u> -Auditor’s decision process  <u>Dependent variables</u> Problem representation shifts	<u>Independent variables</u> Assessment of correct identification of the seeded error, time spent for completion and the number of prompts provided <u>Dependent variables</u> Employed verbal protocol data from developed by Bedard and Biggs (1991a)

## 2.2. Decision-making and Auditor Judgment

Judging and deciding are two fundamental phases in auditing process. When an auditor investigates a specific financial statement contention such as valuation of inventory, he/she has to judge the significance of that contention in order to find out risk of misstatement, the evidence to confirm or disconfirm it. At the end of the judgment process, the auditor should decide on which information to transfer to the financial statement users (Solomon and Shields, 1995).

Robertson (2010) examines the effect of ingratiation on auditor judgment and further demonstrates whether ingratiation effect changes due to differences in the client's incentive to influence the auditor. He defines ingratiation as a strategic influence tactic such that the ingratiation tries to induce positive affect to influence judgments of the target so that the target is more likely to comply with ingratiation's request. Prior research findings support that clients can influence auditor judgment through ingratiation. Schafer (2007) observes that when the auditor likes the client, auditor's risk assessment of fraud risk is lower than when the auditor dislikes the client. Robertson bases his hypotheses on the source credibility theory, which states that individuals are likely to decrease reliance on a source of information as the credibility of that source decreases. Since clients have both corporate and personal incentives to influence auditors, researcher builds his experiment on the fact that increasing source incentive leads source credibility to decrease. He collects 54 professional auditors and 77 graduate accounting students to conduct 2×2 between subjects experiment. In order to manipulate the experiment Robertson randomly assign half of the participants to a client with high incentive and remaining participants to a client with low incentive. He further manipulates the study by assigning participants one of the two levels of ingratiation (ingratiation or no ingratiation) using random selection. The level of incentives is determined by clients' meeting the EPS forecast as a corporate incentive and receiving a bonus as a personal incentive. Robertson uses ANOVA in which ingratiation and incentive are independent variables and the probability that the auditor will propose an adjustment to the client's inventory account as the dependent variable. He employs MANOVA to examine whether the target places more weight on evidence that support the position of the ingratiation. Results indicate that when the positive effect on client increases, the probability of auditors proposing an adjustment decreases. He also observes that ingratiation

does not influence evidence weighting. Contrary to prior findings, he observes that ingratiation does not have a main effect on auditor judgment.

Cianci and Bierstaker (2009) emphasize on the importance of mood on decision-making and question under what conditions mood will improve or impair judgment. They investigate the effect of mood on hypothesis generation and ethical judgments performed by auditors. Positive mood is defined by the feelings of elation, pleasure and self-satisfaction while negative mood is defined by the feeds of threat, fear and anger (Mano, 1992; Watson and Tellegen, 1985). Negative mood enables systematic, conservative algorithmic and controlled analytical information processing. It further facilitates complex decision-making, produces more faithful judgments and detects and conceives a variety of biases. Contrarily, positive mood produces less systematic, conservative and analytical information processing and it is also less capable of detecting biases. To test the effect of mood on hypothesis generation task, Cianci and Bierstaker assess generation of correct explanations for fluctuations in financial ratios. They predict that auditors having negative mood are more likely to generate correct explanations for fluctuations in financial ratios than auditors in a positive mood. To identify the impact of mood on ethical task performance they state two models; cognitive-affective model of ethical decision-making, developed by Gaudine and Thorne (2001), and values, attitudes and moods (VAM) model, developed by George and Jones (2001). Both models state that, positive mood would likely to increase ethical decisions. In the experiment they manipulated independent variable (mood) at three levels; positive, negative and neutral. Researchers examined the impact of mood on three dependent variables; the number of correct causes of fluctuations in financial statement ratios, the likelihood of recommending to the client that inventory been written off and the likelihood of reporting to the audit supervisor that 25 extra items were sampled. There are three main findings. First, it is observed that auditors possessing negative mood performed in hypothesis generation task than auditors possessing positive mood. In other words auditors in a negative mood are likely to supply more correct explanations for fluctuations in financial ratios. On the contrary, findings reveal that auditors in a positive mood better performed on ethical task than auditors in a negative mood.

Decision aid can be demonstrated as a method in auditing literature that helps auditors to make decisions about assertions including both information and assessment of risk. Anderson et al. (2003) investigates whether auditors rate explanations for an unusual financial ratio

fluctuation resulted from a decision aid, more sufficient than same explanation provided by a client. Auditors consider decision aid as a more objective source than client explanation. As a result they judge explanations provided by a decision aid as more adequate in explaining an unusual fluctuation than explanation provided by a client. Anderson et al. asserts that although decision aids have a potential effect on improving and facilitating auditor judgment, prior research findings state that they have dysfunctional effects on auditor judgment (Pincus 1989; Kachelmeir and Messier 1990). They predict that auditors will rate explanations from a decision aid as more adequate than the explanations obtained from a client. To test the consistency of the auditor judgment they conduct a laboratory experiment in which auditors from Big 5 public accounting firms are included. Participants received company background information and non-audited financial information for the ongoing year as well as audited financial information for the previous year. They were told for three explanations from either the client or from the firm developed decision aid. From a total of 51 participants, ANCOVA analysis reveals that auditors rated explanations received from decision aid as more sufficient than explanations received from clients although the explanations are insufficient for both of the cases. The researchers suggest that auditors should behave more skeptical to the explanations received from a decision aid since the explanation may contain as insufficient information as an explanation provided by a client.

Complexity of an audit task and gender plays a critical role in determination of judgments and variability in decision-making. Chung and Monroe (2001) investigate whether audit judgments differ due to audit task complexity and gender. Cognitive psychology states that gender has a significant influence on performance in judgment tasks such that females are likely to be more efficient and effective when task complexity is high since they are superior compared to males in differentiating between decision cues. Researchers define task complexity in two dimensions; task difficulty, which refers to amount of information and task structure which refers to information clarity. In this respect low complexity tasks possess fewer information cues that are consistent with the event predicted and contains low levels of ambiguity. On the contrary high complexity tasks consists more information cues and high levels of ambiguity with many potential decision outcomes. According to selectivity

hypothesis<sup>1</sup>, researchers predict that males' judgment in a material misstatement is relatively efficient and effective than females when task complexity is low. They conduct an experiment using a 2 by 2 factorial design to 159 accountants, where gender and level of task complexity are independent variables. Two way ANOVA analysis and two sample t-tests reveal that female participants evaluate more information than males. In line with the cognitive psychology findings, it is observed that in less complex tasks males are more accurate than females while in more complex tasks females better performed than males considering the accuracy of judgments.

In evaluating decision-making process and auditor judgment, Emby and Lowe (2002) investigate the effect of outcome knowledge on audit partner judgments in a going concern situation. They evaluate how the direction of the outcome information (negative, positive or no outcome) influences audit partners' judgments enclosing hindsight effect, outcome effect and judgments of the importance of evidence items. Hindsight effect refers to inflated (deflated) judgment of an individual for an ex ante likelihood of an event, by the knowledge that the event actually happens (did not happen). Outcome effect refers to changing nature of audit partners' judgments for an individual in the direction of the decision outcome in which negative outcomes lead to more unfavorable evaluations and positive outcomes result in more favorable evaluations. They predict that the assessment of an audit partner for his/her client's ability to continue as a going concern will be affected by a negative outcome while his assessment will not be affected by a positive outcome. Such an affect is also predicted for the evaluations of the audit partner's decision to issue a standard report. They further evaluate the evidence importance ratings in case of negative, positive and no outcome conditions. They expect that audit partners in the negative condition will evaluate higher ratings for negative evidences and vice versa. Researchers select 122 partners from Big 5 audit firms in US and Canada using stratified sampling and employed a 1×3 between subjects design in which negative, positive and no outcome knowledge are independent variables while likelihood of continued existence, quality of judgment and evidence ratings are dependent variables. ANOVA analyses show that audit partner's assessment of a client's going concern ability is significantly affected by a negative outcome while same effect cannot be observed for a positive outcome. It is also

---

<sup>1</sup> Selectivity hypothesis states that men are better at elimination and women are better at integration when processing information.

observed that a negative outcome significantly affects the evaluation of audit partner's decision to issue a standard report. Finally they found that audit partners in a negative outcome condition give higher ratings for negative evidences. Overall results reveal that negative outcome information has a considerable influence on audit partners' judgments.

