RESEARCH ARTICLE

# Fraud Risk Factors that Affect the Audit Program Plan: The Case of Kurdistan Region, Iraq

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## ABSTRACT

This paper aims to identify the most frequent fraud risk factors that affect the nature, timing, and extent of planned audit procedures. The perceptions of both international and local external auditors in the Kurdistan Region, Iraq, were investigated. In general, it was found that the respondents were more interested in assessing fraud risk factors related to misappropriation of assets (84.61%) compared with those related to fraudulent financial reporting (75.43%). Stepwise regression analysis indicates a positive and significant effect of each fraud risk factor related to fraudulent financial reporting that resulted from incentives or pressures and attitudes or rationalization, and the fraud risk factors related to the misappropriation of assets that resulted from attitudes or rationalization on the nature, timing, and extent of the planned audit procedures. However, other fraud risk factors in the study model did not show a significant effect on the audit program plan. The findings of this paper contribute to the existing literature in the area of fraud risk assessment and its effect on planning audit programs in eastern developing countries such as the Kurdistan Region, Iraq.

**Keywords:** Fraud risk factors, Audit program plan, Kurdistan Region, Iraq

## 1. INTRODUCTION

The International Standards on Auditing no. 240 (ISA 240), issued by the International Federation of Accountants (IFAC), defines fraud as "an intentional act by one or more individuals among management, those charged with governance, employees, or third parties, involving the use of deception to obtain an unjust or illegal advantage" (IFAC, 2016, ISA240: Par.11). The auditor, according to the ISA, is responsible for getting rational assurance that the financial statements, as a whole, are free from material misstatements, owing to either fraud or error. Accordingly, he/she should design an auditing program plan and perform audit procedures whose nature, timing, and extent are based on and are responsive to the assessed material misstatement risk (IFAC, 2016, ISA330).

One of the effective methods used to assess material misstatement owing to fraud is using fraud risk factors that have been defined by ISA 240 as "events or conditions that indicate an incentive or pressure to commit fraud or provide an opportunity to commit fraud" (IFAC, 2016, ISA240: Par.11). However, an unsuitable fraud risk assessment can lead to a misdirection of audit resource allocation and, ultimately, in an ineffective and/or inefficient audit (Low, 2004; Hajiha, 2012). It also could have negative effects on the audit planning process (Bedard & Graham, 2002). Hence, examining if auditors' reliance on fraud risk factors leads to modification or reconsideration of their audit program plans is important

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because auditors should plan the audit work to enhance the audit quality and further reduce the risk of litigation (Arens et al., 2014; Bell et al., 2005). Moreover, the results of the risk assessment conducted during the planning stage will influence the design and execution of the audit procedures during the fieldwork stage.

The objective of this paper is to identify the most common fraud risk factors used by auditors in the Kurdistan Region, Iraq, as well as to measure the effect of the assessed fraud risk factors on the audit program plan. Consequently, this paper raises the following 2 questions:

- What are the most frequent fraud risk factors used by auditors in the Kurdistan Region, Iraq?
- Do the assessed fraud risk factors affect the audit program plan?

The remainder of this paper is organized as follows. Section 2 reviews the previous literature. In section 3, the study design, methodology, and hypotheses developed are presented. Section 4 details the results. In section 5, the concluding comments are presented.

## 2. LITERATURE REVIEW

Planning an auditing program requires the application of professional judgment when deciding about the types of procedures to be performed during the fieldwork (Mentz et al., 2018). Such planning involves determining the nature, timing, and extent of the planned audit procedures at the assertion level (IFAC, 2016, ISA300). More specifically, the list of planned audit procedures, usually called an audit program, should include the following 4 components (Arens et al., 2014):

- Which audit procedures should be used (nature)?
- What sample size should be selected for a given procedure (extent)?
- Which items should be selected from the population (extent)?
- When should the procedures be performed (timing)?

