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**THE IMPACT OF ANALYTICAL REVIEW RESULTS,
INTERNAL CONTROL RELIABILITY AND EXPERIENCE
ON AUDITORS' USE OF ANALYTICAL REVIEW:
AN EMPIRICAL STUDY IN TURKISH AUDITING SECTOR**

(Yüksek Lisans Tezi)

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ABSTRACT

The impact of analytical review results, internal control reliability and experience on auditors' use of analytical review: An Empirical Study.

In recent years, increased competition in the audit sector, made the auditors to choose more efficient and effective audit techniques. Analytical review techniques provides these efficiency and effectiveness to the auditors. However, the extend of analytical review application by auditors is not clear.

The focus of this study is to try to determine how some factors affect analytical review judgements of the auditors. These factors are the internal control reliability; experience, and the results of analytical reviews. The purpose of the research is to determine the major effects of these dimensions. By this way, it is aimed to understand the auditors judgement criterias.

A short overview of the finding show that: The Turkish auditors do not use their judgments in the evaluation of the audit programs. In the case, the auditors mostly did not change the given audit hour. They do not show so much interest for the changing factors like internal control reliability or error signals of analytical review methods in spite of their experience level.

One implication of this finding is that more audit training can be given for analytical review applications, and the auditors can also be trained to use their judgements for more effective and efficient audits.

The trainings must be given to provide, cost and competition concious auditors.

ÖZET

Analiz metodu sonuçlarının, dahili kontrol sistemine olan güvenilirliğinin ve tecrübenin, denetçilerin analiz metodunu kullanmasına etkisi: Ampirik çalışma.

Son yıllarda artan rekabet koşulları denetçileri daha etkin ve kullanışlı teknikler seçmeye yönlendirmiştir. Analiz metodu, denetçilere bu etkinliği ve kullanışlılığı sağlamaktadır. Fakat, denetçilerin bu tekniğin ne dereceye kadar kullandıkları henüz belirgin değildir.

Bu çalışma, bazı faktörlerin denetçilerin analiz metodu yargılarını nasıl etkilediğini belirlemeyi amaçlamıştır. Bu faktörler dahili kontrol sistemine olan güvenilirlik, tecrübe ve analiz metodu sonuçlarıdır. Araştırmanın amacı, bu faktörlerin temel etkilerinin belirlenmesidir .Bu şekilde denetçilerin yargı kriterlerinin anlaşılması amaçlanmıştır.

Bulguların ortaya koyduğu kısaca şöyledir: Türk denetçiler denetim programlarını değerlendirirken, kendi yargılarını kullanmamaktadırlar. Çalışmadaki örnekte, denetçiler verilen denetim saatini pek değiştirmemişlerdir. Denetçiler, tecrübe seviyelerindeki farklara rağmen, dahili kontrol sistemine olan güvenilirlik, analiz metodlarının hata sinyali vermesi ya da vermemesi gibi ilgili faktörlerdeki değişimlere çok fazla ilgi göstermemişlerdir.

Bu bulguların bir sonucu, denetim eğitimlerinde analiz metodu uygulamalarıyla ilgili daha fazla denetim eğitimi verilmesidir ve denetçilere daha etkin ve kullanışlı denetimler için, kendi yargılarını kullanmaları yolunda da eğitim verilmelidir. Rekabete ve maliyete duyarlı denetçiler sağlayacak eğitimler verilmelidir.

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I. INTRODUCTION

In recent years, auditors facing competitive market pressure for their audit services. They try to provide high quality services while maintaining the overall effectiveness of the audit plans and reassessing the efficiency of the audit procedures. Because of the competitiveness of audit market, the practitioners and scholars searching for the most efficient and effective audit technique. The analytical review method is one of the most popular between these techniques. Increased competition for audit fees and computerization of accounting functions enhance the attractiveness of such uses of analytical review.

Analytical review has received significant attention also in the auditing literature. "Most analytical procedures research has been directed at developing and testing statistical procedures while such research is needed, it generally ignores the judgemental processes inherent in the analytical review"¹ As an example Biggs and Wild (1984) research results show that over 90 percent of the surveyed auditors used judgementally-based procedures in analytical review. "Since there is considerable evidence that biases affect human judgements, including auditor judgements, it is important to obtain knowledge of how auditors make analytical review judgements"².

Especially the audit firms are in a need to understand the application deficiencies of this method. The research results will probably enlight the audit firms in this manner. Today in the traditional audit procedures which requires hours of ticking and footing the detail account balances became an inefficient way of auditing today's complex audit environment. Therefore the auditors shift their

¹ Felix W.L. and W.R. Kinney: "Research in the auditor's opinion formulation process: State of the art" The Accounting Review (April 1982), pp.245-271.

² Biggs, Stanley and J.J.Wild: "An investigation of auditor judgement in analytical review." The Accounting Review Vol.LX. No.4, October 1985.

attention to examining the overall reasonableness of the account balances and financial statements. An audit which placed more emphasis on examining the fairness and/or reasonableness would require significant modification of our present audit procedures. In particular, it would probably mean a more limited and selective use of the tests of details of transactions and a more extensive and better use of internal control checks and analytical review of significant financial ratios and trends. If such an approach were adopted, the result would be an audit with the use of much less staff time but with an increased reliance on mathematical and statistical methods.

In this study, the usage of analytical review methods will be researched. This research material was first developed by Biggs, Moch and Watkins in 1988. Then, in 1989, Prof. T. Kida and Prof. J. Cohen designed the case again. In this current study, the research setting is analyzed by two audit managers working in Turkish audit companies. After this, the case is introduced to the practitioners for our research.

The motivation of the study is twofold. First, it tries to determine the effects of internal control reliability, analytical review results and experience on auditor judgements in the usage of analytical reviews. Second, the auditors' attitudes are compared with the auditors in U.S. to see whether the judgemental behaviours show any similarity across countries.

The rest of the study is organized as follows; Chapter 2, presents past empirical findings and prior research on analytical review judgements Chapter 3; provides the hypothesis sample information and research design and methodology. Chapter 4; discusses the data analysis and presents the findings of the study. The final chapter, summarizes the findings, discusses the implications of the empirical tests, extensions and future research.

II. LITERATURE REVIEW

2.1. Nature and Purpose of Analytical Procedures

In the International Auditing Guideline (IAG) (section 3003), "the basic principle of governing the audit requires that the audit must be adequately planned so that the auditor obtains sufficient appropriate audit evidence on which to base the expression of his opinion. Analytical procedures are identified as a type of substantive procedures for obtaining audit evidence"³. Statement on Auditing Standards (SAS) No:56 (Section AU 329) defines analytical review procedures as "evaluations of financial information made by a study of plausible relationships among financial and nonfinancial data involving comparisons of recorded amounts to expectations developed by the auditor". SAS No:56 (1988) also notes that analytical procedures can be more efficient than detailed testing for achieving certain substantive testing objectives.

The term "analytical procedures" are mainly analysis of significant ratios and trends including the resulting investigation of fluctuations and relationships that are inconsistent with other relevant information or predicted amounts.

Analytical procedures include the comparison of the entity's financial information. These informations could be compared with following informations:

- Comparison of information between periods.
- Comparison with entity's anticipated results, such as budgets or forecasts expectations of the auditors.

³ AICPA Professional Standards Volume 2, June 1.91.

- Comparison with similar industries. For example ratio comparisons with other entities of comparable size in the same industry.

Analytical procedures also include the study relationships. These relationships could be between financial and non-financial information's, such as a study of payroll costs to number of employees.

Analytical procedures are used for the purpose to assist the auditor in planning the nature, timing and extent of other auditing procedures. They are also used for the purpose to obtain evidence during the examination of account balances or transactions. The analytical procedures are used for the purpose of the overall review of the financial information in the final review stage of the audit.

2.2. When To Use Analytical Procedures

Analytical review is useful in three stages of the audit:

- As a planning tool for the identification of the changes in the entity's business pattern and to identify the business risk and audit risk.
- As part of the detailed substantive tests.
- As an overall check at the end of the audit.

2.2.1. Analytical Procedures At The Planning Stage

“The auditor should apply the analytical procedures at the planning stage to assist in understanding the business and in identifying the areas of potential risk”⁴. In this stage entity's unaudited financial information is compared with the

⁴ American Institute of Certified Public Accountants AICPA. Professional Standarts Volume 2. (June 1.91):12421.

previous years audited information and significant changes are highlighted. By finding these unusual fluctuations, large variations in the early planning stage, the auditor is then prepare a time budget to perform detail test to find out the reasons of such fluctuations in the later periods of the audit.

2.2.2. Analytical Procedures As Part of The Substantive Tests

At this stage of the audit, analytical procedures are used to provide audit evidence to substantiate individual amounts of assets, liabilities, income or expenditure. Many analytical procedure rely on relationship between amounts appearing in the accounts. Therefore, with the single test, the auditor provide an evidence to substantiate more than one item in the accounts. Instead of spending hours for footing and ticking the detailed account balances or when its impossible either to examine every transaction in detail or to compute the resulting not income exactly, the usage of analytical procedures would be very efficient and effective since it detects the error more easily and quickly.

2.2.3. Analytical Procedures In The Overall Review At The End Of The Audit

“The auditor should apply analytical procedures at or near the end of the audit when forming an overall conclusion as to whether the financial statements as a whole are consistent with the knowledge of the business”⁵. Auditor confirm its understanding of the client's business and how it is controlled.

By this way auditor checks that:

- the financial statements are internally consistent.

⁵ American Institute of Certified Public Accountants AICPA. Professional Standarts Volume 2. (June 1.91):12421.

- the view shown by the financial statements reflects the underlying economic activity of the entity.
- the result for the year are consistent with general knowledge of the economy and with similar industry.

2.3. How to Apply Analytical Procedures

“There are three steps in performing the analytical procedures:

1- Develop an expectation for the account balance or item using trend or ratio analysis or a model-based procedures.

2- Compare the expected amount with the recorded balance.

3- Based on the difference between the recorded and expected balance and considering the "precision" with which the expectation was developed, determine the desired nature and extent of further audit testing”⁶. Formation of an "expectation" is necessary for starting to analytical procedures. The expectation is an estimate of an account balance based on trend of the account, related financial ratios or explicit financial models of factors that affect the account. Proper application of analytical procedures in accordance with SAS no.56 requires the development of expectation. According to SAS no:56 "analytical procedures involve comparisons of recorded amounts, or ratios developed from recorded amounts, to expectations developed by the auditor".

⁶ Blocler Edward and George F.Pattenson Jr. “The Use of Analytical Procedures”. Journal of Accountancy (February 1996):53.

2.4. Types of Analytical Procedures

“The nature of analytical review can extend from subjective evaluations to the application of sophisticated statistical models. There are mainly three types of analytical procedures:

1. Reasonableness test.
2. Ratio analysis
3. Trend analysis

2.4.1. Reasonableness Test

“In reasonableness test the auditor develops an expectation based on some operating data. For example in looking for the reasonableness of sales figure for the current period, the auditor may multiply the unit price of the product by the number of units sold during the year.”⁷

2.4.2. Ratio Analysis

“Ratio analysis is one of the oldest analytical procedures which compares relationships among account balances. There are mainly two approaches for using financial ratios:

1. Comparison of the company’s current situation with that of prior years (time series analysis).
2. Comparison of the company’s financial position with similar companies in the same industry (Cross-sectional analysis). Thus, ratio analysis can identify

⁷ Önder, Türkan, “Analytical Procedures in an audit: Review and Application by Cases” Öneri. C.1., S.4. (Ocak 1996).

both relationships within the company over time and common relationships between companies in the same industry”⁸. For example, when analyzing the firm’s inventory, the inventory turnover ratio is compared with the prior years, or it could be compared on monthly basis. The turnover rate can also be compared with other companies’ rates within the same sector.

2.4.3. Trend Analysis

“In trend analysis, the auditor develops an expected result for the current period by analyzing changes in an account balance over the past accounting periods.”⁹

In the simple trend analysis, less sophisticated statistical techniques are applied. “For example, if company’s sales are increasing by average 5% over years, then the auditor basis his expectation for the current year as a 5% increase from the previous year.”¹⁰

Regression is the one which is mostly applied in the audit work.

Regression analysis enables us to understand the relation between variable of interest, called a dependent and one or more independent or predictor variables. If linear relationship exist in these two variables then it can be speak about the mathematical equation. The regression analysis studied by Kinney (1978)¹¹ In his study he used model based statistical techniques “arima”.

⁸ Önder, Türkan, “Analytical Procedures in an audit: Review and Application by Cases” Öneri. C.1., S.4. (Ocak 1996).

⁹ I.b.i.d.

¹⁰ I.b.i.d.

¹¹ Kinney W.R. Jr. “Arima and regression in analytical review. An Empirical Test”, The Accounting Review, Jan.1978, p.59.

And he stated that:

“the use of ARIMA based models in analytical review in auditing seems beneficial but not as a generally applicable alternative to regression.”¹² He also stated that the models with “greater information requirements and computation effort are superior in predictive power”¹³

“The auditor uses regression equation for predicting the balance of an account which is dependent on another account. Some of the examples of the relationship between accounts is:

- 1- Repair expenses and machine hours
- 2- Number of units sold and cost of sales
- 3- Direct labor costs and indirect labor costs
- 4- Advertisement expenses and sales
- 5- Delivery expenses and sales
- 6- Direct labor hours and production costs”¹⁴

2.5. Studies On Analytical Procedures

The importance of analytical procedures in auditing are well-studied by most scholars. The studies can be grouped into two broad categories. In the first group, the scholars study on the statistical models of analytical procedures. The studies are for the new techniques for the efficient and effective audit. With the power of new information technology, they searched for the most appropriate model which would consume less audit hours and provide most effective results. In

¹² I.b.i.d.