In addition to the outcome knowledge demonstrated by Emby and Lowe (2002), Lowe and Reckers (2000) investigate the gap between auditors' performance and their legal liability from the perspective of the effect of outcome knowledge that arises from the difference between hindsight and foresight judgment. They suggest that decision aids are helpful tools for auditors that they can focus on a possible negative outcome or potential outcomes and consequently decrease the gap between hindsight and foresight perspectives. In other words their aim is to examine whether using foresight decision aids can mitigate hindsight effects. Hindsight strategies are applied ex post and are connected with evaluations of decisions. On the contrary foresight strategies are implemented ex ante and are connected with subject's decision-making so that they can be used as decision aids in the auditor's planning and judgment process (Creyer and Ross 1993; Davies 1987). In this respect, Lowe and Reckers predict that if an auditor is aware of the potential legal consequences of his judgments in foresight, then he/she will perform the supervision process with a hindsight perspective. As a result the gap between foresight judgment and hindsight judgment will be minimum. They use 131 senior auditors from Big 5 audit firms in which the participants are given a case narrative that describes a publicly traded manufacturing company possessing a low financial performance recently. Participants are randomly assigned to four outcome conditions; (1) foresight with no outcome knowledge, (2) hindsight, (3) foresight with a single outcome knowledge and (4) foresight with multiple outcome knowledge. In the foresight with a single outcome knowledge condition, subjects were required to determine the inventory obsolescence in the company provided with a decision aid. In the foresight with multiple outcome knowledge condition subjects were provided the same case with the same decision aid but this time they are encouraged to supply multiple potential negative and positive outcomes. Researchers conduct a multivariate analysis of variance with four levels of conditions. It is observed that decision aid has a significant effect on foresight judgments and it is useful in eliminating hindsight effects. Overall results show that outcome knowledge significantly affects auditor's judgment resulting in hindsight effects. That is incase auditors are supported with negative audit outcome they are more likely to make

adjustments on their decisions. Results further reveal that auditors who face with a negative outcome in foresight, respond similarly with auditors provided with actual outcome. The outcomes indicate that foresight strategy contributes mitigating hindsight effects. Finally researchers suggest that foresight decision aids should be provided to auditors to encourage them for considering their ex ante judgments and for taking into account the potential legal exposure to their firms.

During decision-making process auditors develop representation of the problem that guides their thinking. Psychology literature reveals that since representation shapes the decision process, it would certainly have an impact on problem solving. Bierstaker et al. (1999) examine whether problem representation shifts provide improvement in auditor decision process and question what factors cause enhancing or preventing problem representation shifts. Roberston (1990) defines problem representation as a knowledge structure that combines goals, facts, decision processes and certain solutions related to a problem. Problem representations provide auditors to limit their knowledge in memory and external information to come up with the most appropriate solution. However in several cases, individuals would be in difficulty in solving the problem and exhibit unproductive initial problem representations. Researchers assert that in such circumstances, prompts will be useful in facilitating the understanding of individuals and they will induce shifts toward more productive representations. In this regard, Bierstaker et al. question whether auditors' initial problem representation is unproductive. They further question whether auditors able to shift to productive problem representations without prompts and whether prompts induce shifts to productive representation. They employ verbal protocol data from Beddard and Biggs (1991a) in determining problem representations and also use the prompts developed by Kaplan and Simone (1990) in supporting shifts across the proposed representations. In the experiment it is given that projected financial statement balances and unaudited financial statements are different and contains a seeded error. The seeded error covers inappropriately capitalized selling, general and administrative expenses (SGA). In the verbal protocols three problem representations are included; (1) inventory-abstract (INV-A) referring to an inverse relation between the direction of errors in inventory and cost of goods sold (COGS), (2) SGA and (3) inventory-manufacturing (INV-M) including a relation between period and product cost that enables determining misallocation of overhead. Right alongside with problem representations, four prompts are provided at ten minute intervals during the

experiment, including an evocation about manufacturing overhead, joint examination of balance sheet and income statement, type of the firm audited and relation between SGA and inventory. They evaluated the auditor decision process according to correct identification of the seeded error, time spent for completion and the number of prompts provided. Among 12 audit seniors the results reveal that only one auditor recognized the seeded error before receiving the first prompt. Most of the auditors did not shift their problem representations unless they receive a prompt. The results suggest that problem representation shifts are necessary to recognize the seeded error and prompt induced shifts improve recognizing the seeded error. Overall results suggest that auditors face difficulty in activating knowledge in memory in the absence of prompts and prompts facilitate reaching a correct solution during decision-making process.

<b>Table 3. Auditor Characteristic and Performance</b>			
Author	Subject	Variables	Measurement Criteria
Rose et al. (2010)	The effect of dispositional trust on audit committee members	<p><u>Independent variables</u></p> <ul style="list-style-type: none"> <li>-Management incentives</li> <li>-Dispositional trust</li> </ul> <p><u>Dependent variables</u></p> <ul style="list-style-type: none"> <li>-the extent to which audit committee agrees with auditor-proposed adjustment</li> </ul>	<p><u>Independent variables</u></p> <ul style="list-style-type: none"> <li>-Lower levels of EPS refer to less incentive and higher levels of EPS refers to more incentive for management to manage earnings.</li> <li>-Employed Wrightsman scale (1991)</li> </ul> <p><u>Dependent variables</u></p> <ul style="list-style-type: none"> <li>-Participants are asked to indicate their opinion for auditor-proposed adjustment on a 100 point Likert scale (DeZoort et al. 2003, 2008)</li> </ul>
Bierstaker and Wright (2001)	Practical Problem Solving Ability (PPSA) in predicting auditor performance	<p><u>Independent variables</u></p> <ul style="list-style-type: none"> <li>-Experience</li> <li>-PPSA</li> </ul> <p><u>Dependent variables</u></p> <ul style="list-style-type: none"> <li>-Analytical performance (AP)</li> <li>-Internal</li> </ul>	<p><u>Independent variables</u></p> <ul style="list-style-type: none"> <li>-dummy variable equals 1 for auditors and -0- for students</li> <li>-PPSA tasks are performed</li> </ul> <p><u>Dependent variables</u></p> <ul style="list-style-type: none"> <li>-Assessment of debt misclassifications or discrepancies in the financial ratios and account balances</li> <li>-Number of correctly evaluated control weaknesses for each</li> </ul>

		control evaluation performance (ICP)	participant are counted
Donnelly et al. (2003)	Differences between auditors in acceptance of dysfunctional behavior (DB)	<p><u>Independent variables</u></p> <ul style="list-style-type: none"> <li>-Locus of control</li> <li>-Turnover intentions</li> <li>-Performance</li> <li>-</li> </ul> <p>Organizational commitment</p> <p><u>Dependent variables</u></p> <ul style="list-style-type: none"> <li>-Dysfunctional behavior</li> </ul>	<p><u>Independent variables</u></p> <ul style="list-style-type: none"> <li>-Employed Spector (1988) locus of control scale</li> <li>-Employed three item turnover intentions scale developed by Scandura and Viator (1994), Rasch and Harrell (1990) and Aranya and Ferris (1984)</li> <li>-Employed modified version of Mahoney et al.'s (1963,1965) multi-dimensional nine item scale</li> <li>-Employed Mowday et al.'s (1979) nine-item short-form instrument</li> </ul> <p><u>Dependent variables</u></p> <ul style="list-style-type: none"> <li>-Factor analysis used to determine premature sign-off, underreporting of time, and altering/replacement of audit procedures as DB items</li> </ul>
Table 3. Cont'd			
Earley (2003)	Relation between self-explanation effect, outcome feedback and auditor performance	<p><u>Independent variables</u></p> <ul style="list-style-type: none"> <li>-Outcome feedback timing</li> </ul> <p><u>Dependent variables</u></p> <ul style="list-style-type: none"> <li>-Posttest scores</li> </ul>	<p><u>Independent variables</u></p> <ul style="list-style-type: none"> <li>Participants are provided outcome feedback before or after auditor's self-explanation process</li> </ul> <p><u>Dependent variables</u></p> <ul style="list-style-type: none"> <li>Participants indicated the reasonableness of the discounted rate in a property valuation model</li> </ul>
Fisher (2001)	Relation between role stress and external auditor job outcome variables	<p><u>Independent variables</u></p> <ul style="list-style-type: none"> <li>-Type A behavior pattern</li> <li>-Role ambiguity</li> <li>-Role conflict</li> </ul> <p><u>Dependent variables</u></p> <ul style="list-style-type: none"> <li>-Job</li> </ul>	<p><u>Independent variables</u></p> <ul style="list-style-type: none"> <li>-Employed the Vicker Scale (Vickers 1975) and the Jenkins Activity Survey (Jenkins et al. 1979)</li> <li>-Employed Rizzo et al.'s (1970) instrument</li> </ul> <p><u>Dependent variables</u></p> <ul style="list-style-type: none"> <li>-Employed self rated instrument developed by Choo (1986)</li> <li>-Employed Minnesota Satisfaction Questionnaire (MSQ)</li> </ul>

		performance -Job satisfaction	
Fuller and Kaplan (2004)	Relation between cognitive style and task characteristics on auditor task performance	<u>Independent variables</u> -Cognitive style -Task type  <u>Dependent variables</u> Task Performance of: -Analytic auditors -Intuitive auditors	<u>Independent variables</u> -Employed MBTI measurement technique developed by Ruble and Cosier (1990) -Either analytic task (reviewing of staff auditors' working papers) or intuitive task (analytical review of pre-report financial statements) <u>Dependent variables</u> -% of correct seeded errors identified in a review of staff auditor's working papers proposed by Hammond et al. (1987) -% of materially misstated accounts identified in the review proposed by Hammond et al. (1987)
Jamal and Tan (2001)	Managers, top seniors and mediocre seniors' prediction of the preferences of other auditors	<u>Independent variables</u> Job Level <u>Dependent variables</u> Type of the task: -Low ambiguity task -High ambiguity task	<u>Independent variables</u> Total years of experience <u>Dependent variables</u> -Participants are told that internal control weaknesses are detected during interim audit -Participants make a decision either to disclose a footnote or make an additional allowance for bad debts
Ponemon (1992)	Underreporting of audit time in the context of moral reasoning	<u>Independent variables</u> Level of moral reasoning  <u>Dependent variables</u> Underreported audit time	<u>Independent variables</u> Employed Defining Issues Test (Rest, 1979b) <u>Dependent variables</u> Difference between self reported completion time and actual completion time