Furthermore, all the components of the planned audit procedures should be modified or reconsidered as a subsequent response to fraud risk assessment (Mock & Turner, 2005). In other words, planning the nature, timing, and extent of specific further audit procedures should depend on the outcome of the auditors' fraud risk assessment (IFAC, 2016, ISA330).Fraud risk is of 2 major types, namely, fraudulent financial reporting and misappropriation of assets. Fraudulent financial reporting involves intentional misstatement including omission of amounts or disclosures to trick financial statement users. In addition, it often involves overriding of controls by the management that may otherwise appear to be operating effectively. In contrast, misappropriation of assets involves stealing of an entity's assets and is often committed by employees in relatively small and immaterial amounts (IFAC, 2016, ISA240).

ISA 240 indicates that the risk of the auditor not detecting a material misstatement resulting from management fraud (fraudulent financial reporting) is greater than for employee fraud (misappropriation of assets), because management is frequently in a position to directly or indirectly manipulate accounting records, present fraudulent financial information, or override control procedures designed to prevent similar types of frauds by other employees. However, both kinds of frauds involve incentives or pressure to commit fraud, a perceived opportunity to do so, and some rationalization of such acts (IFAC, 2016, ISA240). In other words, the commitment of fraud requires at least 1 of the following 3 motives: incentive or pressure, opportunity, and attitude or rationalization, which are together known as the "fraud triangle" (Jans et al., 2010).

The fraud triangle, as illustrated in Fig. 1, consists of 3 conditions generally present when fraud occurs. Incentive or pressure is what causes a person to commit fraud. Opportunity is the ability to commit fraud. Attitude or rationalization is a crucial component in most frauds, and it involves a person reconciling his/her behavior (stealing) with the commonly accepted notions of decency and trust (Okoye et al., 2009).

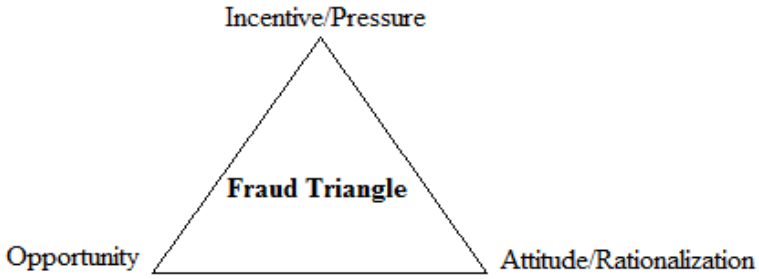


**Figure 1.** Fraud triangle (Montgomery et al., 2002)

Accordingly, fraud risk factors have been classified, by both international and American standards, into 3 groups that fit the fraud triangle (Hammersly, 2011). On the one hand, ISA 240 presents a list of the risk factors (in an appendix) according to the conceptual framework of the fraud triangle (IFAC, 2016, ISA240). On the other hand, the Statement on Auditing Standards no. 99 (SAS 99), issued by the American Institute of Certified Public Accountants (AICPA), organizes and presents fraud risk factors (also in an appendix) according to the dimension of the fraud triangle (AICPA, 2002, SAS 99).

Fraud risk assessment techniques and their effects on several audit planning aspects have been of major concern to researchers in the past 2 decades, especially after the recent cases of audit failure, which emphasize the importance of adequate assessment of fraud risk and effective planning of audit programs. In this regard, the Public Company Accounting Oversight Board pointed out in its report issued in 2013 after reviewing 455 audit cases in the USA that most design flaws of audit procedures are because of fraud risk and the auditors' lack of experience in assessing fraud risk factors (McKee, 2014). In addition, data collected by the AICPA's peer review program in 2016 showed that more than 1 in 10 firms failed to comply with the auditing standard (AU-C) section 315, which deals with understanding the entity and its environment and assessing the risks of material misstatement, or AU-C section 330, which deals with performing audit procedures in response to assessed risks and evaluating the audit evidence obtained (Mayes et al., 2018).