¹³ I.b.i.d.

¹⁴ Önder, Türkan, “Analytical Procedures in an audit: Review and Application by Cases” Öneri. C.1., S.4. (Ocak 1996).

this group there are studies like Lev's index models, Kinney's arima, regression models.

In the second group, there are researches which focus on behavioral aspects of auditing. Accepting them as decision-makers, the auditor's decisions are analyzed. Scholars examined auditors and their attitudes towards using these analytical procedures.

This study can be grouped to the second one. The judgemental behaviours on the usage of analytical review procedures are researched. The literature review of this study is done under three headings. Analytical review, control reliability and experience factors are all reviewed, since they all effect the judgemental behaviours of the auditors. In the first group, the studies on judgemental behaviours of the auditors are reviewed. The studies on analytical review technique are also included in this part. Second; internal control reliability and control risk studies in the audit are included and third; the studies related to the experience level of the auditors are included. The reason of this grouping is to see the researches made for each factor independently.

2.5.1. Studies on Judgemental Behavior of Auditors

Judgemental behaviors of the auditors are researched by various scholars. The researches were different in many ways. The auditors behaviors, and decisions could be affected from the different factors. So the judgements they made can be various.

We will analyze the analytical review judgements of the auditors in our research. In addition to this factor, in this section the other factors which could affect the judgemental behaviour of the auditor, are tried to be explained. These

are the studies made by various scholars. It is included in order to understand the auditor's judgemental behaviors more clearly.

The effects of analytical review results to the auditors judgemental behaviors are researched by various scholars. Basically it is expected that as the analytical review results signals error in the account balance the auditor extends the detail testing and in the opposite when the analytical review results signals that the account balance order, the auditor reduces detail testing.

Although, theoretically above situation is expected, in practice some researches found different situations. According to a research made by Cohen & Kida (1989), standart audit programs are distributed to 96 auditors. The auditors are asked to assign the audit hour for each program step. There was two group of questionnaires. In this first group, there was analytical reviews which signals errors, so, it was expected that, the more audit hours would be assigned to the program by the samples. On the other side, the second group had the analytical reviews which was signalling no error, meaning that the account balance is in order and probably there is no unusual entry.

Although it is the case, the auditors did not reduce the audit hour. Auditors were still insisting on the further detail testing. This research results are consistent with the study of Biggs, Mack and Watkins (1988). In their study the term "conservatism" gain importance. The purpose of the research was to provide some initial descriptive evidence of how auditors perform judgemental analytical review in a complex and realistic task setting. Comprehensive audit case was administered to four auditors. Auditors, first, read through the case, second, they request analytical review information and third, they evaluated the requested information and finally they adjust the audit programs. Statement of Auditing Standards No:23 (AICPA 1978) suggests that analytical review can be subjected to increase audit effort and can be subjected to reduce audit effort. However, Biggs, Mock and Watkins (1988) were not able find any evidence that auditors

used analytical review to identify areas where audit effort could be reduced. At least in that study, the auditors did not use analytical review to reduce test of details.

Cohen & Kida (1989) try to enlarge the sample size and try to investigate a potential conservatism tendency. Their result was consistent with the Biggs's findings. The research which was performed on 96 auditors, supported the previous ideas. The auditors did not reduce audit work when analytical review signaled no errors.

In our study, we investigate whether their results, can be generalized to the Turkish auditors working in the five "Big Eight" accounting firms and working in the major local ones.

Kida (1984) in his study pointed out that "auditors make numerous judgements in evaluating internal control, assessing audit risk, designing and implementing sampling plans, and appraising and reporting on uncertainties".¹⁵

According to his study, the auditors often formulate hypothesis within their judgement tasks and after framing the hypothesis the auditor searches for data to test it. In his paper Kida, tries to examine whether hypothesis-testing strategies employed by auditors affect their search and use of their judgement data. He focused on impact of this hypothesis testing strategies on auditors' use of judgement data".

"For example, suppose that preliminary data lead the auditor to set a given belief about internal control or an account balance. That belief may have stronger effect on the search for new data than alternative hypothesis framing, given that both supporting and non supporting data are potentially available."¹⁶

¹⁵ Kida, Thomas "The impact of hypothesis-testing strategies on auditors' use of judgement data." *Journal of Accounting Research* Vol.22, No:1 (Spring 1984):332.

¹⁶ Kida, Thomas "The impact of hypothesis-testing strategies on auditors' use of judgement data." *Journal of Accounting Research* Vol.22, No:1 (Spring 1984):339.

Like Kida, Peecher (1996), Krishnan (1994) Hoffman and Patton (1997), Kennedy and Peecher (1997) searched the auditor's judgemental behaviours. Their concerns was more than just investigating the judgements on only analytical review results.

Peecher (1996), in his study presented “a cognitive model of how justification influences auditors' decisions and an experiment which focuses on how auditors' justification processes influence two dimensions of their planning-stage analytical procedures performance: assessments of client-provided explanations for income-increasing account balance fluctuations and the extend of their search for competing explanations.”¹⁷

Peecher (1996), manipulated the auditors' justifee preferences by given introduction to the auditors. Auditors grouped in three levels, as credence, objectivity and skepticism. Client integrity is also manipulated as high and low and the requests are manipulated.

“The experiment examined differences in auditors' analytical procedures performance associated with the preferences of those demanding justification (justifee preferences) and the integrity of client management (client integrity), consistent with expectations, I find that justifee preferences influence both auditors' likelihood assessments that client provided explanations account for the cause of income - increasing fluctuations and the weight auditors assign to client integrity when making such assessments.”¹⁸

The findings suggests that justifee preferences influence auditors' likelihood assessments and the weight they attach to positive levels of environmental cues when making such assessments. However, the findings also suggests that negative levels of environmental cues decreases the justifee preferences' influence.

¹⁷ Peecher, Mark E. “The influence of auditors' justification processon their decisions: A Cognitive Model and Experimental Evidence”. *Journal of Accounting Research* Vol.34, No.1.

¹⁸ Peecher, Mark E. “The influence of auditors' justification processes on the decisions. A cognitive Model ad Experimental Evidence” *Journal Accounting Reserach* Vol.34, No.1 (Spring 1996):139.

In another study made by Kennedy and Peecher (1997), the auditors' technical knowledge is researched. It is important because auditors' assesment of their own and others' knowledge affect audit planning, task assignment and application of analytical review techniques. Inaccurate knowledge assesments can lead to unacceptable task performance or unplanned audit hours.

It is also important , since the technical knowledge level can lead to different judgemental preferences. The experiment was completed by 42 auditors, consisting of 15 staff, 16 seniors, and 11 managers. The researchers hypothesized that auditors use the confidence in their own technical knowledge as a cue to asses whether their subordinates posses technical knowledge. Overestimation and over confidence are also the key words for their study.

In the research all the auditors, answered same questions. Questions correctly answered by staff (47%), seniors (60%) and managers (58%). They expected that managers' technical knowledge would overlap more with seniors' technical knowledge than seniors' technical knowledge would overlap with staff's technical knowledge.

Finally, they found that auditors are overconfident in their technical knowledge. And they also found that "... audit supervisors use confidence in their technical knowledge to predict the technical knowledge of subordinates"¹⁹

This study show that, auditors feelings about their technical knowledge with respect to their levels can effect the selection of some audit techniques. Feeling over confidence in higher levels and decisions based on subordinates' technical knowledge are all judgemental behaviours of auditors.

In Krishnan's study (1994), again the auditors' decisions mechanism are try to be explained.

¹⁹ Kennedy J. and Mark E.Peecher "Judging auditor's technical knowledge". Journal of Accounting Research Vol.35, No.2 (Autum 1997):291.

According to Krishnan (1994) companies are changing their audit firms, in order to not to get qualified opinion. This switching pattern could be the result of conservative tendency of the auditors. However the observed conservatism could be the auditor's reaction to negative private information gathered during the audit.

This study is an another dimension which gives a different explanation to the auditors sudgegmental behaviours.

There could be an explanation for conservative tendency of auditors. "Client size can be expected to be negatively correlated with auditor conservatism because of the lower risk associated with such clients, or because larger firms may enjoy greater bargaining power since they pay higher fees."²⁰

There could be another explanation that the auditors could behave less conservative towards big clients for fear of losing them.

Krishnan's (1994) study suggests that clients may attempt change audit firm for better opinion. However "because client-specific private information is shown only after an auditor is hired, the client cannot accurately predict a new auditor's attitude prior the engagement"²¹

Hoffman and Patton (1977) experiment the potential accountability of the auditors to their superiors. Accountability to superiors did result in more conservative fraud risk judgements.

Subjects were randomly assigned to the nonaccountable or accountable treatment conditions and were separated into one of two rooms. The non accountable subjects were told that no one except the researchers would review their responses and that the researchers would know only their participant

²⁰ Krishnan,Jagon, "Auditor's Switching and Conservatism" The Accounting Review. Vol.69, No:1 (Jan.1994):214.

²¹ Krishnan,Jagon, "Auditor's Switching and Conservatism" The Accounting Review. Vol.69, No:1 (Jan.1994):214.

numbers, not their names. The accountable subjects were told that after they answered the questions in their booklets some of them would be chosen to explain and justify his judgements.

According to Hoffman and Patton (1997), the tendency to respond more conservatively when held accountable to their superiors caused auditors to asses a higher risk of fraud. Thus, in their particular case, responding more conservatively helped to offset the cognitive bias introduced by the dilution effect and would increase audit effectiveness. However, in situations where subordinates' judgements are initially too conservative, becoming more conservative when held accountable could result in excessive and inefficient auditing.

Similar to above mentioned scholars, Bonner (1994) made study on auditors' judgemental behaviours in the audit task complexity. According to her, studying audit task complexity and understanding of it, is very important since it also affect the auditors' judgements. First of all, minor task characteristics, such as wording in the audit program instructions can affect judgments. Second, the highly complex tasks may require different types of decision aids or trainings, skills of the auditors. So, it is important to study the task since it affect the auditors' decision mechanism. In her study, "a model is proposed for examining the effect of audit task complexity on audit judgment performance."²²

In her study, Bonner (1994) examined the previous studies, and organized 7 testable propositions. Her studies showed that, as the task become more complex, the judgment performance decreases. However, as the complexity increases skill and motivation of the auditor may affect the task.

²² Bonner, E.Sarrah, "A model of the effect of audit task complexity". Accounting, Organizations, Society, Vol.19, No:3 (1994):213.

These findings also, showed that in the short-run the complex task may not let the auditor immediate learning, since he doesn't use very much of his judgement however in the long run it has positive affect for the auditor's learning.

Davidson and Gist (1996) again examine the auditor's decision system. According to them time is also important factor in their decision process. So it is the factor in the judgmental behaviours of the auditors. They examine the relation between the extend of audit planning and total audit effort. The time consumed in the planning stage of the audit can affect the total efforts of the auditors in the field work. They predict an inverse relation between audit planning hours and total audit hours up to a critical point, after which additional audit planning hours do not reduce total audit effort. The findings supported their predictions.

In another study, by McDaniel (1990) the time factor is concerned. But in this time, the time pressure was examined on auditors performance. The limited time, given to audit work affected the auditors performance. Lightner, Leisenring, Winters also examined the time budgets of the audit firms. Ther findings are all in the same way and supported the previous researches. In Lightner's study, the auditors due to time pressure, tend to write less than the actual audit hour to their audit budgets.

The above mentioned studies tried to explain the auditor's judgemental behaviours. Accountability, time pressure or even task complexity could affect the auditors' judgemental behaviours. The studies on auditor's judgements is very important since the auditor's are the decision makers and they will use the analytical review methods, evaluate the analytical review results. The literature survey also showed that auditors judgements could be affected from various factors. Auditors' decisions do not always coincide within the different environmental factors. However, according to Cohen and Kida (1989) a tendency

toward conservative judgments may predispose auditors to use analytical review to extend planned tests of details but not to reduce them.

The second dimension in our study is the internal control reliability.

2.5.2. The Internal Control Reliability Effects

The second dimension in our study is the impact of internal control reliability on the auditors' use of analytical review.

Cohen and Kida (1989) in their study, test the impact of reliability of the data on the auditors' use of analytical review. In their study, it is expected that, as the internal controls of the client become stronger the auditors are expected to reduce the total audit hour. No detail test would be required, since the system is reliable. In the opposite, as the system's internal control mechanism show weaknesses the auditors are expected to increase detail testing so the total audit hours would increase. In their study, reliability of the internal control system was manipulated as stronger or weaker. For the strong system, the number of system characteristics were listed and subjects were told that compliance testing found the controls to be in place. For the weaker system, a number of weaknesses were mentioned, and subjects were told that the results of the compliance testing found some controls not to be effective. The results of the experiment supported their hypothesis that the auditors adjusted the extend of their work based on the differing reliabilities of the internal control system. However, the conservative attitude of the auditors once again affected the results.

According to the test, the total audit hours assigned to any company in the same sector. The samples evaluated the data of their company and reassigned the total hours. For the ones with strong controls, the mean of the total hours assigned was 56.43 hours. For the other group where the controls were weak, the mean

hours assigned by the samples, as a total audit hours was 63.09. As it is seen the hypothesis were supported however both group in any way increased the total hours. Auditors did not satisfied from the strong control environment and behave conservatively.

In our current study we try to search the application in Turkish auditing firms whether auditors differentiate the reliability of information and adopt it to their audit programs in a hypothetical case setting.

Waller (1993), Biggs and Mock (1983), made studies on reliability approach on internal control systems.