### 2.3. Auditor Characteristic and Performance

In line with psychology literature findings, studies in behavioral auditing reveal that auditor characteristic significantly affect auditors' performance. Rose et al. (2010) examine whether audit committee members' dispositional trust has any affect on their interpretation of management incentives and their judgments. They further investigate the influence of management incentives on audit committee in case of a dispute between management and external auditors in financial reporting. Prior research findings reveal that auditors have to discount the information collected from management when they possess incentives to misrepresent evidences (Hirst, 1994). Based on the source credibility theory previous literature suggests that audit committee members believe, management incentives do not influence management credibility to misrepresent earnings. Rose et al. examines dispositional trust based on prior theories of trust. According to Bayless (1971), Wrightsman (1974) and Rotter (1980), highly trusting individuals believe that regardless of the situation, other individuals are consistently reliable. In this respect researchers hypothesize that more trusting audit committee members are less likely to recognize management deceptions than less trusting audit committee members. As a consequence their judgments will be less influenced by the management incentives in case of evaluating a dispute between external auditors and management. 47 experienced independent audit committee members are selected and randomly assigned to treatment groups. Researchers used three manipulation checks that include timing of report, consistency of auditor support and proximity of EPS to analysts' forecasts. They employ Wrightsman scale as a measurement technique for dispositional trust and honesty. ANOVA model is used in which judgment to support the auditor-proposed adjustment is dependent variable and management incentives and dispositional trust are independent variables. Results indicate that less trusting audit committee members are more likely to support external auditors in case management has incentive to manipulate earnings. They conclude that high levels of dispositional trust among audit committee members can cause serious problems in financial reporting.

Bierstaker and Wright (2001) based their study on a measure of ability developed in psychology which is called Practical Problem Solving Ability (PPSA). They investigate whether PPSA predicts performance considering internal control evaluation and analytical procedures in auditing. Higher levels of PPSA indicate higher levels of awareness of the many possible causes

of a problem and related potential solutions. Scoring PPSA covers realization of problems, suggestion of solutions, effective use of available resources, avoiding future negative consequences, evaluating the relevant information and providing specific and complete solutions. Researchers expect that PPSA will be positively related to performance in analytical procedures and internal control evaluation performance. Two dependent variables (analytical performance-AP and internal control evaluation performance-ICP) and two independent variables (experience and PPSA) are used in the experiment. Researchers conduct the experiment to 66 auditors from Big 5 audit firms and 78 accounting students from whom it is required an assessment of real world financial problems and corresponding set of solutions. AP is measured by debt misclassifications or discrepancies observed in the financial ratios and account balances. ICP is measured by counting the number of correctly evaluated control weaknesses for each participant. Experience is a dummy variable that equals 1 for auditors and 0 for students. Regression analysis reveal that participants possessing higher problem solving ability performed better than participants possessing lower problem solving ability on the analytical procedures task. Results show that participants possessing higher ability on the internal control evaluation performed better than participant possessing lower ability. In line with the predictions, it is observed that experience is significantly and positively related to performance. Overall results suggest that PPSA is a useful tool for prediction of performance and measurement of ability in auditing tasks.

Donnelly et al. examine (2003) reasons of differences between individual auditors in acceptance of dysfunctional behavior (DB). DB is defined as a reaction to the control environment in auditing which has direct and indirect effects on audit quality. Direct effects of DB on audit quality can be identified as premature signing off of audit steps without completion of the procedure, obtaining insufficient evidences, inaccurate processing and omission of audit steps. Underreporting of audit time can be determined as an indirect effect of DB on audit quality. Researchers mainly investigate three major DB types that are harmful to audit quality; premature sign off, underreporting of time and changing or replacing audit procedures. To examine auditors in acceptance of dysfunctional behavior they developed a theoretical model that links DB to locus of control (Rotter, 1966), self rated performance and turnover intentions. Locus of control refers to human behavior regarding behavioral differences between individuals depending on their being internals or externals. Rotter (1966) define individuals having an

internal dominant character as people who likely to think that problems are solved with their own efforts and believe that everything is under their control. On the contrary individuals possessing an external dominant character believe that they are unable to control events or outcomes. DB is likely to manipulate self rate performance which makes it difficult for performance evaluators to obtain a true performance indicator. Prior literature findings also reveal that auditors who intend to leave the firm are more likely to engage in DB. In this context, researchers developed three hypotheses testing whether there is a positive relation between external locus of control and acceptance of DB, whether there is a negative relation between employee self rated performance and acceptance of DB and whether there is a positive relation between turnover intentions and acceptance of DB. They conduct a survey questionnaire to 205 auditors from 10 accounting firms. Spector (1988) locus of control scale is employed to measure locus of control in which higher scores corresponds to greater degree of external personality and lower scores indicates greater degree of internal personality. To test the hypothesis Donnelly et al. used structural equation analysis and found that auditors possessing external dominant character are more likely to show an acceptance of DB. It is also observed that auditors possessing higher self rated performance are less likely to show acceptance of DB. Finally they found that auditors possessing higher turnover intentions present more of DB. According to research outcomes, Donnelly et al. suggest that professional development programs train auditors possessing external character to give highest priority to high quality audit work.

Self-explanation effect in psychology is frequently used in examination of auditor performance. Earley (2003) examines whether self-explanation training has a positive impact on learning in auditing context. Self-explanation refers to a part of the audit review when the auditor (preparer) explains the reasons of his/her findings during auditing to senior auditors (reviewers). He mainly investigates self-explanation condition on novice auditors and tests whether outcome feedback supplied before self-explaining will have any positive effect on auditor performance. Chi et al. (1989) differentiates between individuals according to their learning steps as successful and unsuccessful learners. They identify the term “self-explanation effect” from the derivation of successful learners’ strategy. In this respect Earley extends prior literature by investigating the effect of outcome feedback timing on performance in a self-explanation context. He predicts that novice auditors that receive correct answers prior to self-explaining will show higher levels of reasoning in their explanations than novice auditors that

do not receive the answer before self-explaining. He further predicts that novice auditors that show higher levels of reasoning in their self-explanations will outperform on subsequent tasks than novice auditors possessing lower levels of reasoning in their self-explanations. He conducts a pretest-treatment-posttest experiment to 105 auditors from two international public accounting firms. In the pretesting, participants evaluated property valuation cases, which were valued according to discounted cash flow model (DCF). Participants received a discounted rate that is calculated by the clients. At the end of the experiment, they are required to supply the reasonableness of this rate (reasonable or unreasonable) during self-explanation process. The researcher determines 2 groups. In one group, outcome feedback is provided before auditors' self-explanation process and in the other group outcome feedback is given after their self-explanation. To measure the performance, information for each property is provided after the pretesting. Afterwards, auditors' final judgments about the reasonableness of discount rate are required. He uses ANCOVA analysis and determines outcome feedback timing as independent variable and posttest score as dependent variable. The results show that novice auditors that receive outcome feedback before self-explanation process performed better reasoning in self-explaining. On the contrary, novice auditors that do not receive outcome feedback before self-explaining performed poorer reasoning in their self-explanation. Earley suggests that motivation of the novice auditors, who do not obtain the outcome feedback, will decrease and they will be less likely to provide high quality self-explanations. Test results regarding the level of reasoning in self-explanations reveal that in case the auditors possess a high level of reasoning self-explanations is an effective tool in training. Combining the outcomes, the study suggests that in order to increase the level of reasoning in self-explanations, seniors should provide outcome feedback before self-explaining.

In the working environment, prior research observed significant effects of job related stress on audit performance. Role stress identified as one of the sources of job related stress that most individuals come across with. Fisher (2001) investigates the relation between elements of role stress that are determined as role ambiguity and role conflict, and external auditor job outcome variables identified as job satisfaction and job performance. Senetra (1980) defines role ambiguity as the cases when an employee lacks sufficient information for effective performance in a given role. Kahn et al. (1964) define role conflict as the conflicting of expectations such that an expectation of an employee may not comply with his other expectations within his job

description. Fisher predicts that perceived role ambiguity will be negatively related to auditor job performance and job satisfaction. Similarly he expects that perceived role conflict will be negatively related to job satisfaction and performance. The study further examines the effect of Type A behavior pattern (TABP) on the role stress and auditor job outcome variables. Individuals that possess TABP show achievement striving, competitive, time-urgent, hostile, aggressive, irritable and impatient behaviors under stress (Glass 1977a, 1977b). Beyond these negative behaviors, they aim to work for longer hours, travel more and are more confident about their own abilities. Most importantly TABP individuals possess a strong motivation to control their environment. Under aforementioned facts Fisher predicts that TABP will show a negative association to role stress elements and job outcome variables. He employs a survey questionnaire in which 119 auditors from Big 6 public accounting firms in New Zealand attended. Fisher measured role conflict and ambiguity using Rizzo et al.'s (1970) instrument, job satisfaction employing Minnesota Satisfaction Questionnaire (MSQ) and job performance using self rated instrument developed by Choo (1986). Fisher developed Choo's self rating by adding a weighted system that considers the differences in the importance of each item. He finally measures TABP employing the Vickers Scale (Vickers 1975) and the Jenkins Activity Survey (Jenkins et al. 1979). Zero-order correlation and regression analysis are performed in which job performance and job satisfaction are dependent variables and TABP, role ambiguity and role conflict are independent variables. Results reveal that role ambiguity and role conflict are significantly and negatively related to job performance and job satisfaction. Meanwhile descriptive statistics show that auditors do not perceive extreme levels of role stress in the working environment. Finally regression analysis shows no significant relation between TABP and elements of role stress as well as auditor job outcome variables.