Furthermore, several studies suggest that determining the critical risk factors could help auditors in an audit case and fraud risk assessment and affect the nature, timing, and extent of the audit procedures, evidence collected, and audit quality (Colbert, 1996; Helliar et al., 1996; Bedard et al., 1999; Blay et al. 2007; De Martinis et al., 2007; Blay et al., 2008; Chang et al., 2008; Razak et al., 2018). Brasel et al. (2019) found that auditors made more skeptical judgments when revisiting and reassessing fraud risk assessments. Furthermore, when auditors perform operational-level fraud inquiries before substantive testing, they exhibit a significantly greater skeptical judgment than when inquiries are performed subsequently or not at all. Popova (2008) found that integrating fraud risk into the material misstatement risks assessment process increased the effectiveness of audit risk assessment because all the risk components were included. Likewise, Alssabagh (2016) suggested that accurate assessment of material misstatement risks, including fraud risk, resulted in a balance between the audit efficiency and effectiveness by guiding the auditors to identify the appropriate extent of the planned audit procedures. However, other studies indicate that an auditor's reliance on fraud risk factors is not always helpful for audit planning decisions. For instance, Graham and Bedard (2003) examined the effect of specific fraud risk factor categories on audit planning decisions in a sample of audited clients. They found that the association between audit test planning and the identified fraud risk factors is stronger than with fraud risk assessment. Thus, it appears that auditors' fraud risk assessments do not always capture the fraud risk factors very well, but auditors do consider the fraud risk factors in their audit planning. Furthermore, Asare and Wright (2004) found that the auditors who used an SAS no. 82-based risk checklist made a lower assessment of fraud risk than the auditors who did not use a checklist. Similarly, Fukukawa et al. (2006) found, from a set of Japanese audits, that the association between client risks and audit plans was somewhat weak, and fraud risk factors had little effect on audit planning.

The importance, diagnostic ability, and weighting of risk factors in assessing fraud risk factors are investigated in several studies. Wilks and Zimbelman (2004a) suggested that decomposition of the fraud risk assessment task may require less cognitive effort in assessing fraud risk and may allow auditors to better process fraud risk factors. Wilks and Zimbelman (2004b) suggested, from a study in which they examined the assessment of fraud risk when difficult-to-assess "attitude" risk factors indicate low fraud risk, that auditors may be differentially sensitive to "incentive" and "opportunity" risk factors depending on the method of assessment they use (decomposed assessment of fraud risk using the elements of the fraud triangle vs. global assessment of the overall fraud risk). Alssabagh and Dahdoh (2016) found, from a study based in Syria, that auditors have a moderate commitment to assessing fraud risk factors owing to fraudulent financial reporting, whereas they have a strong commitment to assessing fraud risk factors owing to misappropriation of assets (Alssabagh and Dahdoh, 2016). Brazel et al. (2013) suggested that it was important to assess nonfinancial fraud risk factors, because they were important indicators for the auditor and helped them to assess the risks of fraud effectively. Furthermore, Carpenter (2007) examined the brainstorming process in an experimental setting and found that brainstorming sessions resulted in a higher assessment of fraud risk. Likewise, Brazel et al. (2010) found that assessment of fraud risk factors required the auditors to use the highest degree of brainstorming which improved the relationship between fraud risk factors and the auditor's assessment of fraud risks. Finally, Allen et al. (2006), after insight reviews of academic literature on fraud risk assessment, indicated that auditors often responded to fraud risks by performing more audit procedures that were not directly related to the risk area. In other words, a typical audit response was to perform "more of the same" checks rather than performing different kinds of procedures specifically targeted at the identified fraud risk.

## 3. STUDY DESIGN AND METHODOLOGY

The nature of this study is empirical because it employs a questionnaire to survey fraud risk factors that affect the audit program plan. The questionnaire, as a primary study instrument, consisted of 2 parts. The first part included 6 general questions related to some demographic information about the respondents, whereas the second part included 33 questions that were divided into 2 sections according to the study variables. Section 1 was about fraud risk factors prepared based on ISA 240 and SAS 99, whereas section 2 was about the audit program components identified by ISA 300 and ISA 330 and related literature.

### 3.1. Data Collection and Statistical Techniques

The study population consisted of local and international auditors who practiced auditing as a profession in the Kurdistan Region, Iraq. The questionnaire was distributed across a random sample of 80 auditors. However, only 54 of these were subjected to statistical analysis because of the lack of returned questionnaires or because of the return of incomplete questionnaires. Therefore, the response rate was 67.5%.

Data collection was done through several successive stages. First, a five-point Likert scale was used in the study to measure the extent of the respondents' agreement with each parameter in the questionnaire because it is one of the most common metrics used to measure opinions and responses. Subsequently, the collected data were transformed into quantifiable numbers and percentages to assist in the data analysis process. Finally, statistical analysis was done using the Statistical Package for Social Sciences (SPSS, version 24) software program.