In Waller's (1993) study, auditors' assessments of control risk was research in field settings by analyzing archival data drawn from the audit workpapers of KPMG Peat Marwick. The study includes data from trade accounts receivable, inventory, and trade accounts payable, on a total of 215 audit engagements. In his study, Waller (1993) study on the different risk factors of the audit. Inherent risk, control risk and detection risk. In the findings, Waller found out that "auditors use control risk assesment primarily as a way to document decisions about (non) reliance on controls."²³

In another study by Biggs and Mock (1983), the auditor decision processes in the evaluation of internal controls are investigated. The subjects were four experienced senior auditors from one international accounting firm. The task was involved in a audit case where subjects were required to evaluate internal controls over a company's revenue cycle and make decisions. The subjects were assigned to either the "strong" or the "fair" internal control condition.

²³ Waller, S.William. "Auditor's assessments of inherent and control risk in field settings." *The Accounting Review*. Vol.68, No.4 (October 1993):783.

The already prepared sample sizes for each audit procedures were given to auditors. The subject's task was to decide which changes, if any, should be made in the planned sample sizes. The decisions were so variable. However, study provide little insight into why the decisions were so variable, and “this study also showed that it was difficult to evaluate decision behavior in these complex tasks settings since it is not possible to know if subjects made correct decisions,”²⁴ where there were no normative solutions.

2.5.3. The Effects Of Experience On The Audit Judgments

The third dimension of our research study is the experience. The effect of experience on audit judgment has been examined in several recent research studies.

Biggs, Mock and Watkins (1988), examined the experience factor in their study. Compared the decision of auditors who differed in terms of experience. Two managers with seven years audit experience, and two seniors with less than three years of audit experience were selected as subjects.

Two issues were important in that research. “First was the question of whether or not the auditors identified the potential overstatement of accounts receivable which had required an adjustment in the actual company on which the case was based. Second, was the question of whether auditors use analytical review as suggested in SAS No:23 to identify both areas that should be subjected to increase audit effort and areas that can be subjected to reduced audit effort.”²⁵

²⁴ Biggs, Stanley and Theodore J. Mock. “An investigation of auditor decision processes in the evaluation of internal controls and audit scope decisions”. *Journal of Accounting Research*, Vol.21, No.1 (Spring 1983):253.

²⁵ Biggs, Stanley and Theodore Mock, and Paul Watkins. “Auditor’s use of analytical Review in Audit Program Design”. *The Accounting Review*. Vol.LXIII No.1 (January 1988):155.

At the end of the tests, it is found that all the auditors identified set of problems. Managers identified substantially more than the seniors. So the first question was clearly answered. However there was no evidence was found about the auditors's use of analytical review to identify areas where audit effort could be reduced.

However, when concerning about the experience level factor to the auditor's decision mechanism, it is supported by this study.

According to research results, managers seem to apply a more complex understanding of the problem of auditing the revenue cycle.

In 1989, Cohen and Kida, developed the study of Biggs, Mock, and Watkins (1988). The hypothetical case was improved. 50 senior and 46 managers completed the questionnaires in the case. Results showed that managers and seniors acquired and evaluated information for analytical review differently. When analytical review signals no error and internal controls were positive, seniors were willing to reduce work. However, managers allocated similar audit hours. Thus, managers and seniors appear to react differently.

In our study, we try to analyze the situation in Turkish audit sector, with settings prepared by Cohen and Kida (1989).

The findings of Cohen and Kida (1989) and Biggs et al (1988) show similarities that the managers and seniors acquired and evaluated information for analytical review differently.

Abdolmohammadi and Wright (1987) and Messier (1983) studied on experience factor on auditor's decisions. Abdolmohammadi and Wright's (1987) hypothesis was the "experience effects in auditing are positively related to the

level of task complexity".²⁶ Three cases, taken from actual audit engagements, were used in a series of laboratory experiments to study the effect of experience and task complexity on audit decisions. The three cases covered six audit tasks. These tasks were classified as structured, semi-structured, and unstructured. There was 88 participants from manager and partner levels. The results support the hypothesis in that significant decision differences were consistently found between experienced staff and other subjects for unstructured and semi-structured tasks.

Messier's (1983) basic objective in his research was to assess whether experience in an audit task improves the quality of the professional judgment. 29 audit partners were the subjects and grouped with respect to their experience level.

The subjects were presented with background information about the client and asked to make two judgments with respect to a \$1,000,000. inventory writedown:

(1) The materiality of the writedown, and

(2) The probability that the writedown should be separately disclosed in the income statement.

The results indicated that net income was significant for virtually all partners. The results also showed that more experienced auditor had a better understanding of the decision process and placed a greater reliance on the net income variable. Based on the results, "only consensus of the audit partners' materiality/disclosure judgements was affected by experience and firm type."²⁷

²⁶ Abdolmohammadi, Mohammad and Arnold Wright "An examination of the effect of experience and task complexity on audit judgments." *The Accounting Review*. Vol.LXII, No.1 (January 87)

²⁷ Messier,William: "The effect of experience and firm type on materiality/Disclosure judgements" *Journal of Accounting Research*. Vol.21, No.2 (Autumn 1983):618.

These findings are consistent with Abdolmohammadi and Wright (1987). Their studies both suggests that experience play a greater role in the auditor's decisions, especially, when the structure is more complex or not well structured. Cohen and Kida (1989) states that "Since the use of analytical review is not a well structured task, and since it involves both an understanding of the complex interrelationship between account balances and an understanding of the link between account balances and an understanding of the link between analytical review results and the extend of audit testing, it is expected that experience will influence the performance and the use of analytical review."²⁸

Cohen and Kida (1989) in their settings, selected the samples from managers and senior levels. The case was previously explained. However the experience level is another factor in their study. According to the their findings, seniors, and managers used different approaches in determining the number of hours of audit planning. "Seniors assigned similar hours except when both analytical review and internal control pointed to no errors. In effect, when both analytical review and internal control were positive, seniors were willing to reduce work. Managers, however, allocated similar audit hours except when both analytical review and internal control pointed to errors."²⁹ The findings also showed that for seniors, internal control reliability is significant while on the otherhand and for managers analytical review findings are significant.

Krogstad, Ettenson and Shanteau (1984) worked on empirical study in which 10 audit partners, 11 audit seniors and 11 auditing students completed 32 audit cases. Krogstad et al. (1984) researched the experience factor in auditors' materiality judgments. The findings showed that the audit seniors closely resembled audit partners in making the materiality judgments required by the

²⁸ Krogstad, Jack, Richard Ettenson and James Shanteau, "Context and experience in auditors' materiality judgments", *Auditing Journal of Practice* Vol.4 No.1 (Fall 1984):70.

²⁹ Cohen, Jeffrey and Thomas Kida (1989) "The impact of analytical review results, internal control reliability, and experience on auditor's use of analytical review" *Journal of Accounting Research*, Vol.27, No.2 (Autumn 1989).

experimental task. On the other hand, the students differed from the practitioners in their use of information, judgment consistency and judgment consensus. "They tended to focus individualistically on various cues rather than concentrating on the "effect on net income" as it was seen on the partners and seniors attitude."³⁰ As a result, professional experience seems to have an impact on the judgmental behavior of the auditors.

Bonner and Walker (1994) in their studies examined the experience and knowledge factor together. They studied with students. 95 senior undergraduate and graduate students are included in the test. These students enrolled in the same basic auditing course at a large state university. In this course, subjects discussed the use of ratio analysis in audit planning, but they had no experience in detecting an error by this way.

Various examination groups are organized like, subjects receiving no experience and no instruction and no procedural knowledge (The combinations of instruction and experience).

The results indicate that combination of instruction and no experience, or of instruction and experience without feedback do not produce knowledge. Experience with explanatory feedback and any form of instruction creates gains in knowledge, but may not always be available in the audit environment. These findings have implications for audit effectiveness and efficiency and for education and firm trainings, and shows the importance of practice (experience) in all levels.

³⁰ Cohen, Jeffrey and Thomas Kida (1989) "The impact of analytical review results, internal control reliability, and experience on auditor's use of analytical review" *Journal of Accounting Research*, Vol.27, No.2 (Autumn 1989).

III. RESEARCH DESIGN AND METHODOLOGY

3.1. Research Purpose

The research aims to understand the auditors' analytical review judgments. It tries to integrate the prior research and to understand the basic questions concerning auditor analytical review judgments, which are experience, reliability of internal control and analytical review results.

The basic research questions to be answered are:

- Do auditors use the results of analytical review to reduce, as well as extend, audit testing.
- Does the reliability of the data affect auditor's analytical review judgments.
- Does experience level affect the type of analytical review judgments.

Three main indicators are tried to be explained. In addition to this, the research also tries to identify the possible application difficulties of this method in the Turkish auditing sector. The audit firms want to enlarge the application, since they consume from the audit hour with this method. By using analytical review method they could do more efficient and effective audit.

Furthermore, in the calculation of the audit fee, the audit hour is the main indicator. Since we could consume from the total audit hour, by using this method, the audit fee could be affected from it. Either decreasing the audit fees or increasing the audit companies profit margin, the usage of analytical review

methods will be very helpful in two directions. If decreasing the audit fees are concerned, then the number of companies which want to be audited would increase. It would be a very important and good result for Turkish companies, if the number of audited companies increases.

In summary, defining the auditors' judgmental behaviors is an important subject since it has never been researched in the Turkish auditing sector before. The coordination between the universities and the practitioners, would probably increase the efficiency of the working people in Turkey. The previous research results show that by using analytical review methods, less audit time can be spent as well as more effective audits can be done. Since the technologies give us that opportunities, the scholars must research on these advanced audit techniques and practitioners must adopt these new technologies to their jobs. In addition to this defining the application boundaries will open new research subjects and would probably let to more efficient and effective audit environment.

3.2. Case Design

A case study related with the wholesale company was presented to the auditors. The sales and collection cycle informations of that company was introduced to the auditors. With the given informations and with the manipulation of seeded errors in the case, the auditors were asked to decide on the modifications which would be made on the given audit programs. The settings the case are taken from the study of Cohen & Kida (1989). The settings are discussed with two manager from one of the "Big Eight" Accountings firms in Istanbul. The allocated audit hours to the test of details relating to the sales and collection cycle of a given firm, were examined by these managers. These managers found the allocated hours approximate under the adequate internal control systems and also they

stated that these hours are appropriate if there were no time pressure, budget straits in that audit.

In Cohen and Kida's (1989) study, the case developed from the settings used by Biggs et al. (1988). They modified it according to their research study. Biggs et al (1988) specifically investigated how experienced (managers) and inexperienced (new promoted seniors) auditors design and conduct analytical review and revise audit programs in light of their judgments. There was two manager and two seniors and case introduced to them in two sessions. In the first sessions, they were asked to prepare an audit program and second sessions, they received information and evaluated the programs with respect to nature timing and extend. Cohen and Kida (1989) try to enlarge the sample base and first sessions is omitted while the second session is enlarged with also the inclusion of the internal control system effect.

In our current study, the auditors received 5 types of information:

1- Description of the internal control system and results of compliance testing relevant to the sales and collection cycle.

2- Two years of audited financial statements, this year's unaudited account balances, and key ratios and trends relevant for implementing an analytical review of the sales and collection cycle.

3- Industry data for ratios relevant to the sales and collection cycle.

4- Regression analysis-based estimates of relevant sales and collection accounts-subjects were told that the regression formulas were derived using four years of audited data to estimate the unaudited current year's account balances.

5- Description of planned tests of details for the sales and collection cycle.

The audit plan was described to subjects as typical for a firm in this industry with an adequate internal control system. It was also noted that the plan involved tests of detail only and did not consider analytical review results.

Subjects received audit plan which based on test of details only. The audit hour for these detail tests was 47 hour and it was appropriate for the firm which has an adequate internal control system. Specific points were manipulated. The firm's internal control system was manipulated as either strong or weak; analytical review data manipulated as to a possible error or not and subjects' experience was manipulated as giving the to questionnaires to senior and manager levels. Then the subjects were asked to make modifications on the audit plan on nature and on extend with respect to given information presented in their case.

3.3. Theoretical Framework Of The Study

3.3.1. Independent Variables

In our study we have three independent variables. These are analytical review results, internal control reliability and experience.

3.3.1.1. Analytical Review Results

Analytical review results are manipulated signalling an error and signalling no error, in the sales and collection cycle of the firm. In the first group, which analytical review signals error, there are various problems in the accounts. The first one is the overstatement of accounts receivable. In the comparison of the current year's unaudited account balances of accounts receivable with the previous two years of audited data shows large increases. This large increase can be seen from the comparative balance sheets.

Two years ago-audited balances show 16.4% of the total asset for the account receivable, however it is 23.5% for current year unaudited balances.

Same error can also be seen from the ageing analysis of the accounts receivable. The comparison of previous two years data with the current year', the percentage of gross accounts receivable shows increase in the over 90 days collections. That was 14.9% two years ago and became 28% in current aging schedule.

Subjects also received relevant analytical review procedures that some ratio results were introduced to them. That results also signals some errors in the account, such that days net receivable outstanding increased from 27.47 to 37.97.

Subjects were also given some industry data. The comparison can be made with these data that the current year data for the accounts receivable for our firm showed variance for current year values although it was paralel for the last two years.

Subjects finally could analyze their quantitative data which was provided them already. According to that report, the estimations of account balances were generated through regression analysis, which was based on four years audited data. The increase in gross accounts receivable balance is significantly different from regression estimations.

Another problem account in the case was the allowance for doubtful accounts. The irregularity and unusual variance can be found by searching the provided informations. It can be seen on the comparative balance sheet that the allowance for doubtful accounts was 1.4% of the total asset and it become 2.6% for the current year unaudited balances.

In the second group analytical review results pointed no error. The no-error case contained little changes in the accounts receivable and allowance for doubtful accounts. When compared with the previous years' data. The regression analysis, ratios, industry data comparisons all showed that the changes are in the acceptable values.