Cognitive style as a "distinctive way of acquiring, obtaining, storing, retrieving and transforming information" (Ho and Rodgers, 1993), is examined in audit literature since it is expected to have a potential effect on audit performance. Fuller and Kaplan (2004) investigate whether a relation exists between cognitive style and task characteristics on auditor task performance. It is a stable characteristic of an individual that perceives and organizes information about the environment. There are four types of measurement for cognitive style: simple versus complex, adapter versus innovator measured by KAI index, field-independence versus field dependence measured by Witkin et al (1971) and analytical versus intuitive

measured by MBTI which is developed by Ruble and Cosier (1990). Researchers adopt MBTI measurement technique since it carries larger information content. According to MBTI measure cognitive style includes two dimensions: perceptions, anchored by sensation and intuition, and judgments anchored by thinking and feeling. Individuals who are close to sensation prefer facts while individuals who are close to intuition prefer possibilities. Individuals identified as thinkers rely on rational processes of association while individuals identified as feelers rely on relational comparisons. In this respect Fuller and Kaplan categorize auditors as analytic, intuitive and a combination of both (hybrid). They hypothesize that analytic (intuitive) auditors will perform better on the analytical (intuitive) task than on the intuitive task. Researchers used an experimental design where analytical task requires a review of staff auditor's working papers such as nature of the industry, client's business, management, personnel, engagement risk assessment and intuitive task requires an analytical review of pre-report financial statements such as information that cover nature of the industry, client's business, major corporate officers and comparative financial statements. The dependent measure for analytical task is the percentage of correct seeded errors identified and for intuitive task is the percentage of materially misstated accounts identified. Independent variables are task type measured by within subjects and auditor cognitive style measure by between subjects design. 44 senior auditors are selected from Big 6 audit firms and task choice is employed from the work of Hammond et al. (1987). The results show that audit seniors identify themselves as more knowledgeable in performing the workpaper review task (analytical task) and they find it more reasonable to be assigned in the workpaper review than in the analytical review (intuitive task). ANOVA analysis further supports the hypothesis that analytic auditors perform better at analytical task than at the intuitive task whereas intuitive auditors perform better at intuitive task than at the analytical task. The results indicate that task performance models used in auditing should include cognitive style in order to effectively and efficiently distribute tasks among auditors as well as to increase the overall performance of auditing.

One of the auditor characteristics that is investigated in existing audit literature is the auditors' aim at adapting their behavior to conform to the preferences of their seniors, managers or partners (Gibbins and Newton 1994, Peecher 1996). Jamal and Tan (2001) investigate auditors' preferences and examine whether auditors predict the preferences of their peers, superiors and subordinates. According to Tversky and Kahneman (1973) the reason of the poor

performance as a result of individual's biased estimations for other individuals is the availability effect. It arises from an individual's salient preferences and their aim in overestimating the commonality of their own preferences in predicting other's choices. Auditors' preferences are mainly determined by two aspects; interactions with other auditors and auditors' sensitivity to other auditors' preferences. Accounting literature states that auditors who interact more with their colleagues would likely to know much more about their colleagues' preferences. Additionally, statistics theory suggests that prediction of aggregate choices is easier than prediction of individuals' choices. Jamal and Tan expect that managers and top seniors perform better than mediocre seniors in predicting the choices made by other auditors in a task possessing high ambiguity. They further predict that there will be no significant differences between managers, top seniors and mediocre seniors in predicting the choices of other auditors in a task possessing low ambiguity. In this respect they conduct an experiment to 28 audit seniors and 14 audit managers where each manager is paired with two senior auditors and performed two tasks in counterbalanced order. First task is a bad debt task where an auditor should make a decision about either to disclose a footnote for the bad debt, that is in line with the client's request or to insist on making an additional allowance for bad debts. Second task is the control weakness task where participants are told that internal control weaknesses are detected during the interim audit. Bad debt task is identified as high ambiguity task and control weakness task is identified as low ambiguity task. The degree of familiarity between subjects is detected through asking participants the percentage of assignments, amount of time spent working with paired auditors and to identify the level of knowledge about the working style and preferences of their peers. They employ two loglinear models. The first model identifies job level as the between subjects factor and the second model identifies job level as the between subjects factor and task as the within subjects factor. The results show no difference among managers, top seniors and mediocre seniors in predicting the accuracy of individual auditors' choices in both high and low ambiguity tasks. However considering the prediction of aggregate choices, top seniors' predictive accuracy is stronger than mediocre seniors and managers predict more accurately than top seniors in a high ambiguity task. Moreover, researchers observed no differences among job levels in low ambiguity task. Overall results support strategic auditor behavior since in certain circumstances managers and top seniors more accurately predict the choices of other auditors than mediocre seniors.

Underreporting behavior, referring to auditors' reporting fewer hours than they actually spent to complete a specific task, has a significant interaction with characteristics of auditors. For instance, while some auditors prefer reporting time spent honestly without considering their reputation, others prefer underreporting since they perceive underreporting will prove their loyalty to their firm. Ponemon (1992) examines underreporting of audit time in the context of moral reasoning. Prior literature states that whenever a time constraint is applied, individuals likely to respond in an undesirable manner. In this respect management control structure can further lead to dysfunctional behavior such that acceptance of attaining an unrealistic budget standard would result in distortion in productivity measures or underreporting time. Underreporting time could also arise because of the firm's informal communication structure such that individuals may perceive it as a way of showing loyalty to firm management. Lightner et al. (1982) observed that peer pressure identified as supervisor's request from subordinates to underreport is another factor triggering underreporting. Margheim (1990) examine the personality traits and underreporting relationship and observed that subordinates working under seniors, classified under Type A personality, exhibit fewer incidents of underreporting. Ponemon introduces moral reasoning as a cognitive determinant of underreporting behavior and uses six stages of moral reasoning developed by Rest (1979). There are three levels in this stage sequence model; pre-conventional morality, conventional morality and post-conventional morality. In the first level there are two stages; obedience and instrumental egotism and simple exchange. Interpersonal concordance and law and duty to the social order stages are determined within the conventional level and finally in the post-conventional level they include societal consensus and non-arbitrary social cooperation stages. According to this composition, Ponemon employs post-conventional level as a measurement of moral reasoning. The model states that the post conventional individual adopts self-chosen ethical principals so that they can validate certain laws and social arrangements by leaning upon such principals. As a consequence auditors classified under post conventional level would likely to capture the dysfunctional results of underreporting and hence are more likely to observe the rules as too important to break. Under this perspective, Ponemon predicts that underreported audit time will increase under unattainable time budgets and peer pressure condition than inexistence of these conditions. He conducts an experimental study to 88 staff level auditors specifying the research framework as follows; factors causing work-related pressures (unattainable time budget and

peer pressure), cognitive processes of the auditor(moral reasoning) and dysfunctional behavior (underreporting). The procedure includes completion of an audit task (examination of bank reconciliation and operating controls over cash), biographical information sheet, Defining Issue Test (utilized from Rest (1979b) that assesses subjects' level of moral reasoning) and a debriefing questionnaire. Three groups are identified as time budget group, peer pressure group and control group. To the time budget group it is told that although there is no time limit, the task should be completed in less than 35 minutes according to experience. To the peer pressure group a peer research design is conducted to evaluate the influence of peer pressure. The dependent variable, auditor's underreported time is measured as the difference between self reported completion time and actual completion time. After completion of audit task the subjects fulfill the defining issue test and obtain a P score. Lower DIT P scores exhibit individuals who classified at instrumental egotism and interpersonal concordance stages and high DIT P scores exhibit individuals who classified at law and duty to the social order and societal consensus stages. According to test scores the results show that auditors with lower DIT P scores are more likely to underreport than auditors possessing higher DIT P scores. Ponemon further conducts a two factor fixed effects analysis of variance model to explore the association between underreport time, DIT levels and experimental conditions. The results reveal that the effect of DIT P scores on underreported time is most significant for subjects under peer pressure condition. The findings indicate that the association between moral reasoning and underreporting is significantly related to conditions that cause dysfunctional audit behavior.