This study implemented a set of statistical techniques and procedures that aided in the analysis of the collected data and in the verification of the stipulated hypotheses. Frequencies, percentages, means, and standard deviations were determined for descriptive statistics, whereas linear regression analysis was employed to test the proposed model and verify the study hypotheses. Furthermore, Cronbach's alpha test was used to check the reliability and validity of the study instrument, and the following result was obtained:

Table 1: Reliability of Statistics

| Cronbach's alpha | N of Items |
|---|---|
| .856 | 33 |

Table 1 shows that the value of alpha was (85.6%), which indicates homogeneity and high credibility of the parameters used in the study questionnaire.

### 3.2. Study Model

After reviewing the literature for both fraud risk assessment and planning the audit program, the following model was proposed for this study:

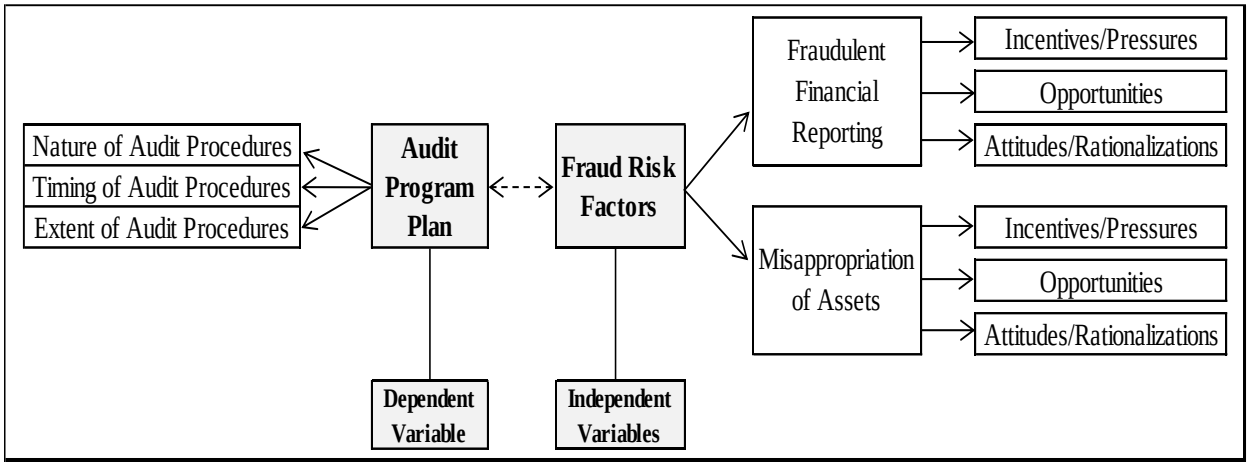


**Figure 2.** Study model

Moreover, to examine the effect of independent variables on the dependent variable, in accordance with the above proposed study model, the following model was used:

$$AuditPP = \alpha + \beta1\ FIP + \beta2\ FOP + \beta3\ FAR + \beta4\ MIP + \beta5\ MOP + \beta6\ MAR + \varepsilon$$

where, AuditPP denotes the audit program plan; FIP are factors related to fraudulent financial reporting resulting from incentives or pressures; FOP are factors related to fraudulent financial reporting resulting from opportunities; FAR are factors related to fraudulent financial reporting resulting from attitudes or rationalizations; MIP are factors related to the misappropriation of assets resulting from incentives or pressures; MOP are factors related to the misappropriation of assets resulting from opportunities; MAR are factors related to the misappropriation of assets resulting from attitudes or rationalizations, and ε denotes the random error.

### 3.3. Study Hypotheses

Based on the proposed study model, the following hypotheses were made to address the study objective:

H1: Fraud risk factors related to fraudulent financial reporting and resulting from incentives or pressures affect the audit program plan.

H2: Fraud risk factors related to fraudulent financial reporting and resulting from opportunities affect the audit program plan.

H3: Fraud risk factors related to fraudulent financial reporting and resulting from attitudes or rationalizations affect the audit program plan.

H4: Fraud risk factors related to the misappropriation of assets and resulting from incentives or pressures affect the audit program plan.