Other than the accounts receivable and allowance for doubtful accounts, the rest of the accounts (sales, sales returns, and cash) were signalling no error, and analytical review results pointed no potential problem in these accounts.

3.3.1.2. Internal Control Reliability

In the case, reliability of internal control system of the firm, was manipulated as strong or weak. There was two group. The first group the firm has strong internal control system. The strengths, test results and other relevant information was presented to the subjects.

The firm with strong internal control system on sales and collection cycle:

A. Strengths

1. Recording of sales is supported by authorized pre-numbered shipping documents and approved customer orders.

2. Sales invoices are pre-numbered and accounted for.

3. Billing, recording of sales, and deposit of cash receipts are done on a daily basis.

4. Regular monthly statements are sent to customers and all correspondence is sent directly to the president of the company.

5. Credit sales are made using customer credit worthiness criteria that are updated at least once a year.

6. The clerk responsible for posting cash receipts and sales to their respective journals is different than the clerk posting transactions to the detailed accounts receivable cards.

7. The bookkeeper reviews all invoices prepared by the billing clerk for mathematical accuracy, prices used, quantities billed and credit terms.

8. All sales returns and allowances, discounts and bad debt charge offs must get the approval of both the credit department and the controller of the company.

B. Results of Compliance Testing

Compliance testing found the controls of the internal control system to be in place and with errors significantly less than the maximum tolerable error rate.

C. Other Information

1. All other aspects of the internal control system appear adequate.
2. A management override on these controls seems highly improbable.
3. The client's staff is competent, well experienced and primarily college educated.

In the second group, the internal controls were weak and various weaknesses were indicated. The firm's internal control system on sales and collection cycle was introduced to the subjects like the following:

The firm with weaker internal control on sales and collection cycle:

A. Strengths

1. Recording of sales is supported by authorized pre-numbered shipping documents and approved customer orders.
2. Sales invoices are pre-numbered and accounted for.
3. Billing, recording of sales, and deposit of cash receipts are done on a daily basis.

B. Weaknesses

1. Credit sales are made using customer credit worthiness criteria that have remained unchanged for several years.
2. An up-to-date job description and procedural manual is not in use at this time.
3. The clerk responsible for posting cash receipts and sales to their respective journals, also posts transactions to the detailed accounts receivable cards.

C. Results of Compliance Testing

The compliance testing has found the following controls not to be effective:

1. The system calls for rotation of jobs between the accounting clerks. In practice, there is no rotation of jobs.

2. The system calls for a separate clerk to review invoices for mathematical accuracy, prices used, quantities billed, and credit terms. In practice, the clerk responsible for preparing the invoice is usually the only one who reviews this information.

3. The system calls for the controller to approve all sales returns and allowances, discounts, and bad debt charge-offs. In practice, the salespeople and the marketing department have handled this function.

D. Other Information

1. All other aspects of the internal control system were found by compliance testing to be effective.

2. A management override on these controls seems highly improbable.

To establish the face validity of the internal control points. Cohen and Kida (1989) mailed questionnaires to audit professionals. The responses supported his study. In our current study, internal control points were asked to practitioners. Two audit managers reviewed the control factors and found them adequate for stronger system and for weaker system.

3.3.1.3. Experience

Experience factor is examined as more experienced and less experienced. The managers included in the more experienced group and seniors included in the less experienced group. In the questionnaires their experience period in the audit was asked, to the subjects. The mean number of years of auditing experience was 2.09 for seniors and 7.19 for managers.

3.3.2. Dependent Variables

The audit plan was introduced to the subjects. This audit plan developed with the settings used by Biggs et al. (1988) and again developed by the Cohen and Kida (1989) with respect to the discussions made with practicing auditors. In our study, two manager from one of the "Big Eight" accounting firm reviewed the settings. Based on these auditor's responses test of details are prepared for the audit plan. 12 categories organized for these detailed tests. These tests were related with the sales and collection cycle of a wholesale company. Each category, which includes detail tests, had the number of hours allocated to those tests. The total of these allocated hours in 47 hours. The subjects were told that this audit plan was typical for companies in this industry which has adequate internal control system. With the case documents, subjects would make modifications on this audit plan. They could make modifications either on the nature or on the extend of the audit procedures.

The case is manipulated. The internal control reliability could be high or low, and the analytical review results could signal error or no error, and in addition to above factors the questionnaires could be filled by manager or senior. So the experience level is manipulated. The subject with high level of controls could decrease the detail testing in the plan therefore the approximate time that he would allocate to perform the procedure could decrease. The audit plan contains following steps:

- 1- Confirmation of accounts receivable.
- 2- Review of accuracy of valuation of accounts receivable.
- 3- Review of cash collections of accounts receivable subsequent to balance sheet date.

Categories of detail tests on allowance for doubtful accounts and bad debt expense:

- 1- Review of accounts written of as uncollectable.
- 2- Determination of adequacy of allowance for doubtful accounts.
- 3- Review accuracy of valuation of allowance for doubtful accounts.

Categories of detail tests on sales and sales returns and allowances:

- 1- Review of year-end sales cut-off.
- 2- Review accuracy of valuation of sales returns and allowances.

Categories of detail tests on cash receipts.

- 1- Review of proper cut-off for cash receipts.
- 2- Review accuracy of valuation of cash.
- 3- Confirm cash balances at year end with banks.

The categories related to the accounts receivable, allowance for doubtful accounts and bad debt expense were related to the problem accounts. Analytical review results would signal error for these accounts. Therefore, the subjects were expected to modify these tests and the audit hour allocated to them for the non-problem accounts and their detail tests, the modification is not expected. During the evaluation of the firm, in our case study, the subjects in any case would modify the detail tests, internal controls, analytical review results and his experience level would effect his decision, but anyhow, subject would decide on the allocated time of the detail tests. Therefore the hour is our dependent variable. Hour is also main determinant for the audit cost in the audit firms.

3.4. Hypotheses

In this above mentioned theoretical framework, the hypotheses of the study are as follows, as adopted from Cohen & Kida (1989).

H₁: "Auditors receiving analytical review results signalling errors will allocate more hours to tests of details than auditors receiving analytical review results signalling no error.

H₂: When Compared to the preliminary audit plan, auditors will extend audit work when analytical review signals errors but will not reduce audit work when analytical review signals no errors.

H₃: The hours allocated to tests of details will be greater with a weak internal control system than with a strong internal control system.

H₄: The experience level of the auditors will affect the number of hours allocated to tests of details. Seniors will allocate more audit hours than the managers.

H₅: Analytical review results signalling errors or no errors will affect the hours allocated to problem accounts but not the hours allocated to nonproblem accounts.

H₆: Experience level will affect the hours allocated to both problem and nonproblem accounts."³¹

³¹ Cohen, Jeffrey and Thomas Kida (1989) "The impact of analytical review results, internal control reliability, and experience on auditor's use of analytical review" *Journal of Accounting Research*, Vol.27, No.2 (Autumn 1989).

3.5. Research Design

A hypothetical case is adopted from Cohen and Kida (1989). The case includes audit program and supplementary documents of the hypothetical firm. For further detail, please refer to appendix.

Subjects received hypothetical case documents about the firm including financial documents, internal control system outlines. In the case, there is an standart audit plan, and standart audit hours for each detail test are written. Subjects will modify these with the given information in the case.

3.6. Sampling

Five “Big Eight” auditing firms and another four large national accounting firms are wanted to be included in this study. However, from the “Big Eight” only 3 of them cooperated. Although all of them have a lot of work to do due to high season in their job, DRT Denetim Serbest Mali Müş. A.Ş. (Deloitte Touch Ross) and Denver Yeminli Mali Müşavirlik A.Ş. (Earnst Young) did not cooperate with our research study. In addition to this, for the 4 local accounting firms, we received respond from three of them.

In each firm equa number of questionnaires were distributed to managers and seniors. Partners distributed the questionnaires in their firms, believing its positive effect to their subordinates. During the time period, each partner also received various follow-up phones. Totally 92 questionnaires were distributed. 32 responses received (16 managers and 16 seniors).

The questionnaires filled voluntarily by the samples. The aim was to obtain as much response as possible.

IV. DATA ANALYSIS AND THE FINDINGS

The data collections are made directly with the questionnaires. Data were analyzed using the statistical program SPSS for windows Release 5.0. The results are showed in the Table 1 and Table 2. In the first table, the means of audit hours assigned to the audit plan are shown. In the second table, analysis of variance (ANOVA), for audit hours assigned to the audit plan is presented.

Table 1
Means of audit hours assigned to the audit plan

Panel A: For each experimental manipulation				
Analytical review results	Internal control	Experience	Sample size	Means (sd) hours assigned
Error	Weak	Seniors	4	54.75
Error	Weak	Managers	4	51
Error	Strong	Seniors	4	49.5
Error	Strong	Managers	4	48.25
No Error	Weak	Seniors	4	47.75
No Error	Weak	Managers	4	50.5
No Error	Strong	Seniors	4	49.38
No Error	Strong	Managers	4	40.63
Panel B: Aggregated by Independent Variable				
Error	weak		16	50.88
No error			16	47.06
	strong		16	51.00
			16	46.94
		senior	16	50.34
		manager	16	47.59

Table 2
Analysis of variance

Hour.
by Internal Control (INT.CON.)
Analytical Review (ANA.REV.)
Experience) (EXPER.)

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	308.812	3	102.937	1.008	.406
INT.CONT	132.031	1	132.031	1.293	.267
ANA.REV	116.281	1	116.281	1.139	.297
EXPER	60.500	1	60.500	.593	.449
2- Way Interactions	41.031	3	13.677	.134	.939
INT. CONT ANA. REV	.031	1	.031	.000	.986
INT. CONT EXPER	40.500	1	40.500	.397	.535
ANA.REV EXPER	.500	1	.500	.005	.945
3- Way Interactions	98.000	1	98.000	.960	.337
INT.CONT ANA.REV EXPER	98.000	1	98.000	.960	.337
Explained	447.844	7	63.978	.627	.729
Residual	2450.625	24	102.109		
Total	2898.469	31	93.499		

Total hours allocated by the samples is first analyzed in the Table 1. The means are reported in this table. In the second table statistical analysis are reported. The main effects for analytical review, internal control and experience are insignificant, and the three-way interaction is also insignificant.

The first hypothesis of the study is:

H1. Auditors receiving analytical review results signalling errors will allocate more hours to test of details than auditors receiving analytical review results signaling no errors.

As it was stated in the hypothesis, the auditors assigned more audit hours, when the analytical review signals errors. In Table 1, Panel B, the mean is 50.88 hours for the group where the analytical review results signals error, and it is 47.06 hours for the group, where the analytical review results signals no error.

The findings are statistically insignificant as seen on Table 2 in the ANOVA test. The insignificant result shows that the auditors did not pay enough attention to the usage of analytical review results. They do not use their judgement on the evaluation of the analytical review results.

The means of the study on the, othe hand, show some similarities with the previous study. The insignificant result could be due to the to immaterial hour modifications made by samples or due to offsetting effect of the other dimensions. Due to that reasons, the means are also analyzed in the following way.

Here, the auditors use the analytical review results as to increase the total audit hour. So they increase the detail tests. However in the opposite case, when the analytical review results signalled no error, the auditors didn't reduce the total audit hours in that much. It remain almost same. So, they dont benefit from the usage of analytical review results. Biggs, Mock and Watkins (1988) named this situation as "red flag". When analytical review results signals any potential error, auditor take this situation as "red flag" perform further testing. Cohen and Kida (1989) confirmed the situation in their study.

This research results are also inconformity with previous research results, that the analytical review results are used as "red flag" by auditors when they signals error.

In addition to this, the potential conservatism tendency on the use of analytical review results also hypothesized in the second one.

H2: When compared to the preliminary audit plan, auditors will extend audit work when analytical review signals errors but will not reduce audit work when analytical review signals no errors.

This tendency is tested through assigned total hours to the audit plan. The following modifications are expected from this conservative tendency.

When the analytical review results signal error, it is expected to increase in total audit hour. In addition to error, the weak internal control system would double the effects, and total audit hours increase much more.

When the internal controls show weakness, but analytical review results show no error, the conservative tendency still increases the total audit hour.

However, when the internal controls are strong, and the analytical review results signal no error, the conservative tendency does not reduce the total audit hour.

To be able to examine this conservative tendency, the total audit hours are analyzed in Table 1, Panel A. Except from the last experimental manipulation (no error, strong, manager), other all experimental manipulations showed conservative tendency. All of them increased the total audit hours, in all type of manipulations. In the last one, where the analytical review results no error, and internal controls are strong, managers decreased the audit hours.

We have 4 samples in this group. 3 of them decreased the total audit hour. The only one sample increased the total audit hour.

This results suggests that majority of the auditors were behaving

Being manager, must be the main effect in the determination of this attitude. Managers could be more willing to be objective to analytical review results if the environmental factors support the results. In Turkish audit sector, this findings gives some kind of an idea that as the level increases the conservative tendency decreases.

Biggs, Mock and Watkins (1988) findings were supporting the conservative tendency of the auditors. Cohen and Kida (1989) also supported this tendency. But there was a minority group who were willing to use analytical review to reduce audit testing. In this current study, the findings mostly support the conservatism tendency, however there is still a minority group, who were willing to decrease the audit hour, with respect to positive signals.

Internal control reliability factor is emphasized in the hypothesis 3. The reliability of the data factor is tried to be analysed in the research.

H3: The hours allocated to test of details will be greater with a weak internal control system than with a strong internal control system. According to this hypothesis it is expected that the more audit hours would be assigned for weak internal control system, than for a strong system.