<b>Table 4. Auditor-Client Relationship</b>			
Author	Subject	Variables	Measurement Criteria
Almer et al. (2005)	Review of auditor behavior in terms of auditing profession and employment relationship	Value received by the client Value received by the auditor	Value received by the client equals value received by the auditor
Wang and Tuttle (2009)	Differences in auditor-client negotiation audit firm rotation is mandatory	<u>Independent variables</u> Existence of mandatory rotation: -Mandatory rotation (MR) condition -No mandatory rotation condition (NoMR) <u>Dependent variables</u> -Number of messages coded to each four negotiation strategies (integrating, obliging, inaction, contending) -Negotiation strategy	<u>Independent variables</u> -In MR condition negotiation continues up to three periods -In NoMR condition negotiation continues for an unlimited number of periods <u>Dependent variables</u> -Message counts are aggregated across all periods by verifiers and managers -Strategy with the majority of the messages within a negotiation scenario assumed to be the dominant strategy
Iyer and Rama (2004)	The effect of client perception on auditor tenure importance of a client to an audit partner, non audit purchases and prior audit firm experience	<u>Independent variables</u> -Auditor tenure -Importance of client to audit partner -Non audit services -Audit experience  <u>Dependent variables</u> Client's perception about their ability to persuade the auditor in an accounting	<u>Independent variables</u> -Log of auditor tenure -Questionnaire -Calculating the difference between amount of audit fees and non audit fees -Equals 1 if previously worked in the audit area and -0- if not <u>Dependent variable</u> Participants are asked to indicate the probability of possessing an auditor who is not likely to require the liabilities to be recorder in financial statements

		dispute	
Tucker and Matsumura (1998)	Economic incentives on auditor-client relation in a going concern situation	<u>Independent variables</u> -Auditor reporting heterogeneity -Self fulfilling prophecy  <u>Dependent variables</u> -Engagement partner's reporting choice -Client's retention decision	<u>Independent variables</u> -Game Theory Model: Nash equilibrium employed -Existence of self fulfilling prophecy equals $\delta=0.4$ and non existence equals $\delta=0.0$ <u>Dependent variables</u> -Equals 1 if clean opinion and equals -0- in a going concern opinion -Depends on the incumbent auditor's decision on a going concern report
Table 4. Cont'd			
Behn et al. (1997)	Client satisfaction and audit quality	<u>Independent variables</u> -12 audit quality attributes -New auditor -Controller's work experience  <u>Dependent variables</u> Total client satisfaction	<u>Independent variables</u> -Employed Carcello et al. (1992) -Equals 1 if a new auditor employed for the last three years and -0- otherwise -whether the controller has prior work experience with the current audit firm <u>Dependent variables</u> Sum of two five point scales, one for the rating of the audit firm and the other for the audit team
Ruyter and Wetzels (1999)	Consequences of commitment in auditor-client relationship	<u>Independent variables</u> Antecedents: -Shared values -Perceived service quality -Trust -Perceived interdependence -Service portfolio construct -Client orientation  <u>Dependent variables</u> Commitment -Affective commitment	<u>Independent variables</u> -Employed four items developed by Kumar et al. (1994) -Employed SERVQUAL instrument (Morgan and Hunt, 1994) -Employed 10 items developed by Kumar et al. (1995) -Used four items scale developed in this study -SOCO scale developed by Saxe and Weitz (1982) <u>Dependent variables</u> Measured by four items scale developed by Kumar et al. (1994)

		-Calculative commitment	
Haynes et al. (1998)	Whether auditors perceive themselves as advocates of clients	<p><u>Independent variables</u></p> <ul style="list-style-type: none"> <li>-Client identity(either a buyer or a seller)</li> <li>-Salience (high versus low)</li> </ul> <p><u>Dependent variables</u></p> <ul style="list-style-type: none"> <li>-Participant's response</li> </ul>	<p><u>Independent variables</u></p> <ul style="list-style-type: none"> <li>-Participants assigned either longstanding auditor for the seller or buyer within the acquisition scenario</li> <li>-Low salience condition includes whether auditors are affected from client interest base only on contextual information. High salience condition includes more evidence of the clients' interests</li> </ul> <p><u>Dependent variables</u></p> <p>Assessment of obsolescence, inventory writedown, GAAP conformance, write down importance and client reliance adapted from Johson and Kaplan (1991)</p>
Table 4: Cont'd			
Hackenbrack and Nelson (1996)	Auditor-client relation and aggressive reporting	<p><u>Independent variables</u></p> <ul style="list-style-type: none"> <li>-Engagement risk (high versus low)</li> <li>-Accounting standard (SFAS No. 5 versus SFAS No.77)</li> </ul> <p><u>Dependent variables</u></p> <p>Auditor's reporting decision</p>	<p><u>Independent variables</u></p> <ul style="list-style-type: none"> <li>-In high (low) engagement risk condition auditors are provided client information stating that the firm had more (less) exposure to harm</li> <li>- Participants are given wither a case in which the applicable standard is SFAS No.5 or other case in which the applicable standard is SFAS No.77</li> </ul> <p><u>Dependent variable</u></p> <p>Required from auditors to provide their opinion about the disclosure option (either aggressive or conservative) given the same set of audit evidence</p>

## 2.4. Auditor – Client Relationship

Auditor behavior in the context of auditors' relationship as an employee with their clients has received considerable attention in auditing literature. Almer et al. (2005) summarizes and explains auditor behavior considering their work function and identifies auditors' contribution to the auditing profession as well as their compensation in return. In this respect Almer et al. identifies a model in which value received by the auditor equals value received by the public accounting firm. They extend the scope of the agency theory, supplying a broader context of employment relationship. Agency theory relies on the relation between an employee and an employer based on an employment contract. The theory states that value of service received by the principal (public accounting firm) is equal to the compensation received by the agent (auditor). This compensation covers salary, traditional benefits that increase the agent's economic wealth. However it is argued that there are also non economic factors other than compensation that affects agent's utility. Prestige based rewards, respect from other colleagues, altruistic and ethical behaviors, continuing education requirements or requirements for more professional standards can be specified as non economic factors. Consequently, the literature of sociology of professions asserts that classical agency theory is defective considering the fact that employees are subject to motivations other than economic benefits. In their model, extending the traditional agency theory, value received by the firm contains value of professional contributions (covering a several auditor tasks for the employing firm), value of transition (interruptions or transitions arising from working in a hierarchical team and with a variety of clients), labor supply market effects (in which the market determines compensation provided by the public accounting firm to auditors). Value received by the auditor includes salary, benefits, opportunities for professional development, flexibility (covers the relation between the enhancements of quality of life and maintaining human capital), deferred compensation and satisfaction of personal preferences.

The model determined by Almer et al. is as follows:

→ Value received by the firm = Value received by the Auditor

Value of Professional Contributions ± Value of Transition ± Labor Supply Market Effects =  
Salary + Benefits + Development ± Flexibility + Deferred Compensation + Satisfaction of  
Personal Preferences

Wang and Tuttle (2009) examine process differences in auditor-client negotiation under conditions where audit firm rotation is mandatory and where it is not. Researchers aim is to predict the nature and outcome of auditor client negotiations under the process that produces audited asset values. They question how mandatory audit firms' rotation would affect auditor-client relationship. The study enables readers to determine the negotiation strategies of auditors and audited firms and to relate these strategies to negotiated outcomes. Wang and Tuttle explain the reason of negotiation that takes place between auditors and clients such that negotiation arises because of uncertainty about the true value to report in financial statement accounts and existence of different incentives for managers and auditors. These incentives lead clients and auditors to adopt different values due to concerns for self and for the other party in the relationship. In this respect mandatory rotation affects auditor's concern for the relationship such that the retaining the same client provides incentives for the auditor to prefer the same financial statement values of the client to maintain a good relationship. As a consequence mandatory rotation lowers the expected future benefits of auditors and support auditors to negotiate with the client. Researchers adopt dual concern theory to determine negotiation process. The theory states that individuals modify their negotiating strategy considering their individual incentives and relationship with the other party. In other words, concern for one's self and concern for the other party influence negotiation strategy. The theory determines unilateral negotiation strategies in four categories. First one is the enacting strategy which is associated with the goal to avoid a loss. Second one is the contending strategy in which negotiators argue for their own position without considering the cost to the other country. Third one is the integrating strategy in which negotiators are more concerned about the relationship and the fourth one is obliging strategy in which negotiators seek for agreement to maintain the relationship with paying less attention to its cost to their current payoffs. They predict that obliging is the dominating strategy for audits without mandatory rotation and inaction as the dominating strategy for auditors with mandatory rotation. Moreover they further predict that in the final year under mandatory rotation, client's concern for maintaining a long term relationship is lower than non final years. Researchers expect that auditors and clients would likely to use cooperative strategies (obliging and interacting) without mandatory rotation however they are more likely to use non cooperative strategies (inaction and contending) when mandatory rotation is reinforced. Finally they predict that negotiation outcomes will be closer to

auditor's preferences with mandatory rotation and closer to the client's preferences without mandatory rotation. Sample size comprises of 54 graduate business students who are divided into six sessions with nine participants in each session. From the 9 participants 4 of them randomly assigned the role of manager and 5 of them assigned the role of auditor (verifier). In each session managers and auditors negotiated the value to be reported for an asset. Researchers manipulate the experiment as mandatory rotation (MR) imposed and no mandatory rotation (NoMR) between subjects. In MR condition negotiators were told that they can continue to negotiate for three periods and in NoMR condition participants are told that they can negotiate for an unlimited number of periods. In the NoMR condition, incase negotiation fails, auditor can only be reassigned to a new manager if another manager-auditor pair could not reach an agreement. In the MR condition incase negotiation fails the auditor has the same chance to reassign to a new manager as in the NoMR condition and also can reassign to any manager that had reached the three periods limit. Incase auditors and managers could not reach an agreement, manager will bear %40 reduction in earnings for the period as a political cost. Results reveal that both auditors and clients submitted more messages in MR condition than in NoMR condition. It is found that integrating messages are more frequently observed which indicate tendency of both parties to cooperate. Higher obliging messages by auditors are observed in NoMR condition compared to MR condition and also higher inaction messages by auditors in MR condition compared to NoMR condition. They conclude that mandatory rotation decreases the relative importance to the auditor of maintaining a relationship with the client. Additionally, mandatory rotation affects the negotiation strategies used by managers. The results further reveal that mandatory rotation leads to less cooperation by auditors in negotiation. Outcomes indicate that negotiation strategy has a certain influence on mandatory rotation considering its effect on financial statement values.