H5: Fraud risk factors related to the misappropriation of assets and resulting from opportunities affect the audit program plan.

H6: Fraud risk factors related to the misappropriation of assets and resulting from attitudes or rationalizations affect the audit program plan.

## 4. DATA ANALYSIS AND HYPOTHESES VERIFICATION

### 4.1. Descriptive Statistics

Table 2 provides the response frequencies and percentages of the cohort across the demographic variables of the study. Table 2 shows that approximately 48% of the respondents have high university degrees. It also illustrates that around three-quarters of the respondents are specialized in accounting and about half of them are at junior or assistant levels (with 5 years of experience or less). However, only 38.9% of the respondents have international professional certificates (CPA, CIA, or CMA). Moreover, Table 2 shows, remarkably, that 68.5% of the respondents work either in the Big4 or in international audit firms, which indicates that the foreign audit firms control most of the audit market share in the Kurdistan Region, Iraq.

**Table 2:** Demographic variables description

| Parameter | | Frequency | Percentage |
|---|---|---|---|
| Academic qualification | BSc/BA | 28 | 51.9 |
| | Higher Diploma | 6 | 11.1 |
| | MSc/MBA | 16 | 29.6 |
| | PhD | 4 | 7.4 |
| Specialization | Accounting | 39 | 72.2 |
| | Business & Management | 6 | 11.1 |
| | Banking & Finance | 9 | 16.7 |
| Job title | Junior Auditor | 9 | 16.7 |
| | Senior Auditor | 22 | 40.7 |
| | Assistant Audit Manager | 8 | 14.8 |
| | Audit Manager | 7 | 13.0 |
| | Senior Audit Manager | 6 | 11.1 |
| | Partner | 2 | 3.7 |
| Years of experience | <2 years | 9 | 16.7 |
| | 2–5 years | 25 | 46.3 |
| | 6–10 years | 12 | 22.2 |
| | >10 years | 8 | 14.8 |
| Professional certificates | CPA | 8 | 14.8 |
| | CIA | 4 | 7.4 |
| | CMA | 9 | 16.7 |
| | Local CPA | 33 | 61.1 |
| Type of audit firm | Big 4 Audit Firms | 24 | 44.4 |
| | International Audit Firm | 13 | 24.1 |
| | Regional Audit Firm | 5 | 9.3 |
| | Local Audit Firm/Individual Office | 12 | 22.2 |
| Total | | 54 | 100 |

Table 3 provides the averages and standard deviations of the cohort across the study variables. Table 3 s hows that the number of observations for each variable was 54, which reflects that the respondents answered all the questions concerning the study variables. It also illustrates that the average value for AuditPP was 75.62%, indicating that the auditors believe that they have a relatively high response for reconsidering or modifying their audit plans based on the assessed fraud risk.

In addition, Table 3 illustrates that the average values for fraud risk factors related to the misappropriating of assets and fraudulent financial reporting were 84.61% and 75.43%, respectively, which indicate that auditors in the Kurdistan Region, Iraq, are more interested in assessing fraud risk factors related to the misappropriation of assets compared with those related to fraudulent financial reporting. However, Table 3 shows that the average value of MIP was 87.78%, which indicates that fraud risk factors related to the misappropriation of assets resulting from incentives or pressures are the most used fraud factors among all the factors, whereas the fraud risk factors related to fraudulent financial reporting resulting from attitudes or rationalizations are the least used factors with an average value for FAR of only 68.24%. Finally, the standard deviations for all variables were relatively low, which indicates that respondents' answers were consistent and closely matched.

Table 3: Descriptive statistics for study variables

| | N | Minimum | Maximum | Mean | Std. deviation |
|---|---|---|---|---|---|
| AuditPP | 54 | .63 | .96 | .7562 | .08005 |
| FIP | 54 | .70 | .96 | .8083 | .06919 |
| FOP | 54 | .60 | .90 | .7722 | .05109 |
| FAR | 54 | .60 | .82 | .6824 | .07700 |
| Fraudulent financial reporting | 54 | .68 | .86 | .7543 | .04805 |
| MIP | 54 | .70 | 1.00 | .8778 | .06344 |
| MOP | 54 | .70 | 1.00 | .8667 | .06443 |
| MAR | 54 | .72 | .96 | .7940 | .08455 |
| Misappropriation of assets | 54 | .74 | .92 | .8461 | .03721 |

### 4.2. Regression Analysis

Tables 4, 5, and 6 present the results of regression analysis for study model.