The findings are statistically insignificant (Table 8). This result reveals that the auditors are not modifying their audit programs according to the internal control reliability of the client's system. In addition to this, results suggests that the auditors are not fully using their judgement in the evaluation of internal controls. On the other hand, looking only to the means given us an idea about the tendency of the auditors. In Table 1, the tendency of the auditors shows us some parallel findings with Cohen and Kida (1989). In Table 1, Panel B, the weak internal control system has the mean of 51.00 hour, and the strong internal control system has the

mean of 46.94 hours. Sample increased the hour in the weak situation and behave conservatively in the strong environment.

H4: The experience level of the auditor will affect the number of hours allocated to tests of details.

The experience factor is statistically insignificant. This means that the experience level of the auditor does not affect the number of hours allocated to test of details.

If we look to the means of the samples, there is a parallel tendency with Cohen and Kida (1989).

The mean audit hour assigned by the seniors in 50.34 hours while it is 47.59 hours for managers. This finding suggests us as the experience level increases the total hours assigned to the audit decreases. The affect could be the confidence level. As the experience increases, the confidence would be increases.

When we analyse Table 1. Panel A. It is seen that in the case where the controls are strong, and the analytical review results signals no error, seniors assigned 49.38 hours while the managers assigned 40.63 hours.

In the case where the analytical review results signals error and the system controls are weak the seniors again assigned more hours (54.75) than the managers. In another case, where the analytical review results signals error and internal controls are strong, the seniors assigned more hours again (49.5) and managers assigned less hours (48.25) But, the situation is different in the case, where the analytical review results signalled no error and the system controls are weak. In this time, managers assigned more hours (50.5) than the seniors (47.75). This shows that managers give more importance on internal controls when the analytical review results signals no error.

In summary, seniors, in most cases, do not utilize the analytical review results, as much as, the managers. This finding is also parallel with the finding of Cohen and Kida (1989). Their findings were also insignificant. However, additional ANOVA results for seniors and managers were significant in some points in their study. For seniors, internal control was significant, while for managers analytical review was significant. But the seniors in most cases were not utilizing the analytical review results as much as the managers.

Finally, it must be mentioned that the ANOVA finding were show no significant relation in our three variables. The three-way ANOVA could not explain the auditors behaviours in our data base.

For details analysis, the two way ANOVA is done for the variables. Analytical review and experience, the cases of strong and weak control environment are tested. In addition to this, experience and internal control reliability are concerned in two-way ANOVA in the error and no error situations. And finally internal control and analytical review factors are analysed in two-way ANOVA, in the manager and in the senior level differentl. The results were insignificant.

For further research, t-test is done for each variable independently. Since, the sample size is not very much the ANOVA would limit the findings. Two-tail t-test analysis were also show no direct relationship of these variables.

Table 3
 Analysis of variance for analytical review and experience in the weak
 control vs strong control environment.

Hour
 by Analytical Review (ANA.REV.)
 Experience (EXPER.)
 Internal Controls are Weak

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	160.063	2	80.031	1.360	.294
ANA.REV	60.063	1	60.063	1.021	.332
EXPER	100.000	1	100.000	1.699	.217
2- Way Interactions	56.250	1	56.250	.956	.348
ANA.REV EXPER	56.250	1	56.250	.956	.348
Explained	216.313	3	72.104	1.225	.343
Residual	706.125	12	58.844		
Total	922.438	15	61.496		

Hour
 by Analytical Review (ANA.REV.)
 Experience (EXPER.)
 Internal Controls are Strong

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	57.250	2	28.625	.197	.824
ANA.REV	56.250	1	56.250	.387	.546
EXPER	1.000	1	1.000	.007	.935
2- Way Interactions	42.250	1	42.250	.291	.600
ANA.REV EXPER	42.250	1	42.250	.291	.600
Explained	99.500	3	33.167	.228	.875
Residual	1744.500	11	145.375		
Total	1844.000	14	122.933		

Table 4

Analysis of variance for experience and internal controls when the analytical review results signalled error vs. no error

Hour
by Internal Controls (INT.CON.)
Experience (EXPER.)
Analytical Reviews Signalling Error

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	104.063	2	52.031	.642	.543
EXPER	36.000	1	36.000	.444	.518
INT.CONT	68.063	1	68.063	.840	.377
2- Way Interactions	132.250	1	132.250	1.633	.226
EXPER INT.CONT	132.250	1	132.250	1.633	.226
Explained	236.313	3	78.771	.972	.438
Residual	972.125	11	81.010		
Total	1208.437	14	80.562		

Hour
by Internal Control (INT.CON.)
Experience (EXPER.)
Analytical Reviews Signalling No Error

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	89.000	2	44.500	.361	.704
EXPER	25.000	1	25.000	.203	.660
INT.CONT	64.000	1	64.000	.519	.485
2- Way Interactions	6.250	1	6.250	.051	.826
EXPER INT.CONT	6.250	1	6.250	.051	.826
Explained	95.250	3	31.750	.258	.854
Residual	1478.500	12	123.208		
Total	1573.750	15	104.917		

Table 5

Analysis of variance for internal controls and analytical review with respect to
different experience levels (managers vs seniors)

Hour
by Analytical Review (ANA.REV.)
Internal Controls (INT.CON.)
Experience Level - Managers

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	225.406	2	112.703	.852	.451
INT.CONT	159.391	1	159.391	1.205	.294
ANA.REV	66.016	1	66.016	.499	.493
2- Way Interactions	50.766	1	50.766	.384	.547
INT.CONT ANA.REV	50.766	1	50.766	.384	.547
Explained	276.172	3	92.057	.696	.572
Residual	1587.438	11	132.286		
Total	1863.609	14	124.241		

Hour
by Analytical Review (ANA.REV.)
Internal Controls (INT.CON.)
Experience Level - Seniors

Source of Variation	Sum of Squares	DF	Mean Square	F	Sig of F
Main Effects	63.906	2	31.953	.444	.651
INT.CONT	13.141	1	13.141	.183	.677
ANA.REV	50.766	1	50.766	.706	.417
2- Way Interactions	47.266	1	47.266	.657	.433
INT.CONT ANA.REV	47.266	1	47.266	.657	.433
Explained	111.172	3	37.057	.515	.680
Residual	863.188	12	71.932		
Total	974.359	151	64.957		

Table 6
t-tests for independent samples of Experience

Variable	Number of Cases	Mean	SD	SE of Mean
Manager	16	47.5938	11.146	2.787
Senior	16	50.3438	8.060	2.015

Mean Difference = -2,7500

Levene's Test for Equality of Variances: F= ,288 P= ,595

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.80	30	.430	3.439	(-9.774; 4.274)
Unequal	-.80	27.32	.431	3.439	(-9.807; 4.307)

Table 7
t-test for independent samples of Analytical Review Results

Variable	Number of Cases	Mean	SD	SE of Mean
No Error	16	47.0625	8.976	2.244
Error	16	50.8750	10.243	2.561

Mean Difference = -3,8125

Levene's Test for Equality of Variances: F= .027 P= .870

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-1.12	30	.272	3.405	(-10.768; 3.143)
Unequal	-1.12	29.49	.272	3.405	(-10.778; 3.153)

Table 8
t-tests for independent samples of Internal Control

Variable	Number of Cases	Mean	SD	SE of Mean
Strong	16	46.9375	7.842	1.960
Weak	16	51.0000	11.088	2.772

Mean Difference = -4, 0625

Levene's Test for Equality of Variances: F= ,602 P= ,444

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-1.20	30	.242	3.395	(-10.998; 2,873)
Unequal	-1.20	27.00	.242	3.395	(-11.030; 2,905)

Table 9
T-test experience for each manipulation

Panel A: t-tests for independent samples of EXPERIENCE

Analytical review results signalling no error & controls are strong

Variable	Number of Cases	Mean	SD	SE of Mean
Manager	4	40.6250	9.621	4.810
Senior	4	49.3750	5.735	2.868

Mean Difference = -8.7500

Levene's Test for Equality of Variances: F= 1.176 P= .3200

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-1.56	6	.169	5.600	(-22.458; 4.958)
Unequal	-1.56	4.89	.180	5.600	(-23.151; 5.651)

Panel B: t-tests for independent samples of EXPERIENCE

Analytical reviews signalling error, controls are strong

Variable	Number of Cases	Mean	SD	SE of Mean
Manager	4	48.2500	6.702	3.351
Senior	4	49.5000	8.062	4.031

Mean Difference = -.12500

Levene's Test for Equality of Variances: F= .112 P= .749

t-test for Equality of Means

Variiances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.24	6	.819	5.242	(-14.081; 11.581)
Unequal	-.24	5.81	.820	5.242	(-14.81; 11.581)

Panel C: t-tests for independent samples of EXPERIENCE

Analytical reviews signalling no error, controls are weak

Variable	Number of Cases	Mean	SD	SE of Mean
Manager	4	50.500	4.041	2.021
Seniors	4	47.7500	13.500	6.750

Mean Difference = 2.7500

Levene's Test for Equality of Variances: F= 2.784 P= .146

t-test for Equality of Means

Variiances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	.39	6	.710	7.046	(-14.496; 19.996)
Unequal	.39	3.53	.719	7.046	(-16.820; 22.320)

Panel D: t-tests for independent samples of

Analytical reviews signalling error, controls are weak

Variable	Number of Cases	Mean	SD	SE of Mean
Manager	4	51.0000	19.374	9.687
Senior	4	54.7500	2.754	1.377

Mean Difference = -3.7500

Levene's Test for Equality of Variances: F= 3.065 P=.131

t-test for Equality of Means

Variiances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.38	6	.715	9.784	(-27.698; 20.198)
Unequal	-.38	3.12	.726	9.784	(-34.887; 27.387)

In order to investigate the auditors judgements in specific accounts, the hours assigned to the problem and non problem accounts are examined. As it was mentioned before, there was some problem accounts and non problems accounts in the hypothetical case. The errors were added in these problem accounts. And there were non problem accounts and in any case design there was not any error in these accounts. Recalling from our case design there were six accounts, which the case was concerned.

- 1- Sales
- 2- Sales returns and allowances
- 3- Bad debt expense
- 4- Accounts receivable
- 5- Allowance for doubtful accounts
- 6- Cash

When the analytical review results signalled error, there were three potentially problem account and errors were seeded to these three accounts; bad debt expense, accounts receivable and allowance for doubtful accounts. Errors were over statement of accounts reveivable and failure to write off questionable accounts which were also seen obvious in the comparative financial statements, in the aging schedule, and in the regression analysis.

The reason to analyze these problem and non problem accounts is to see the auditors' judgements in specific areas. It is believed that by this way, the affect of analytical reviews will be more clearly defined. The internal control factor will affect both account so the changing factor will be the analytical review point which signals error or no error in the problem accounts. Experience level is also manipulated and it is expected that this factor can affect the adjustments to both problem and non-problem accounts. The hypothesis starts with the analytical review effect.

H5: Analytical review results signalling errors or no error will affect the hours allocated to problem accounts but not the hours allocated to non problem accounts.

The ANOVA results showing for both problem and nonproblem accounts are presented in Table 10. The results are insignificant.

Table 10
Analysis of variance for nonproblem and problem accounts (n=32)

	Problem Accounts		Non Problem Accounts	
	F Statistics	Significance Level	F Statistics	Significance Level
Main effects	1.839	.486	1.650	.204
Analytical Review (AR)	1.529	.228	.781	.386
Internal Control (IC)	.978	.332	.332	.570
Experience (EX)	.010	.922	3.838	.062
Two-way Interactions	.356	.785	.328	.805
AR X IC	.352	.558	.332	.570
AR X EXP	.707	.409	.533	.473
IC X EXP	.707	.409	.120	.733
Three-Way Interaction	.697	.674	.001	.970
AR X IC X EXP				

Table 11
Means of audit hours for problem and non problem accounts

Panel A: Each experimental manipulation for problem and non problem accounts					
Analytical review results	Internal controls	Experience	Sample size	Mean (SD) hours assigned	
				problem	non problem
Error	Weak	Seniors	4	36.25	18.5
Error	Weak	Managers	4	35.	16
Error	Strong	Seniors	4	31.5	18
Error	Strong	Managers	4	31.75	16.5
No error	Weak	Seniors	4	28.5	19.25
No error	Weak	Managers	4	33.5	14.25
No error	Strong	Seniors	4	32.5	16.88
No error	Strong	Managers	4	27.5	13.13
Panel B: Aggregated by independent variable in the non problem and problem account analysis					
Error	Weak Strong	Senior Manager	16	33.63	17.25
No error			16	30.5	15.88
			16	33.31	17
			16	30.81	16.13
			16	31.94	18.16
			16	32.19	14.97

The mean of problem accounts, when the error is seeded in the hypothetical case, is 33.63 hour and it is 30.5 hour when there is no error in the case. The attitude is meaningful and in this aspect its is parallel to previous findings. For the non problem accounts the mean is 17.25 hour where the error is seeded in our hypothetical case. The mean is 15.38 for the no problem accounts in the same case

In our hypothetical case, the standart audit program gave 31 audit hour for problem accounts and it gave 16 audit hour for non problem accounts.

In the case, where the error was seeded, the both accounts show increase. Auditors recognizing the error signal, increased the audit hour for both problem and non problem accounts. But, the increase in problem accounts is higher than the non problem accounts.

For the no error case the audit hours almost remain same for both type (problem and non-problem accounts). There is a little decrease (almost half on hour) in both cases. But again both account types were decreased.

In Cohen and Kida's (1989) study, only the internal control variable was significant for the non problem accounts. The subjects increased testing when the internal controls were weak; as compared to the case of strong internal controls. In addition to this, in their study, the analytical review manipulation and internal

H6: Experience level will affect the hour sallocated to both problem and non-problem accounts.

Looking to Table 11. Panel B, it can be seen that that the seniors increased both the problem and non problem accounts audit hour. However, the increase is higher in the non problem accounts.