Iyer and Rama (2004) examine auditor-client relation from client perspective and investigate auditor tenure, importance of a client to an audit partner, non audit purchases and prior audit firm experience of client personnel on client perceptions. They further investigate whether clients have the certain attributes to persuade the auditor in an accounting dispute in the absence of a professional guideline. In case of a long association between a corporation and an audit firm, audit firm will be unable to act independently. As a consequence it is debated to enforce mandatory auditor rotation. In this respect Iyer and Rama hypothesized whether there is a

relation between auditor tenure and client's ability to convince the auditor about accounting disputes. Second they test whether an association exists between the perceived importance of a client to an audit partner and client's ability to convince the auditor about accounting disputes. They further examine the existence of a positive relation between the non audit services purchased, client's prior audit experience and their ability to convince the auditor about accounting disputes. 124 CPAs were selected from the corporate sector and a questionnaire is distributed. The dependent variable is measured by asking to clients (respondents) the probability of the auditor not requiring the liabilities to be recorded in the financial statements. They employ a multiple regression to determine the client's perceptions about their ability to persuade the auditors. The independent variables are auditor tenure, importance of client to the auditor, non audit services purchased from the incumbent auditor and client's prior experience of auditing. The results show that clients working in companies where auditor tenure is shorter or incase the business is important to the partner in charge, clients are more likely to persuade the auditor about accounting disputes. Meanwhile the association between perception of the client to persuade the auditor about accounting disputes and the non audit services as well as prior audit experience is observed to be insignificant. The outcomes indicate that longer auditor tenure is not perceived by the management as a reason for erosion in auditor independence or objectivity.

Tucker and Matsumura (1998) investigate the economic incentives on the strategic interaction between auditor-client relationship in case of a potential going concern situation. They based their model on the self fulfilling prophecy effect which is defined as predicting directly or indirectly events and then altering actions to make these predictions come true. Considering the self-fulfilling prophecy effect prior literature finds a significant relation between auditors' going concern reports and negative client outcomes. As a consequence if a client realizes that the auditor would likely to give a going concern opinion, the client will then become likely to change the auditor. Changing auditors will lead to concealing of information, which results in a deterioration of the quality of financial data. The researchers predict that auditors will give fewer going concern opinions as the probability of the client switching to another auditor for obtaining a clean opinion increases. They also predict that if the auditor is likely to give a going concern opinion, the likeliness of client switching auditors will increase as the probability of obtaining a clean report from another auditor increases. In order to analyze

self fulfilling prophecy effect on client's future state, auditor's reporting decisions and client's switching decisions Tucker and Matsumura use game theory as a determination tool for the strategic interaction between auditor and client. Client's future state is identified as either business termination or (B) survival (S) state, each possessing probability of 0.50. They conduct an experiment including four experimental sessions to 60 graduate students or upper level business majors. The possibilities at the end of the sessions are SSSS, BSSS, BBSS, BBBS, BBBB. An auditor decides on a going concern opinion by taking into account four issues; the business termination forecast, the prior probability of business termination, the payoffs and an expectation of the client's response. Self-fulfilling prophecy effect is determined as the increased probability that the client will terminate operations because of a going concern report. It takes the probability  $\delta = 0.4$  in the presence of a self-fulfilling effect and  $\delta = 0.0$  in the absence. In case of a clean audit opinion the client does not switch the auditor. However if the auditor gives a going concern opinion the client either accepts the opinion or switches the auditor and obtains another opinion from an alternative auditor, which is called opinion shopping. Tucker and Matsumura employed Probit analysis where dependent variables are engagement partner's reporting choice and the client's retention decision. Contrary to the predictions the results indicate that auditors retain their independence and give more clean opinions when the client's threat of switching the auditor increases. Researchers suggest that the outcomes are consistent with auditor risk aversion on negative outcomes. It is further observed that clients switch auditors more often as the probability of obtaining a clean report from another auditor increases.

Behn et al. (1997) examine the association between client satisfaction and audit quality attributes by linking the accounting with marketing literature. They further examine the effect of auditor change and controller work experience on client satisfaction. Prior literature states that clients who changed their audit firms recently are more satisfied with the service received (Craswell et al 1995, Simon and Francis 1988). In this respect they expect a positive relation between new auditor and client satisfaction (SAT). Moreover previous findings reveal that controllers who worked in the Big 6 audit firms previously are likely to help their former firms. In line with the prior findings, researchers predict a positive relation between previous client controller work experience and client satisfaction. Regression results covering 434 companies reveal that six audit quality attributes out of 12 is significantly and positively related to SAT.

These attributes include responsiveness to client needs, active involvement by executives of the CPA firm, effective and ongoing interaction with the audit committee, appropriate conduct of audit field work, industry expertise and prior audit team and firm experience with the client. Five attributes that are not significantly related to SAT is technical competence in applying GAAP and GAAS, independence, due care, quality commitment and ethical standards and accounting/auditing knowledge of the audit team members. They further observed a positive relation between new auditors, controller work experience and client satisfaction. Overall results suggest that firms should consider company needs and increase executive involvement by effectively interacting with the audit committee.

Ruyter and Wetzels (1999) examine the concept of commitment and test the association between six major antecedents of commitment in marketing and their consequences to audit firm-client relationship. First researchers identify the five phases of relationship between partners that include awareness referring to recognition of another partner, exploration referring to the phase that partners get to know each other, expansion where benefits obtained by sharing information, commitment where partners obtain a relational continuity and finally dissolution referring to the phase of relational development. Marketing literature observed that the most desirable phase is the commitment phase where a buyer and a seller develop a long lasting relationship. Ruyter and Wetzels examine two types of commitment; calculative commitment where the relationship is maintained through explicit evaluation of costs and benefits and affective commitment where the relationship is maintained through shared goals and values. They further determine six major antecedents of commitment; shared values and norms, perceived service quality, trust, interdependence, service portfolio and client orientation. It is expected a positive relation between shared ethical values, perceived service quality, trust interdependence, client orientation and affective commitment. Additionally researchers expect a positive relation with perceived service quality, interdependence, service portfolio and calculative commitment while a negative relation with trust. In the experiment a survey is conducted to 213 clients of an audit firm in the Netherlands. Commitment, trust and perceived interdependence are measured by scales of Kumar et al. (1994, 1995), shared values by Morgan and Hunt (1994) and perceived service quality by SERVQUAL instrument. They employ a partial aggregation model and further use two confirmatory factor analysis models for the exogenous variables. The results show a positive relation between service quality,

interdependence and affective commitment while a negative relation between service quality, trust, service portfolio and calculative commitment in auditor–client relationship. Overall results suggest a certain effect of affective commitment, arising from the fact that strong business partnerships provide clients a positive impact to work jointly with the audit firm.

Haynes et al. (1998) examine whether auditors perceive themselves as advocates of clients. In other words they aim to test whether auditors are biased toward client interest even clients do not state any preferences. They further question the degree to which client interests affect audit judgments related to audit experience. Client preference effects exists in case a client demonstrates a certain desired outcome or an accounting treatment to the auditor and the auditor make a decision in line with the client’s suggestions. Researchers also explain that auditors are regarded as client’s advocates incase auditors behave according to client’s insufficient knowledge and interests. They conduct an experiment to 96 public accountants who involved in a corporate acquisition and examined audit evidences belonging to one line of the target division’s inventory. At the end of the evaluation it is requested from participants to provide their judgments about the related inventory (either inventory obsolescence or recommendation of an inventory write-down. Researchers employed 2 by 2 between subjects design where client identity and salience are the manipulated variables. Participants assigned randomly to the two client identity conditions as either a seller or a buyer. Client’s interests were also communicated at two levels; in the low salience condition only the contextual information is provided while in the high salience condition evidence regarding the client’s interests are provided. They used OLS regression model for obsolescence and write-down judgments. Obsolescence and write-down judgments are determined as a function of experience, client identity and salience. They observed that incase client interests were not made salient, client identity does not have any significant effect on auditor’s write-down judgments. On the contrary, incase the clients interests were made salient an interaction between client identity and experience is detected. The results indicate that inexperienced auditors did not behave according to client’s interests. Contrarily, as experience level increases auditor’s judgments converge to client’s interests. Researchers state that auditors’ judgment does not necessarily affected from client’s interests according to contextual or situational information. However when specific information about the client’s position is provided, client advocacy is likely to be observed.