Table 4: Model summary[b]

| | | | | | Change Statistics | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model | R | $R^2$ | Adjusted $R^2$ | Std. error of the estimate | $R^2$ change | F change | df1 | df2 | Sig. F change | Durbin-Watson |
| 1 | .827[a] | .684 | .644 | .0477663 | .684 | 16.977 | 6 | 47 | .000 | 1.671 |

[a]Predictors: (constant), MAR, FAR, FOP, MIP, FIP, MOP; bDependent variable: AuditPP

Table 5: Analysis of variance (ANOVA)[a]

| Model | | Sum of squares | Df | Mean square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | .232 | 6 | .039 | 16.977 | .000[b] |
| | Residual | .107 | 47 | .002 | | |
| | Total | .340 | 53 | | | |

[a]Dependent variable: AuditPP; bPredictors: (constant), MAR, FAR, FOP, MIP, FIP, MOP

Table 6: Coefficients[a]

| | | Unstandardized coefficients | | Unstandardized coefficients | | | 95% Confidence interval for B | |
|---|---|---|---|---|---|---|---|---|
| Model | | B | Std. error | Beta | T | Sig. | Lower bound | Upper bound |
| 1 | (Constant) | –.200 | .232 | | –0.861 | .393 | –.667 | .267 |
| | FIP | .327 | .151 | .283 | 2.165 | .035 | .023 | .631 |
| | FOP | .068 | .148 | .043 | 0.459 | .649 | -.230 | .366 |
| | FAR | .336 | .132 | .323 | 2.552 | .014 | .071 | .600 |
| | MIP | .017 | .143 | .014 | 0.121 | .904 | –.270 | .305 |
| | MOP | –.006 | .164 | –.005 | –0.039 | .969 | –.336 | .323 |
| | MAR | .505 | .148 | .533 | 3.409 | .001 | .207 | .802 |

[a]Dependent variable: AuditPP

Based on the tables above, the following can be inferred: The R2 and adjusted R2 values were 68.4% and 64.4%, respectively, which reflect that the explanatory power for the independent variables (fraud risk factors) explains about 64% of the change in the dependent variable (audit program plan).

The Durbin-Watson statistic was 1.67, which indicates that there is no serial correlation (autocorrelation) for the dependent variable because it is relatively close to the optimal value 2.

The F-statistic and its significance denote the goodness of fit. In other words, the F-statistic indicates that the model was properly specified to reflect the effect of the fraud risk factors on the audit program plan.

Finally, FIP, FAR, and MAR are the only variables that have a positive and significant effect (at 5% significance level) on AuditPP, whereas the other independent variables (FOP, MIP, and MOP) did not show any significant effect on the dependent variable.

Moreover, to exclude nonsignificant variables that might affect the results negatively, stepwise regression analysis was done. sStepwise regression is a method selection option that allows specifying how independent variables are entered into the analysis. According to this method, stepwise variable entry and removal examines the variables in the block at each step for entry or removal. At each step, the independent variable with the smallest probability of F, which has not yet been entered in the equation, is entered if the probability is sufficiently small. Variables already in the regression equation are removed if their probability of F becomes sufficiently large. The method terminates when no more variables are eligible for inclusion or removal (Al-Khaddash et al., 2013).

Tables 7, 8, and 9 present the results of stepwise regression analysis for this study model.