In spite of this, the managers' attitudes were more logical. They increased the audit hour for the problem accounts and in addition to this, they decreased the

total audit hour for non problem accounts. Their higher level of experience probably let them to behave more consciously.

While no significant experience effect was found for either the problem or the non problem accounts, an examination of each experiment group's means display relationship with this factor . For example: When the internal control system is weak and the analytical review results show error, the managers increased the testing (total audit hour increased) for the problem accounts, and the program remain same for non problem accounts. On the other hand, seniors, under the same case situations, increased the testing more than the managers in problem accounts, but they also increased the non problem account testing.

If we analyze the situation for the "Conservatism" it can be seen that the results are parallel to the previous analysis made on the total hour analysis. This non problem and problem account analysis, again, showed that almost every cells except the managers with strong internal controls, and no error signals, increased the testing or remained same. However the managers with positive environmental factors decreased the testing.

Finally, the insignificant results shows us the similar attitudes as explained in the previous pages. The auditors, do not use their judgements efficiently and effectively. By this way, they lose the opportunity to do les audit work, and consume less audit hour.

Table 11 Panel B shows that almost every cell remained same or increased the testing except the managers in no problem account analysis. This findings demonstrate the anticipated conservative tendency of the auditors.

Table 12
t-tests for independent Samples for NON PROBLEM ACCOUNTS

Panel A: t-tests for independent samples of IN.CON.

Variable	Number of Cases	Mean	SD	SE of Mean
INT.CON. STRONG	16	16.0625	3.356	.839
INT.CON.WEAK	16	17.000	5.526	1.381

Mean Difference = -.9373

Levene's Test for Equality of Variances: F= 1,321 PE= ,260

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.58	30	.566	1.616	(-4.239; 2,364)
Unequal	-.58	27.74	.567	1.616	(-4.267; 2,392)

Panel B: t-tests for independent samples of ANALYTICAL REVIEW

Variable	Number of Cases	Mean	SD	SE of Mean
ANA.REV. NO ERROR	16	15.8125	4.983	1.246
ANA.REV. ERROR	16	17.2500	4.041	1.010

Mean Difference = -.14375

Levene's Test for Equality of Variances: F= ,018 P= ,894

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.90	30	.377	1.604	(-4.714; 1,839)
Unequal	-.90	28.77	.378	1.604	(-4.719; 1,844)

Panel C: t-tests for independent samples of EXPERIENCE

Variable	Number of Cases	Mean	SD	SE of Mean
EXPER. MANAGER	16	14.9375	4.312	1.078
EXPER. SENIOR	16	18.1250	4.272	1.068

Mean Difference = -.31875

Levene's Test for Equality of Variances: F= ,083 P= ,775

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-2.10	30	.044	1.518	(-6.287; -.088)
Unequal	-2.10	30.00	.044	1.518	(-6.287; -.088)

Table 13
T-test four independent samples for PROBLEM ACCOUNTS

Panel A: t-tests for independent samples of INTERNAL CONTROL

Variable	Number of Cases	Mean	SD	SE of Mean
INT.CON. STRONG	16	30.8125	6.102	1.525
INT.CON. WEAK	16	33.3125	7.605	1.901

Mean Difference = -2.50000

Levene's Test for Equality of Variances: F= 498 PE= ,486

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-1.03	30	.313	2.437	(-7.479; 2.479)
Unequal	-1.03	28.65	.314	2.437	(-7.486; 2.486)

Panel B: t-tests for independent samples of ANALYTICAL REVIEW

Variable	Number of Cases	Mean	SD	SE of Mean
ANA.REV. NO ERROR	16	30.500	6.398	1.599
ANA.REV. ERROR	16	33.6250	7.228	1.807

Mean Difference = -.31250

Levene's Test for Equality of Variances: F= ,014 P= ,905

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-1.29	30	.205	2.413	(-8.055; 1.805)
Unequal	-1.29	29.56	.205	2.413	(-8.055; 1.805)

Panel C: t-tests for independent samples of EXPERIENCE

Variable	Number of Cases	Mean	SD	SE of Mean
EXPER. MANAGER	16	31.9375	8.418	2.104
EXPER. SENIOR	16	32.1875	5.244	1.311

Mean Difference = -.2500

Levene's Test for Equality of Variances: F= ,286 P= ,596

t-test for Equality of Means

Variances	t-value	df	2-Tail Sig	SE of Diff	95% CI for Diff
Equal	-.10	30	.920	2.479	(-5.315; 4.815)
Unequal	-.10	25.12	.920	2.479	(-5.358; 4.858)

V. SUMMARY OF THE FINDINGS AND CONCLUSIONS

This study, investigated the auditors analytical review judgments. Experience, internal control reliability and analytical review results were accepted as the main indicators in this judgment. Their effects are examined in an experimental study. The case settings were taken from Cohen and Kida (189) and reviewed by some members of the audit firms in the Turkish auditing sector.

5.1. Summary of the Findings and Conclusions

The statistical analysis did not find any significant effect of the research dimensions. Experience, internal control reliability and analytical review results' effect is insignificant. This insignificant finding shows that the auditors do not use their judgements efficiently and effectively. The auditors mostly apply the given audit programs and do not change the audit hours. There is no significant factor to describe their judgements. However, the conservative tendency expectations are supported by this study. Auditors in any way do not decrease the audit hour. In a small minority, the managers tend to do but the general atmosphere presents the conservative attitude. The internal controls could be strong or weak, the analytical review results could signal error or no error, in anyway auditors do not decrease the audit hour. Auditors, in this study, are not affected from various manipulations. These results demonstrate the conservatism in Turkish audit sector.

Biggs et al (1988) in their study, discussed the conservative tendency of the auditors. Their research findings were also supporting this belief. In that research, auditors did not reduce the audit hour, although the analytical review results signalled no error. Biggs et al (1989) stated the main affect of this outcome as; “Is it because auditors need more solid evidence before they will reduce test of details? If this is the case, then analytical review may not provide the increased audit efficiency that has been hope of many auditors.”³²

The discussions of Biggs et al. (1988) is then followed by Cohen and Kida (1989).

In their study, most of the auditors did not want to reduce the detail testing, thus decrease the audit hour. Cohen and Kida (1989) stated that “One outcome of this conservatism tendency is that analytical review could be conducive to increasing, and not decreasing, the cost and the extend of the audit work.”³³

Biggs et al. (1988) in their study found an important impact of the experience factor, in the auditors decision making context. Research results show that the more experienced managers seem to have more complete memory structures related to the audit problem, and these memory structures seem to allow a more efficient processing of case information and they may have made audit program decisions that were more cost effective. Cohen and Kida (1989) did not speak about such superior ability of the managers. Furthermore they state that “since there was no unambiguous criterion variable in this study, we cannot

³² Biggs, Stanley and Theodore Mock, and Paul Watkins. “Auditor’s use of analytical Review in Audit Program Design”. *The Accounting Review*. Vol.LXIII No.1 (January 1988):155.

³³ Cohen, Jeffrey and Thomas Kida (1989) “The impact of analytical review results, internal control reliabilty, and experience on auditor’s use of analytical review” *Journal of Accounting Research*, Vol.27, No.2 (Autumn 1989).

comment directly on whether the judgment of managers were superior to those of seniors.”³⁴

On the other hand, Cohen and Kida (1989) found that the managers and seniors pay attention to different variables.

As it is seen from the Cohen Kida’s (1989) study the most significant variable for the managers was the analytical review procedures, however, the seniors’ most significant variable was the ‘internal control reliability. Cohen and Kida (1989) explained this result with the experience in using the analytical review procedure. Managers had this experience more than the seniors.

In additon to this, Cohen and Kida (1989) mentioned that “since seniors often make internal control evaluations, they might be predisposed to rely more on internal control information than on information concernng a less structured judgmental tasks.”³⁵

In this study the experience level affect was insignificant. However examining each groups’ manipulation, the group means reveal similar relationship to those found in the Biggs et al study (1988). Managers tried to decrease the total audit hour when the internal controls were strong and the analytical review results signalled no error. In the examination of the accounts as problem and non problem. The managers again tried to decrease the testing in both accounts when the internal controls were strong and the analytical review results signalled no error. On the contrary, seniors increased the audit hours in any case design. In addition to this, managers assigned detail testing for problem accounts where the system signalled error and the controls were weak. They do not assing additional

³⁴ Ibid.

³⁵ Cohen, Jeffrey and Thomas Kida (1989) “The impact of analytical review results, internal control reliabilty, and experience on auditor’s use of analytical review” *Journal of Accounting Research*, Vol.27, No.2 (Autumn 1989)..

audit hour for non-problem accounts in the same situations. But seniors again increased the detail testing in both type of the account. Managers were more experienced in determining the error accounts and they do not assign unnecessary detail testing for the non-problem accounts even the controls were weak and the analytical review results signalled an error.

5.2. Implications

Analytical review procedures have received very much attention from accounting researchers and practitioners, however little research has been made in the Turkish audit sector.

The research mainly affects the audit companies. The findings about the analytical review results can overcome the problems about the time consumption in the audit. The efficiency of the methods is another help to the audit companies.

However, the research results find no significant affect of analytical review results. Also internal control reliability and experience factors have no significance. Auditors do not use their judgements in the evaluation proces of the audit. They mostly rely on the audit hours given to them. This situation raises very important questions about the training programs of the audit companies on the efficiency and effectiveness.

Some test results related with the manager level auditors show some trends about the reduction of the audit hour. In addition to this they also assigned the audit hours to problem and non-problem accounts very efficiently. They are not for the unnecessary audit work. The effects could be various in this point. One factor could be the managers thought about the possible cost increase as the hour

increases. Another factor could be mainly due to their experience gained through previous years and trainings.

In the final, the research results can be benefited by audit firms as the increasing training programs about the usage of analytical review techniques. This training program should also include the judgemental behaviours of the auditors. The use of judgements and, their benefits and risks can be compared.

5.3. Limitations and Implications For Further Research

Although the research results give the idea about the auditors attitudes, the study certainly has a limitation.

The limitation of the study is that the other dimensions which affect the reliance on analytical review procedures. There must be other factors that affect auditors judgments. Probably the possible cost concerns is the one them. Managers decisions can be affected from it. While the seniors main concern was the responsibility to their managers. So they increase the audit hour as long as possible until feeling confidence for their job. These factors can be researched in the future studies.

In addition the dimensions which has been described in the case, can be examined seperately in the future research. By examining them independently would explain the judgements of the auditors more easily. The experience factor, the internal control reliability factor and the analytical review results can be analysed independently.

Furthermore, the results revealed that the Turkish auditors do not use their judgments. The reasons of this must be researched for better audits. If sufficient results are obtained, then it can be talk about the efficient and effective audits.

In spite of all its limitations, the study is a good starting point for further research.



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APPENDIX



Questionnaire in English

General Instructions

This study is designed to investigate several issues concerning the audit procedures of the sales and collection cycle. The client is a wholesaler of consumer products. It has been a client for several years and has typically received an unqualified opinion.

You will be provided with the following information about the client:

1. A description of the internal control system relevant to the sales and collection cycle.
2. Two years of audited financial statements and this year's unaudited financial statements.
3. Analytical review procedures relevant to the sales and collection cycle for the past two years of audited data and this year's unaudited data.
4. The current year and past two years of industry financial data.
5. Regression analysis based estimates of the sales and collection cycle account balances.

After reviewing the information, you will be asked to determine whether any of the following unaudited account balances might need an adjustment:

1. Sales,
2. Sales Returns and Allowances,
3. Bad Debt Expense,
4. Accounts Receivable,
5. Allowance for Doubtful Accounts, and
6. Cash.

You will then be asked to determine if any modifications are needed to the nature and/or extent of the sales and collection cycle portion of the sample audit plan. This plan was produced by the research and is typical for firms in your client's industry possessing an adequate internal control system. The plan involves tests of details only and does not consider analytical review results. Your firm is interested in validating this audit plan by examining its applicability to specific clients, taking all relevant information into account. Specific instructions for this decision are provided immediately preceding the audit plan.

Description of the Strong Internal Control System



Client's Sales and Collection Cycle Internal Control System

A. Strengths

1. Recording of sales is supported by authorized pre-numbered shipping documents and approved customer orders.
2. Sales invoices are pre-numbered and accounted for.
3. Billing, recording of sales, and deposit of cash receipts are done on a daily basis.

B. Weaknesses

1. Credit sales are made using customer credit worthiness criteria that have remained unchanged for several years.
2. An up-to-date job description and procedural manual is not in use at this time.
3. The clerk responsible for posting cash receipts and sales to their respective journals, also posts transactions to the detailed accounts receivable cards.

C. Results of Compliance Testing

The compliance testing has found the following controls not to be effective:

1. The system calls for rotation of jobs between the accounting clerks. In practice, there is no rotation of jobs.
2. The system calls for a separate clerk to review invoices for mathematical accuracy, prices used, quantities billed, and credit terms. In practice, the clerk responsible for preparing the invoice is usually the only one who reviews this information.
3. The system calls for the controller to approve all sales returns and allowances, discounts, and bad debt charge-offs. In practice, the salespeople and the marketing department have handled this function.

D. Other Information

1. All other aspects of the internal control system were found by compliance testing to be effective.
2. A management override on these controls seems highly improbable.

Description of the Weak Internal Control System



Client's Sales and Collection Cycle Internal Control System

A. Strengths

1. Recording of sales is supported by authorized pre-numbered shipping documents and approved customer orders.
2. Sales invoices are pre-numbered and accounted for.
3. Billing, recording of sales, and deposit of cash receipts are done on a daily basis.
4. Regular monthly statements are sent to customers and all correspondence is sent directly to the president of the company.
5. Credit sales are made using customer credit worthiness criteria that are updated at least once a year.
6. The clerk responsible for posting cash receipts and sales to their respective journals is different than the clerk posting transactions to the detailed accounts receivable cards.
7. The bookkeeper reviews all invoices prepared by the billing clerk for mathematical accuracy, prices used, quantities billed and credit terms.
8. All sales returns and allowances, discounts and bad debt charge offs must get the approval of both the credit department and the controller of the company.