Hackenbrack and Nelson (1996) investigate whether auditors should permit a client to adopt an aggressive reporting method in case auditors have incentive to do so and further examine whether auditors should justify aggressive reporting by interpreting the financial accounting standards through vague disclosure criteria. Although the one of the important purposes of financial accounting standards is to constrain the aggressive reporting, vague disclosure criteria enable auditors to justify aggressive reporting. For instance, SFAS No. 5 states that in case the amount of potential uncollectible receivables are reasonably estimated, reporting the amount as accrual of bad debts is required which can be determined as a conservative reporting method. On the contrary, in case these receivables cannot be estimated, footnote disclosure of bad debts contingency is required which can be determined as an aggressive reporting method. Similarly SFAS No. 77 states that in case the uncollectible receivables can be reasonably estimated the transfer of receivables should be recorded as a sale (aggressive reporting method) and in case they cannot be reasonably estimated the transfer should be recorded as a loan (conservative reporting method). In this respect researchers hypothesize that when auditors are more likely to permit aggressive reporting, engagement risk will decrease. They further test that auditors employ vague disclosure criteria in financial accounting standards in order to justify their reporting decision. In an experiment setting subjects are given a case where appropriate reporting method depends on the reasonable estimation of the amount of uncollectible receivables. The data contains two dependent variables; reporting decision and rating of the degree to which an amount can be reasonably estimated. In a 2 by 2 between subjects design two variables are manipulated: engagement risk that refers to business risk associated with an audit engagement, and accounting standard that include SFAS No. 5 and No. 77. Sample size comprises of 90 auditors from a Big 6 firm. First the participants read a description of the client that contains an engagement risk manipulation with a high engagement risk treatment and low engagement risk condition. Second they are provided two reporting methods and required disclosure for each method. Researchers used Logistic analysis in which subject's disclosure decision is the binary dependent variable and the engagement risk and accounting standard as the independent variables. They assessed ratings of the degree to which the auditors reasonably estimate the amount of uncollectible receivables, using ANOVA, where reporting decision (aggressive versus conservative) and accounting standard (SFAS No. 5 or SFAS No. 77) are independent variables. The results reveal that auditors' reporting decisions are affected by their

incentives so that they use financial accounting standards consistent with the reporting decision they select. In line with their incentives auditors are likely to use vague standards to justify conservative reporting to their clients or aggressive reporting to third parties. In this respect researchers suggest that regulators should insist auditors to force their clients to use conservative reporting choices and require external peer review or partner review, mandatory audit rotation and reporting to a completely independent audit committee.

### 3. CONCLUSION

In this study we briefly demonstrated four fundamental subjects in behavioral auditing research. The findings of prior work are variant. Audit review and documentation articles find a strong basis for the interaction between supervisors and their subordinates such that audit partner's decisions are likely to be influenced by audit senior's recognition of evidence and documentation in working papers (Ricchiute 1999). Documentation structure, task specific experience (Agloglia et al. 2009), preparer's perception and reviewer's power (Fedor and Ramsay 2007), type of review held between preparers and reviewers (Payne et al. 2010; Wilks 2002), source objectivity of information (Reimers and Fennema 1999) subordinates technical knowledge (Kennedy and Peecher 1997) has also significant effects on identification of control weaknesses and audit quality.

Findings covering decision-making and auditor judgment reveal that ingratiation as strategic influence tactic (Robertson, 2010), source of information received (Anderson et al. 2003), audit task complexity and gender (Chung and Monroe, 2001), prompts in activating knowledge in memory (Bierstaker et al. 1999) and hindsight-foresight effects (Lowe and Reckers 2000; Emby and Lowe 2002) can be classified as potential issues in improving/deteriorating judgments.

Articles examined in auditor characteristic and performance also exhibit several important outcomes for behavioral auditing literature. High levels of dispositional trust (Rose et al. 2010), existence of dysfunctional behavior (Donnelly et al. 2003), role ambiguity and role conflict among seniors, managers and partners (Fisher 2001), adopting cognitive style in transforming audit information (Fuller and Kaplan, 2004), underreporting behavior (Ponemon 1992) negatively affect audit performance as well as reliability of financial information. On the contrary practical problem solving ability (PPSA) among auditors (Bierstaker and Wright 2001)

and supplying outcome feedback to auditors before self explaining (Earley 2003) have positive effects on audit quality and reliability of information provided to financial statement users.

Finally, articles evaluating auditor-client relationship show that mandatory rotation mitigates the dependence among auditors and clients (Wang and Tuttle 2009; Tucker and Matsumura 1998) while high experienced auditors (Haynes et al. 1998) and permitting aggressive reporting method (Hackenbrack and Nelson 1996) raises the dependence on clients. Meanwhile it is found that longer auditor tenure does not have any significant effect on auditor independence and objectivity (Iyer and Rama 2004). In addition to these findings Behn et al. (2001) observed that clients are more satisfied with new auditors and audit firms possessing strong business partnerships (Ruyter and Wetzels 1999).

Future research examining the audit review and documentation can focus on whether the amount of evidence collected by auditors (preparers) would have any mitigating effect on reviewer's concentration so that deterioration of audit quality would likely to occur. Regarding decision-making and auditor judgment, future research can investigate judgment process on different levels of professional skepticism. Researchers can examine whether an optimum level of professional skepticism exists that maximizes the consistency of decision-making process. Finally combining auditor characteristic and performance with auditor-client relationship, we suggest researchers to investigate whether mandatory audit rotation mitigates dysfunctional behavior in terms of underreporting of time, collecting insufficient evidence and altering or replacing audit procedures.

## REFERENCES

- Agloglia, C. P., C. Beaudoin ve G.T. Tsakumis. 2009. "The Effects of Documentation Structure and Task Specific Experience on Auditors' Ability to Identify Control Weaknesses", *Behavioral Research in Accounting*, 21 (1).
- Almer, E. D., J.L. Higgs and K.L. Hooks. 2005. "A Theoretical Framework of the Relationship between Public Accounting Firms and Their Auditors", *Behavioral Research in Accounting*, 17 (1).
- Anderson, J.C., K.K. Moreno ve J.M. Mueller. 2003. "The Effects of Client vs. Decision Aid as a Source of Explanations upon Auditors' Sufficiency Judgments: A Research Note", *Behavioral Research in Accounting*, 15 (1).

- Bayles, J. 1971. "A Comparative Study of Freshman Arts and Sciences Majors as to their Perceptions of Human Nature and Tendencies Toward Dogmatism", Working Paper, Oklahoma State University.
- Bedard, J. and S. Biggs. 1991a. "Processes of Pattern Recognition and Hypothesis Generation in Analytical Review", *The Accounting Review*, 66 (2).
- Behn, B.K., J.V. Carcello, D.R. Hermanson and R.H. Hermanson. 1997. "The Determinants of Audit Client Satisfaction Among Clients of Big 6 Firms", *Accounting Horizons*, 11 (1).
- Bierstaker, J.L. and S. Wright S. "A Research Note Concerning Practical Problem – Solving Ability as a Predictor of Performance in Auditing Tasks", *Behavioral Research in Accounting*, 13 (1).
- Bierstaker, J.L., J.C. Bedard and S.F. Biggs. 1999. "The Role of Problem Representation Shifts in Auditor Decision Processes in Analytical Procedures", *Auditing: A Journal of Practice and Theory*, 18 (1).
- Chi, M.T.H., M. Bassok, M. Lewis, P. Reimann and R. Glaser. 1989. "Self-Explanations: How Students Study and Use Examples in Learning to Solve Problems", *Cognitive Science*, 13 (1).
- Choo, F. 1986. "Job Stress, Job Performance and Auditor Personality Characteristics", *Auditing: A Journal of Practice and Theory*, 5 (2).
- Chung, J. and G.S. Monroe. 2001. "A Research Note on the Effects of Gender and Task Complexity on an Audit Judgment", *Behavioral Research in Accounting*, 13 (1).
- Cianci A. M. and J.L. Bierstaker. 2009. "The Impact of Positive and Negative Mood on the Hypothesis Generation and Ethical Judgments of Auditors", *Auditing: A Journal of Practice and Theory*, 28 (2).
- Craswell, A. T., J.R. Francis and B. Sneddon. 1995. "The Pricing of Initial Audit Engagements: The Effect of Quality Uncertainty", Working paper, University of Sydney.
- Creyer, C. and Jr. Ross. 1993. "Hindsight Bias and Inferences in Choice: The Mediating Effect of Cognitive Effort", *Organizational Behavior and Human Decision Processes*, 55 (1).
- Davies, M.F. 1987. "Reduction of Hindsight Bias by Restoration of Foresight Perspective: Effectiveness of Foresight – Encoding and Hindsight-Retrieval Strategies". *Organizational Behavior and Human Decision Processes*, 40 (1).
- Donald, B.F. and R.J. Ramsay. 2007. "Effects of Supervisor Power on Preparers' Responses to Audit Review: A Field Study". *Behavioral Research in Accounting*, 19 (1).
- Donnelly, D.P., J.J. Quirin, and D. O'Bryan. 2003. "Auditor Acceptance of Dysfunctional Audit Behavior: An Explanatory Model Using Auditors' Personal Characteristics", *Behavioral Research in Accounting*, 15 (1).
- Earley, C. E. 2003. "A Note on Self-Explanation as a Training Tool for Novice Auditors: The Effects of Outcome Feedback Timing and Level of Reasoning on Performance", *Behavioral Research in Accounting*, 15 (1).