Table 7: Model summary[d]

| Model | R | $R^2$ | Adjusted $R^2$ | Std. error of the estimate | Change statistics | | | | | Durbin-Watson |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | $R^2$ change | F change | df1 | df2 | Sig. F change | |
| 1 | .604[a] | .365 | .353 | .0644154 | 0.365 | 29.857 | 1 | 52 | 0.000 | |
| 2 | .806[b] | .650 | .636 | .0482706 | 0.285 | 41.602 | 1 | 51 | 0.000 | |
| 3 | .826[c] | .682 | .663 | .0464495 | 0.32 | 5.077 | 1 | 50 | 0.029 | 1.691 |

[a]Predictors: (constant), MAR; bPredictors: (constant), MAR, FAR; cPredictors: (constant), MAR, FAR, FIP; dDependent variable: AuditPP

Table 8: ANOVA[a]

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | .124 | 1 | .124 | 29.857 | .000[b] |
| | Residual | .216 | 52 | .004 | | |
| | Total | .340 | 53 | | | |
| 2 | Regression | .221 | 2 | .110 | 47.385 | .000[c] |
| | Residual | .119 | 51 | .002 | | |
| | Total | .340 | 53 | | | |
| 3 | Regression | .232 | 3 | .077 | 35.808 | .000[d] |
| | Residual | .108 | 50 | .002 | | |
| | Total | .340 | 53 | | | |

[a]Dependent variable: AuditPP; bPredictors: (constant), MAR; cPredictors: (constant), MAR, FAR; dPredictors: (constant), MAR, FAR, FIP.

Table 9: Coefficients[a]

| Model | | Unstandardized Coefficients | | Unstandardized Coefficients | | | 95% Confidence interval for B | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. error | Beta | T | Sig. | Lower bound | Upper bound |
| 1 | (Constant) | .302 | .084 | | 3.616 | .001 | .134 | .470 |
| | MAR | .572 | .105 | .604 | 5.464 | .000 | .362 | .782 |
| 2 | (Constant) | –.051 | .083 | | –0.612 | .543 | –.218 | .116 |
| | MAR | .538 | .079 | .568 | 6.845 | .000 | .380 | .696 |
| | FAR | .557 | .086 | .535 | 6.450 | .000 | .383 | .730 |
| 3 | (Constant) | –.155 | .092 | | –1.676 | .100 | –.340 | .031 |
| | MAR | .530 | .076 | .560 | 7.006 | .000 | .378 | .682 |
| | FAR | .343 | .126 | .330 | 2.715 | .009 | .089 | .596 |
| | FIP | .317 | .141 | .274 | 2.253 | .029 | .034 | .599 |

[a]Dependent variable: AuditPP

Based on the tables above, the following can be inferred:

The analysis produced 3 models as follows:

$$AuditPP = \alpha + \beta 1\ MAR$$

$$AuditPP = \alpha + \beta 1\ MAR + \beta 2\ FAR$$

$$AuditPP = \alpha + \beta 1\ MAR + \beta 2\ FAR + \beta 3\ FIP$$

These models include the most important fraud risk factors that affect the audit program plan. Other variables were excluded because they were not significant and affected other variables negatively.

Adjusted R2 ranged from 35.3% to 66.3%, which reflects that the explanatory power for the independent variables explains a large proportion of the change in the dependent variable.

The F-statistic and its significance denote the goodness of fit for all models (1, 2, and 3). In other words, the F-statistic indicates that the 3 models, in general, are properly specified to reflect the effect of fraud risk factors on the audit program plan.

Finally, MAR, FAR, and FIP are the only variables that have a positive and significant effect (at 5% significance level) on AuditPP, whereas the other independent variables (FOP, MIP, and MOP) were excluded from the model because of their insignificant effect on AuditPP.

### 4.3. Hypotheses Testing Results

Based on the discussion presented above, the result of testing the study hypotheses can be summarized as shown in table 10:

Table 10: Result of Hypotheses Testing

| No. | Hypothesis | Result |
|---|---|---|
| $H1_{(FIP)}$ | Fraud risk factors related to fraudulent financial reporting and resulting from incentives or pressures affect the audit program plan. | Accept |
| $H2_{(FOP)}$ | Fraud risk factors related to fraudulent financial reporting and resulting from opportunities affect the audit program plan. | Reject |
| $H3_{(FAR)}$ | Fraud risk factors related to fraudulent financial reporting and resulting from attitudes or rationalizations affect the audit program plan. | Accept |
| $H4_{(MIP)}$ | Fraud risk factors related to the misappropriation of assets and resulting from incentives or pressures affect the audit program plan. | Reject |
| $H5_{(MOP)}$ | Fraud risk factors related to the misappropriation of assets and resulting from opportunities affect the audit program plan. | Reject |
| $H6_{(MAR)}$ | Fraud risk factors related to the misappropriation of assets and resulting from attitudes or rationalizations affect the audit program plan. | Accept |

## 5. CONCLUDING COMMENTS

In this study, the author sought to contribute to the extant research on fraud risk assessments by auditors and planning of audit programs in eastern developing countries such as in the Kurdistan Region, Iraq. More specifically, the author examined the extent of auditors' reliance on fraud risk factors, listed by ISA 240 and SAS 99, during the audit risk assessment stage as well as if the auditors modified or reconsidered the nature, extent, and timing of their planned audit procedures based on the assessed fraud risk factors.