B. Results of Compliance Testing

Compliance testing found the controls of the internal control system to be in place and with errors significantly less than the maximum tolerable error rate.

C. Other Information

1. All other aspects of the internal control system appear adequate.
2. A management override on these controls seems highly improbable.
3. The client's staff is competent, well experienced and primarily college educated.

Financial Statement DATA and Analytical Review Procedures Signalling Errors



Client's Comparative Balance Sheet Data

Assets	Current Year-Unaudited		Last Year-Audited		Two Years Ago-Audited	
	\$ Amount	% of Total Assets	\$ Amount	% of Total Assets	\$ Amount	% of Total Assets
Cash	331,440	4.9	300,902	4.7	285,809	4.5
Gross Accounts Receivable	1,589,533	23.5	1,167,433	18.2	1,049,008	16.4
Less: Allowance for Doubtful Accts.	(174,500)	(2.6)	(91,729)	(1.4)	(88,958)	(1.4)
Net Accounts Receivable	1,415,033	20.9	1,075,706	16.8	960,050	15.0
Inventory	2,408,012	35.6	2,426,363	37.9	2,365,404	37.0
Note Receivable-Current	47,348	0.7	61,595	1.0	41,778	0.7
Other Current Assets	459,957	6.8	328,834	5.1	566,921	8.9
Total Current Assets	4,661,790	68.9	4,193,398	65.5	4,219,962	66.1
Property Plant and Equipment	2,006,593	29.7	1,933,011	30.2	1,894,606	29.6
Less: Accumulated Depreciation	(297,619)	(4.4)	(236,150)	(3.7)	(160,422)	(2.5)
Net Property, Plant and Equipment	1,708,974	25.3	1,696,861	26.5	1,734,184	27.1
Intangibles-Net	83,820	1.2	93,199	1.5	100,649	1.6
All Other Non-Current Assets	309,494	4.6	416,574	6.5	333,006	5.2
Total Assets	6,764,078	100.0	6,400,032	100.0	6,387,801	100.0
Accounts Payable	2,462,125	36.4	2,276,312	35.6	2,171,536	34.0
Current Portion-Long Term Debt	561,418	8.3	481,811	7.5	514,192	8.0
Other Current Liabilities	229,979	3.4	306,622	4.8	461,566	7.2
Total Current Liabilities	3,253,522	48.1	3,064,745	47.9	3,147,294	49.2
Long Term Debt	1,496,893	22.1	1,631,211	25.5	1,793,105	28.1
Other Non-Current Liabilities	20,292	0.3	21,772	0.3	55,225	0.9
Common Stock	234,750	3.5	234,750	3.7	234,750	3.7
Retained Earnings	1,758,621	26.0	1,447,554	22.6	1,157,427	18.1
Total Shareholder's Equity	1,993,371	29.5	1,682,304	26.3	1,392,177	21.8
Total Liability and Owner's Equity	6,764,078	100.0	6,400,032	100.0	6,387,801	100.0

Client's Comparative Income Statement Data

	Current Year-Unaudited		Last Year-Audited		Two Years Ago-Audited	
	\$ Amount	% of Total Assets	\$ Amount	% of Total Assets	\$ Amount	% of Total Assets
Income						
Sales	13,854,089	101.9	13,635,882	101.8	13,003,270	101.9
(Sales Returns and Allowances)	<u>(252,155)</u>	<u>(1.9)</u>	<u>(243,364)</u>	<u>(1.8)</u>	<u>(245,162)</u>	<u>(1.9)</u>
Net Sales	13,601,934	100.0	13,392,518	100.0	12,758,108	100.0
(Cost of Sales)	<u>(9,087,943)</u>	<u>(66.8)</u>	<u>(9,001,906)</u>	<u>(67.2)</u>	<u>(8,586,206)</u>	<u>(67.3)</u>
Gross Profit	4,513,991	33.2	4,390,612	32.8	4,171,902	32.7
(Bad Debt Expense)	(489,670)	(3.6)	(488,738)	(3.7)	(459,292)	(3.6)
(Other Operating Expenses)	<u>(2,990,435)</u>	<u>(22.0)</u>	<u>(2,977,151)</u>	<u>(22.2)</u>	<u>(2,696,188)</u>	<u>(21.1)</u>
Operating Income	1,033,886	7.6	924,723	6.9	1,016,422	8.0
(All Other Expenses-Net)	<u>(81,612)</u>	<u>(0.6)</u>	<u>(77,936)</u>	<u>(0.5)</u>	<u>(64,133)</u>	<u>(0.5)</u>
Earnings Before Taxes	952,274	7.0	846,787	6.4	952,289	7.5
(Income Taxes)	<u>(285,682)</u>	<u>(2.1)</u>	<u>(254,028)</u>	<u>(2.0)</u>	<u>(285,687)</u>	<u>(2.3)</u>
Net Income	666,592	4.9	592,759	4.4	666,602	5.2

Relevant Analytical Review Procedures

	Current Year	Last Year	Two Years Ago
Working Capital	1,408,268	1,128,653	1,072,668
Current Ratio	1.44	1.37	1.34
Quick Ratio	0.70	.58	.59
Net Sales ÷ Net Receivables	9.61	12.45	13.29
Days Net Receivables Outstanding	37.97	29.31	27.47
Profit Before Taxes ÷ Total Assets	14.08%	13.23%	14.91%
Working Capital ÷ Total Assets	20.8%	17.6%	16.8%
Net Sales ÷ Total Assets	2.01	2.09	2.00
Net Sales ÷ Working Capital	9.66	11.87	11.89
Allowance for Doubtful Accounts ÷ Gross Accounts Receivables	11.0%	7.9%	8.5%
Bad Debt Expense ÷ Net Sales	3.6	3.7	3.6
Bad Debt Expense ÷ All Operating Expense			
Sales Returns and Allowance ÷ Gross Sales	14.1%	14.1%	14.6%
Sales Returns and Allowances ÷ Gross Sales	1.9%	1.8%	1.9%

Accounts Receivable Aging Analysis - All sales are made on credit with terms, Net 30.

	Total	0-30 days	31-60 days	61-90 days	Over 90 days
Current Year-Gross Accounts Receivable	1,589,533	423,438	337,478	384,717	443,900
% of Gross Accounts Receivable	100%	26.6%	21.2%	24.2%	28.0%
Last Year-Gross Accounts Receivable	1,167,433	421,444	332,718	215,975	197,296
% of Gross Accounts Receivable	100%	36.1%	28.5%	18.5%	16.9%
Two Years Ago-Gross Accounts Receivable	1,049,008	400,721	310,506	181,478	156,303
% of Gross Accounts Receivable	100%	38.2%	29.6%	17.3%	14.9%

Industry Data - Source: Robert Morris Associates - Median Values

A. Common Size Financial Statements	Current Year	Last Year	Two Years Ago
Assets	%	%	%
Cash and Equivalents	4.6	4.9	4.8
Accounts and Notes Receivable (Net)	17.1	16.9	16.5
Inventory	40.1	40.9	40.1
All Other Current	6.4	6.7	6.6
Total Current	68.2	69.4	68.0
Fixed Assets (Net)	28.2	27.4	28.6
Intangibles (Net)	0.5	0.7	0.3
All Other Non-Current	3.1	2.5	3.1
Total	100.0	100.0	100.0
Liabilities and Owner's Equity Notes			
Payable-Short	13.9	14.8	13.6
Current Maturity Long Term Debt	2.2	1.6	2.2
Accounts and Notes Payable	29.2	31.0	28.6
Accured Expenses	4.2	4.4	5.4
All Other Current	3.6	3.8	4.3
Total Current	53.1	55.6	54.1
Long Term Debt	7.3	6.2	7.5
All Other Non-Current	1.3	1.0	1.0
Net Worth	38.3	37.2	37.4
Total Liabilities and Owner's Equity	100.0	100.0	100.0
Income Data			
	%	%	%
Net Sales	100.0	100.0	100.0
Cost of Sales	67.0	67.5	68.0
Gross Profit	33.0	32.5	32.0
Bad Debt Expense	3.5	3.5	3.5
Other Operating Expenses	22.6	23.6	22.8
Operating Profit	6.9	5.4	5.7
All Other Expenses (Net)	1.2	0.4	0.5
Profit Before Taxes	5.7	5.4	5.2
B. Key Industry Ratios - Median Values			
	Current Year	Last Year	Two Years Ago
Current	1.29	1.25	1.26
Quick	.53	.51	.52
Receivables Turnover	12.40	12.30	12.60
Days Net Receivables Outstanding	29.44	29.70	29.00
Inventory Turnover	4.30	4.40	4.60
Days Inventory	85.00	83.00	79.00
(% Profit Before Taxes) ÷ (Total Assets)	13.10	12.90	13.20
Sales ÷ Working Capital	11.10	10.80	11.10
Sales ÷ Total Assets	2.10	2.10	2.10

Quantitative Data

The following estimates of account balances were generated through regression analysis. It is based on the past four years of quarterly audited data. Gross profit was utilized to derive the prediction for the sales accounts, and sales was employed to predict the following account balances:

Sales Returns and Allowances,
Accounts Receivable,
Allowance for Doubtful Accounts,
Bad Debt Expense, and
Cash.

In addition to the predicted account balance, each account will have a standard error of the estimate. This will give some indication of the variability of the data used to generate the predicted account balances.

Accounts	Predicted Account Balances	Standart Error of the Estimate
Gross Sales	13.835.000	691.750
Sales Returns and Allowances	248.000	12.400
Gross Accounts Receivable	1.184.000	59.200
Allowance for Doubtful Accounts	103.400	5.170
Bad Debt Expense	474.674	23.734
Cash	345.115	17.256

Financial Statement DATA and Analytical Review Procedures Signalling No Errors



Client's Comparative Balance Sheet Data

	Current Year-Unaudited		Last Year-Audited		Two Years Ago-Audited	
	\$ Amount	% of Total Assets	\$ Amount	% of Total Assets	\$ Amount	% of Total Assets
Assets						
Cash	331,440	4.9	300,902	4.7	285,809	4.5
Gross Accounts Receivable	1,190,478	17.6	1,167,433	18.2	1,049,008	16.4
Less: Allowance for Doubtful Accts.	(101,461)	(1.5)	(91,729)	(1.4)	(88,958)	(1.4)
Net Accounts Receivable	1,089,017	16.1	1,075,704	16.8	960,050	15.0
Inventory	2,408,012	35.6	2,426,363	37.9	2,365,404	37.0
Note Receivable-Current	47,348	0.7	61,595	1.0	41,778	0.7
Other Current Assets	459,957	6.8	328,834	5.1	566,921	8.9
Total Current Assets	4,335,774	64.1	4,193,398	65.5	4,219,962	66.1
Property Plant and Equipment	2,332,609	34.5	1,933,011	30.2	1,894,606	29.6
Less: Accumulated Depreciation	(297,619)	(4.4)	(236,150)	(3.7)	(160,422)	(2.5)
Net Property, Plant and Equipment	2,034,990	30.1	1,696,861	26.5	1,734,184	27.1
Intangibles-Net	83,820	1.2	93,199	1.5	100,649	1.6
All Other Non-Current Assets	309,494	4.6	416,574	6.5	333,006	5.2
Total Assets	6,764,078	100.0	6,400,032	100.0	6,387,801	100.0
Accounts Payable	2,462,125	36.4	2,276,312	35.6	2,171,536	34.0
Current Portion-Long Term Debt	561,418	8.3	481,811	7.5	514,192	8.0
Other Current Liabilities	229,979	3.4	306,622	4.8	461,566	7.2
Total Current Liabilities	3,253,522	48.1	3,064,745	47.9	3,147,294	49.2
Long Term Debt	1,496,893	22.1	1,631,211	25.5	1,793,105	28.1
Other Non-Current Liabilities	20,292	0.3	21,772	0.3	55,225	0.9
Common Stock	234,750	3.5	234,750	3.7	234,750	3.7
Retained Earnings	1,758,621	26.0	1,447,554	22.6	1,157,427	18.1
Total Shareholder's Equity	1,993,371	29.5	1,682,304	26.3	1,392,177	21.8
Total Liability and Owner's Equity	6,764,078	100.0	6,400,032	100.0	6,387,801	100.0

Client's Comparative Income Statement Data

	Current Year-Unaudited		Last Year-Audited		Two Years Ago-Audited	
	\$ Amount	% of Total Assets	\$ Amount	% of Total Assets	\$ Amount	% of Total Assets
Income						
Sales	13,854,089	13.635.882	101.8	101.9	13,003,270	101.9
(Sales Returns and Allowances)	<u>(252,155)</u>	<u>(243,364)</u>	<u>(1.8)</u>	<u>(1.9)</u>	<u>(245,162)</u>	<u>(1.9)</u>
Net Sales	13,601,934	13.392.518	100.0	100.0	12,758,108	100.0
(Cost of Sales)	<u>(9,087,943)</u>	<u>(9,001.96)</u>	<u>(67.2)</u>	<u>(67.3)</u>	<u>(8,586,206)</u>	<u>(67.3)</u>
Gross Profit	4,513,991	4.390.612	32.8	32.7	4,171,902	32.7
(Bad Debt Expense)	<u>(489,670)</u>	<u>(488.738)</u>	<u>(3.7)</u>	<u>(3.6)</u>	<u>(459,292)</u>	<u>(3.6)</u>
(Other Operating Expenses)	<u>(2,990,435)</u>	<u>(2,977.151)</u>	<u>(22.2)</u>	<u>(21.1)</u>	<u>(2,696,188)</u>	<u>(21.1)</u>
Operating Income	1,033,886	924.723	6.9	8.0	1,016,422	8.0
(All Other Expenses-Net)	<u>(81,612)</u>	<u>(77.936)</u>	<u>(0.5)</u>	<u>(0.5)</u>	<u>(64,133)</u>	<u>(0.5)</u>
Earnings Before Taxes	952,274	846.787	6.4	7.5	952,289	7.5
(Income Taxes)	<u>(285,682)</u>	<u>(254.028)</u>	<u>(2.0)</u>	<u>(2.3)</u>	<u>(285,687)</u>	<u>(2.3)</u>
Net Income	<u>666,592</u>	<u>592.759</u>	<u>4.4</u>	<u>5.2</u>	<u>666,602</u>	<u>5.2</u>

Relevant Analytical Review Procedures

	Current Year	Last Year	Two Years Ago
Working Capital	1,082,252	1,128,653	1,072,668
Current Ratio	1.33	1.37	1.34
Quick Ratio	.59	.58	.59
Net Sales ÷ Net Receivables	12.49	12.45	13.29
Days Net Receivables Outstanding	29.22	29.31	27.47
Profit Before Taxes ÷ Total Assets	14.08%	13.23%	14.191%
Working Capital ÷ Total Assets	16.0%	17.6%	16.8%
Net Sales ÷ Total Assets	2.01	2.09	2.0
Net Sales ÷ Working Capital	12.57	11.87	11.89
Allowance for Doubtful Accounts ÷ Gross Accounts Receivables	8.5%	7.9)	8.5%
Bad Debt Expense ÷ Net Sales	3.6	3.7	3.6
Bad Debt Expense ÷ All Operating Expense	14.1%	14.1%	14.6%
Sales Returns and Allowance ÷ Gross Sales	1.9%	1.8%	1.9%

Accounts Receivable Aging Analysis - All sales are made on credit with terms, Net 30.