- Einhorn, H. J. 1982. Learning from Experience and Suboptimal Rules in Decision-making, In Judgment under Uncertainty: Heuristics and Biases, edited by D. Kahneman, P. Slovic and A. Tversky. Cambridge: Cambridge University Press.
- Emby, C. and D.J. Lowe. 2002. "A Research Note on the Influence of Outcome Knowledge on Audit Partners' Judgment", Behavioral Research in Accounting, 14 (1).
- Fiol, C. M., E. O'Connor and H. Aguinis. 2001. "All for one and one for all? The Development and Transfer of Power Across Organizational Levels", The Academy of Management Review, 26 (2).
- Fisher, R. T. 2001. "Role Stress, the Type A Behavior Pattern and External Auditor Job Satisfaction and Performance", Behavioral Research in Accounting, 13 (1).
- Fuller, L. R. and S.E. Kaplan. 2004. "A Note about the Effect of Auditor Cognitive Style on Task Performance", Behavioral Research in Accounting, 16 (1).
- Gaudine, A. and L. Thorne. 2001. "Emotion and Ethical Decision-Making in Organizations", Journal of Business Ethics, 31 (2).
- George, J. M. and G. R. Jones. 2001. "Towards a Process Model of Individual Change in Organizations", Human Relations, 54 (3).
- Gibbins, M. and J. D. Newton. 1994. "An Empirical Exploration of Complex Accountability in Public Accounting". Journal of Accounting Research.
- Glass, D. 1977a. Behavior Pattern, Stress and Coronary Disease. Hillsdale, NJ: Erlbaum Associates, Inc.
- Hackenbrack, K. And M.W. Nelson. 1996. "Auditors' Incentives and Their Application of Financial Accounting Standards", The Accounting Review, 71 (1).
- Hammond, K. R. F. M. Hamm, J.Grassia and T. Pearson. 1987. "Direct Comparison of the Efficacy of Intuitive and Analytical Cognition in Expert Judgment", IEEE Transactions on Systems, Man and Cybernetics 17 (4).
- Haynes, C. M., J. G. Jenkins and S. R. Nutt. 1998. "The Relationship Between Client Advocacy and Audit Experience: An Exploratory Analysis", Auditing: A Journal of Practice and Theory 17 (2).
- Hinkin, T. R. and C. A. Schriesheim. 1989. "Development and Application of New Scales to Measure the French and Raven (1959) Based Power", Journal of Applied Psychology, 74 (1).
- Hirst, D. 1994a. "Auditors' Sensitivity to Source Reliability", Journal of Accounting Research, 32 (1).
- Ho, J. L. and W.Rodgers. 1993. "A Review of Accounting Research on Cognitive Characteristics", Journal of Accounting Literature.
- Iyer, V. M. and D. V. Rama. 2004. "Clients' Expectations on Audit Judgments: A Note", Behavioral Research in Accounting, 16 (1).
- Jamal, K. and H. T. Tan. 2001. "Can Auditors Predict the Choices Made by Other Auditors?", Journal of Accounting Research, 39 (3).

- Jenkins, C., S. Zyzanski and R. Rosenman. 1979. *Jenkins Activity Survey Manual (Form C)* San Antonio, TX: The Psychological Corporation.
- Kachelmeier, S. J. and W. Messier. 1990. "An Investigation of the Influence of a Nonstatistical Decision Aid on Auditor Sample Size Decisions", *The Accounting Review*.
- Kahn, R., P. Wolfe, R. Quinn, J. Snoek and R. Rosenthal. 1964. *Organizational Stress. Studies in Role Conflict and Ambiguity*. New York, NY: John Wiley & Sons.
- Kaplan, C. and H. Simon. 1990. "In Research of Insight", *Cognitive Psychology*, 22 (1).
- Kennedy, J. and M.E. Peecher. 1997. "Judging Auditors' Technical Knowledge", *Journal of Accounting Research*, 35 (2).
- Kumar, N., J.D. Hibbard and L.W. Stern. 1994. "The Nature and Consequences of Marketing Channel Intermediary Commitment", No. 94 -115, Cambridge: Marketing Science Institute.
- Kumar, N., L.K. Scheer and J.E.M., Steenkamp. 1995. "The Effects of Perceived Interdependence on Dealer Attitudes", *Journal of Marketing Research*, 32 (1).
- Libby, R., and K.T. Trotman. 1993. "The Review Process as a Control for Differential Recall of Evidence in Auditor Judgment", *Accounting, Organizations and Society*.
- Lightner, S., S. Adams and K. Lightner. 1982. "The Influence of Situational Ethical and Expectancy Theory Variables on Accountants' Underreporting Behavior", *Auditing: A Journal of Practice and Theory*.
- Lowe, J. D. and P.M.J. Reckers. 2000. "The Use of Foresight Decision Aids in Auditors' Judgment", *Behavioral Research in Accounting*, 12 (1).
- Mano, H. 1991. "The Structure and Intensity of Emotional Experiences: Method and Context Convergence", *Multivariate Behavioral Research*, 26 (2).
- Margheim, L. and K. Pany. 1986. "Quality Control, Premature Sign off and Underreporting of Time: Some Empirical Findings", *Auditing: A Journal of Practice and Theory*.
- Moeckel, C. L. and R. D Plumlee. 1989. "Auditors' Confidence in Recognition of Audit Evidence", *The Accounting Review*.
- Morgan, R. M. and S.D. Hunt. 1994. "The Commitment-Trust Theory of Relationship Marketing", *Journal of Marketing* 58, (1).
- Payne, E.A., R.J. Ramsay and E.M. Bamber. 2010. "The Effect of Alternative Types of Review on Auditors' Procedures and Performance", *Auditing: A Journal of Practice and Theory*, 29 (1).
- Pincus, K. 1989. "The Efficiency of a Red Flags Questionnaire for Assessing the Possibility of Fraud", *Accounting, Organizations and Society*, 14(1/2).
- Ponemon, L. A. 1992. "Auditor Underreporting of Time and Moral Reasoning: An Experimental Lab Study", *Contemporary Accounting Research*, 9 (1).
- Reimers, J.L. and M.G. Fennema. 1999. "The Audit Review Process and Sensitivity to Information Source Objectivity". *Auditing: A Journal of Practice and Theory*, 18 (1).

- Rest, J. 1979a. *Development in Judging Moral Issues* (Minneapolis, MN: University of Minnesota Press).
- Ricchiute, D. N. 1999. "The Effect of Audit Seniors' Decisions on Working Paper Documentation and on Partners' Decisions", *Accounting, Organizations and Society*, 24 (8).
- Rich, J. S., I. Solomon and K.T. Trotman. 1997a. "Multi-auditor Judgment/Decision-making Research: A Decade Later", *Journal of Accounting Literature*, 16 (1).
- Rizzo, J., R. House and S. Lirtzman. 1970. "Role Conflict and Ambiguity in Complex Organizaitons", *Administrative Science Quarterly* (June).
- Robertson, J. C. 2010. "The Effects of Ingratiation and Client Incentive on Auditor Judgment", *Behavioral Research in Accounting*, 22 (2).
- Robertson, W. 1990. "Detection of Cognitive Structure with Protocol Data: Predicting Performance on Physics Transfer Problems", *Cognitive Science*, 14 (1).
- Rose, A. M., J.M. Rose and M. Dibben. 2010. "The Effects of Trust and Management Incentives on Audit Committee Judgments", *Behavioral Research in Accounting*, 22 (2).
- Rotter, J. 1980. "Interpersonal Trust, Trustworthiness and Gullibility", *The American Psychologist*, 35 (1).
- Rotter, J. B. 1966. "Generalized Expectancies for Internal versus External Control of Reinforcement", *Psychological Mongraphs* 80 (1).
- Ruble, T. L. and R.A. Cosier. 1990. "Effects of Cognitive Styles and Decision Setting on Performance", *Organizational Behavior and Human Decision Processes*, 46 (1).
- Ruyter, K. And M. Wetzels. 1999. "Commitment in Auditor-Client Relationships: Antecedents and Consequences", *Accounting, Organizations and Society*, 24 (8).
- Schafer, B. 2007. *Accountability and Effect in Auditor Judgment*. Working Paper, University of South Florida.
- Senetra, P. 1980. "Role Conflict, Role Ambiguity and Organizational Climate in a Public Accounting Firm", *The Accounting Review*, 55 (4).
- Simon, D. T. and J.R. Francis. 1988. "The Effects of Auditor Change on Audit Fees: Tests of Price Cutting and Price Recovery", *The Accounting Review*, 63 (2).
- Solomon, I. and M.D. Shields. 1995. *Judgment and Decision-making Research in Accounting and Auditing*. In *Judgment and Decision-making in Auditing*, edited by Ashton, A. H. and Ashton, R. H. Cambridge: Cambridge University Press.
- Tucker, R. R. and E. M. Matsumura. 1998. "Going Concern Judgments: An Economic Perspective", *Behavioral Research in Accounting*, 10 (1).
- Tversky, A., and D. Kahneman. 1973. "Availability: A Heuristic for Judging Frequency and Probability", *Cognitive Psychology*.
- Vickers, R. 1975. *Subsetting Procedures for the Sales Type A Personality Index: A Short Measure of the Type A Personality*. In *Job Demands and Worker Health: Main Effects and Occupational Differences* edited by R. Caplan, S. Cobb, J. French, R. Van Harrison and S. Pinneau. Washington, D. C.: U. S. Government Printing Office.

- Wang, K. J. and B.M. Tuttle. 2009. "The Impact of Auditor Rotation on Auditor-Client Negotiation", *Accounting, Organizations and Society*, 34 (2).
- Watson, D. and A. Tellegen. 1985. "Toward a Consensual Structure of Mood", *Psychological Bulletin*, 98 (2).
- Wilks , T. J. 2002. "Predecisional Distortion of Evidence as a Consequence of Real-Time Audit Review", *The Accounting Review*, 77 (1).
- Winograd, B. N., J.S. Gerson and B.L. Berlin. 2000. "Audit Practices of PricewaterhouseCoopers Auditing", *A Journal of Practice and Theory*, 19 (2).
- Witkin, H. A., P.K. Oltman, E. Raskin and S.A. Karp. 1971. *A Manual for the Embedded Figures Tests*. Palo Alto. CA: Consulting Psychologists Press.
- Wrightsman, L. 1974. *Assumptions About Human Nature: A Social-Psychological Approach*. Monterey, CA: Brooks/Cole Publishing Company.