	Total	0-30 days	31-60 days	61-90 days	Over 90 days
Current Year-Gross Accounts Receivable	1,190,478	440,447	346,429	222,619	180,983
% of Gross Accounts Receivable	100%	37.0%	29.1%	18.7%	15.2%
Last Year-Gross Accounts Receivable	1,167,433	421,444	332,718	215,975	197,296
% of Gross Accounts Receivable	100%	36.1%	28.5%	18.5%	16.9%
Two Years Ago-Gross Accounts Receivable	1,049,008	400,721	310,506	181,478	156,303
% of Gross Accounts Receivable	100%	38.2%	29.6%	17.3%	14.9%

Industry Data - Source: Robert Morris Associates - Median Values

A. Common Size Financial Statements	Current Year	Last Year	Two Years Ago
Assets	%	%	%
Cash and Equivalents	4.6	4.9	4.8
Accounts and Notes Receivable (Net)	17.1	16.9	16.5
Inventory	40.1	40.9	40.1
All Other Current	6.4	6.7	6.6
Total Current	68.2	69.4	68.0
Fixed Assets (Net)	28.2	27.4	28.6
Intangibles (Net)	0.5	0.7	0.3
All Other Non-Current	3.1	2.5	3.1
Total	100.0	100.0	100.0
Liabilities and Owner's Equity Notes			
Payable-Short	13.9	14.8	13.6
Current Maturity Long Term Debt	2.2	1.6	2.2
Accounts and Notes Payable	29.2	31.0	28.6
Accrued Expenses	4.2	4.4	5.4
All Other Current	3.6	3.8	4.3
Total Current	53.1	55.6	54.1
Long Term Debt	7.3	6.2	7.5
All Other Non-Current	1.3	1.0	1.0
Net Worth	38.3	37.2	37.4
Total Liabilities and Owner's Equity	100.0	100.0	100.0
Income Data			
	%	%	%
Net Sales	100.0	100.0	100.0
Cost of Sales	67.0	67.5	68.0
Gross Profit	33.0	32.5	32.0
Bad Debt Expense	3.5	3.5	3.5
Other Operating Expenses	22.6	23.6	22.8
Operating Profit	6.9	5.4	5.7
All Other Expenses (Net)	1.2	0.4	0.5
Profit Before Taxes	5.7	5.0	5.2
B. Key Industry Ratios - Median Values			
	Current Year	Last Year	Two Years Ago
Current	1.29	1.25	1.26
Quick	.53	.51	.52
Receivables Turnover	12.40	12.30	12.60
Days Net Receivables Outstanding	29.44	29.70	29.00
Inventory Turnover	4.30	4.40	4.60
Days Inventory	85.00	63.00	19.00
(% Profit Before Taxes) ÷ (Total Assets)	13.10	12.90	13.20
Sales ÷ Working Capital	11.10	10.80	11.10
Sales ÷ Total Assets	2.10	2.10	2.10

Quantitative Data

The following estimates of account balances were generated through regression analysis. It is based on the past four years of quarterly audited data. Grossprofit was utilized to derive the prediction for the sales account, and sales was employed to predict the following account balances:

Sales Returns and Allowances,
Accounts Receivable,
Allowance for Doubtful Accounts,
Bad Debt Expense, and
Cash.

In addition to the predicted account balance, each account will have a standard error of the estimate. This will give some indication of the variability of the data used to generate the predicted account balances.

Accounts	Predicted Account Balances	Standart Error of the Estimate
Gross Sales	13.835.000	691.750
Sales Returns and Allowances	248.000	12.400
Gross Accounts Receivable	1.184.000	59.200
Allowance for Doubtful Accounts	103.400	5.170
Bad Debt Expense	474.674	23.734
Cash	345.115	17.256

Evaluation of Unaudited Account Balances and Sample Audit Plan: All Subjects



Based on the preceding information, please determine whether any of the following sales and collection cycle current year's unadited account balances may need an adjustment. Please place a check mark next to "Yes" if you think an account may need an adjustment, and next to "No" if you think the account does not need an adjustment.

Accounts	Will the Account Possibly Need and Adjustment ?
Sales	Yes _____ No _____
Sales Returns and Allowances	Yes _____ No _____
Bad Debt Expense	Yes _____ No _____
Accounts Receivable	Yes _____ No _____
Allowance for Doubtful Accounts	Yes _____ No _____
Cash	Yes _____ No _____

A typical audit plan was developed for a firm in this industry possessing an adequate internal control system. **The plan involves tests of details only and does not consider analytical review results.** Based on the preceding information, please determine if the nature and/or extent of his typical audit plan will require any modifications.

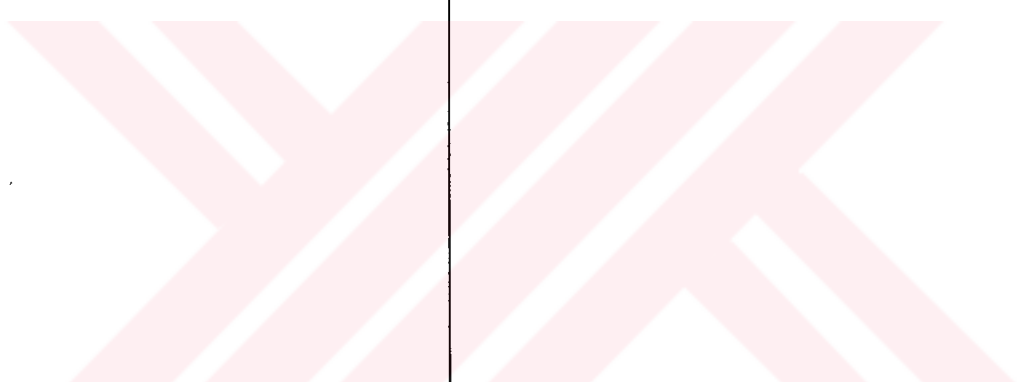
AUDIT PROCEDURE	TIME ALLOCATED BY SAMPLE AUDIT PLAN:	APPROXIMATE TIME YOU WOULD ALLOCATE TO PERFORM THIS PROCEDURE
<p>I. Accounts Receivable</p> <p>1- <u>Confirmation of Accounts Receivable</u>: includes choice of sample; preparation and mailing of initial and (where needed) second confirmation requests; checking of confirmation replies and investigation of discrepancies; summarization of results of confirmation requests</p>	<p>Time allocated by sample audit plan <u>16</u> hour(s).</p>	<p>Approximate time you would allocate. _____ hour(s)</p>
<p>2- <u>Review accuracy of valuation of accounts receivable</u>: includes footing pages of the aged trial balance; totaling the aged trial balance and comparing it to the total in the general ledger; tracing of accounts from the subsidiary ledger to the aged trial balance and from the aged trial balance to the subsidiary ledger, reviewing general ledger for unusual entries relating to accounts receivable.</p>	<p>Time allocated by sample audit plan <u>3</u> hour(s).</p>	<p>Approximate time you would allocate. _____ hour(s)</p>
<p>3- <u>Review of cash collections of accounts receivable subsequent to balance sheet date</u>: includes examination of cash receipts for open accounts that are collected after the balance sheet date.</p>	<p>Time allocated by sample audit plan <u>4</u> hour(s).</p>	<p>Approximate time you would allocate. _____ hour(s)</p>

AUDIT PROCEDURE	TIME ALLOCATED BY SAMPLE AUDIT PLAN:	APPROXIMATE TIME YOU WOULD ALLOCATE TO PERFORM THIS PROCEDURE
<p>II. Allowance for Doubtful Accounts and Bad Debt Expense</p> <p>1- <u>Review of accounts written off as uncollectible</u>; includes preparation of an Analysis of Allowance for Doubtful accounts and reconciliation with related bad debt expense and general ledger examination of authorizing documents for accounts written off; investigation of suspicious write-offs; confirmation of selected charged-off accounts; examination of remittance advices not responding last year and not outstanding at the end of the client's current fiscal year</p> <p>2. <u>Determination of adequacy of Allowance for doubtful accounts</u>; includes examination of past-due accounts selected from aging schedule not paid subsequent to balance sheet date; discuss with credit department the collectibility of past-due or unusually large accounts; review client correspondence of past-due or unusually large accounts.</p>	<p>Time allocated by sample audit plan <u>2</u> hour(s).</p>	<p>Approximate time you would allocate. _____ hour(s)</p>
	<p>Time allocated by sample audit plan <u>5</u> hour(s).</p>	<p>Approximate time you would allocate. _____ hour(s)</p>

AUDIT PROCEDURE	TIME ALLOCATED BY SAMPLE AUDIT PLAN:	APPROXIMATE TIME YOU WOULD ALLOCATE TO PERFORM THIS PROCEDURE
<p>3- <u>Review accuracy of valuation of allowance for doubtful accounts</u>; includes examination of the arithmetical accuracy of the allowance for doubtful accounts and comparing balance against the total in the general ledger; relating the balance in the Allowance for Doubtful Accounts against the Bad Debt Expense.</p>	<p>Time allocated by sample audit plan <u>1</u> hour(s).</p>	<p>Approximate time you would allocate. _____ hour(s)</p>
<p>III. Sales and Sales Returns and Allowances</p>		
<p>1. <u>Review of year-end sales cut off</u>: includes comparison of shipping and receiving records with sales invoices and credit memos for period one week before and one week after the balance sheet date.</p>	<p>Time allocated by sample audit plan <u>4</u> hour(s).</p>	<p>Approximate time you would allocate. _____ hour(s)</p>
<p>2. <u>Review accuracy of valuation of sales</u>: includes tracing sales from sales journals to invoices; tracing items from invoices to shipping documents and from shipping documents to invoices; reviewing sales invoices for terms, prices and mathematical accuracy; reviewing general ledger for unusual transactions relating to sales.</p>	<p>Time allocated by sample audit plan <u>2</u> hour(s).</p>	<p>Approximate time you would allocate. _____ hour(s)</p>

AUDIT PROCEDURE	TIME ALLOCATED BY SAMPLE AUDIT PLAN:	APPROXIMATE TIME YOU WOULD ALLOCATE TO PERFORM THIS PROCEDURE
<p>3- Review accuracy of valuation of sales returns and allowances: includes reviewing credit memos and supporting documents for returned merchandise and sales allowances; comparing receiving records of returned merchandise with credit memos for returned merchandise, reviewing of credit memos and sales returns subsequent to balance</p>	<p>Time allocated by sample audit plan <u>2</u> hour(s).</p>	<p>Approximate time you would allocate. _____ hour(s)</p>
<p>IV. Cash Receipts</p>		
<p>1. Review of proper cut-off for cash receipts: includes review of cash receipts one week before and one week after the balance sheet date.</p>	<p>Time allocated by sample audit plan <u>1</u> hour(s).</p>	<p>Approximate time you would allocate. _____ hour(s)</p>
<p>2. Review accuracy of valuation of cash: includes footing pages of cash receipts journal; tracing postings from cash receipts journal to the general ledger; tracing postings from cash receipts to individual customer accounts records.</p>	<p>Time allocated by sample audit plan <u>2</u> hour(s).</p>	<p>Approximate time you would allocate. _____ hour(s)</p>
<p>3. Confirm cash balances at year end with banks: includes testing of bank reconciliations.</p>	<p>Time allocated by sample audit plan <u>5</u> hour(s).</p>	<p>Approximate time you would allocate. _____ hour(s)</p>

If there are any other relevant tests of details you might perform to test the accounts balances of sales, sales returns and allowances, accounts receivable, allowance for doubtful accounts, bad debt expense, and cash, please list them below. In addition, state the extent of testing to be planned in approximate hour(s).

Other Auditing Procedures	The Extent of Testing
	 <p data-bbox="925 1456 1308 1635">T.C. YÜKSEKÖĞRETİM KURULU DÜŞÜNMEKLEBİLİM MERKEZİ</p>