The study results suggest that the auditors' reliance on fraud risk factors to assess material misstatements owing to fraud is relatively high. This result is in line with that of Alssabagh and Dahdoh's study, which was performed in Syria in 2016, with regard to fraud risk factors related to misappropriation of assets; however, the results related to fraudulent financial reporting differ. In general, auditors are more interested in assessing fraud risk factors related to the misappropriation of assets compared with those related to fraudulent financial reporting. Accordingly, the weighted average score for factors related to the misappropriation of assets was 4.23 out of 5 (about 85%) compared with 3.77 out of 5 (about 75%) for factors related to fraudulent financial reporting. In particular, the weighted average score for using fraud risk factors ranged from 3.41 to 4.39 out of 5 (from 68.24% to 87.78%), with factors related to the misappropriation of assets resulting from incentives or pressures at the top of list and factors related to fraudulent financial reporting resulting from attitudes or rationalizations at the bottom.

These results suggest that auditors also have a relatively high response rate regarding modifying or reconsidering their planned audit procedures based on the assessed material misstatements owing to fraud. This result corresponds with those of several studies (Bedard and Graham, 2002; Graham and Bedard, 2003; Mock and Turner, 2005; Okoye et al., 2009). Furthermore, the study findings confirmed the existence of a significant positive effect when using each of the fraud risk factors related to fraudulent financial reporting that resulted from incentives or pressures and attitudes or rationalization, and factors related to the misappropriation of assets that resulted from attitudes or rationalization on the nature, extent, and timing of the planned auditing procedures, whereas the other risk factors in the study model did not show a significant effect on the audit program plan.

The main limitation of this study was the limited access to respondents. More specifically, the majority of respondents (about 57%) were mainly at a junior or assistant level (with 5 years of experience or less), whereas respondents occupying roles at the principal levels (assistant managers and above), who are mainly responsible for audit risk assessment, were in the minority (about 43%). Therefore, the study findings might be biased by the point of view of the majority. However, the standard deviations for all the respondents were relatively low, which indicates that the respondents' answers, at all levels, were consistent and closely matched.

Finally, the study recommends that licensed auditors in the Kurdistan Region, Iraq pay more attention to assessing fraud risk factors related to opportunities and to modify or reconsider their audit program plans accordingly. Furthermore, this study can be used as a basis for future studies in which

factors – other than the fraud risks – that drive auditors to modify their audit program plans are explored, leading to an improvement in the efficiency and effectiveness of the audit planning process.

## REFERENCES

AICPA [American Institute of Certified Public Accountants]. (2002). *Consideration of Fraud in a Financial Statement Audit.* Statement on Auditing Standards No.99. New York, NY: AICPA.

Al-Khaddash, H., Al Nawas, R., & Ramadan, A. (2013). Factors affecting the quality of auditing: The case of Jordanian commercial banks. *International Journal of Business and Social Science*, 4(11), 206-222.

Allen, R. D., Hermanson, D. R., Kozloski, T. M., & Ramsay, R. J. (2006). Auditor risk assessment: Insights from the academic literature. *Accounting Horizons*, 20(2), 157-177.

Alssabagh, S. H. (2016). *The Effect of Quantification Risks of Material Misstatements in Improving the Accuracy of Audit Risk Assessment: An Applied Study*. (Unpublished PhD Dissertation of Accounting), Syria: Damascus University.

Alssabagh, S. H. & Dahdoh, H. A. (2016). The Extent of Auditors' Commitment by Assessment Factors of Material Misstatements Risks Due to Fraud: Field Study at Syrian Commission on Financial Markets and Securities. *Jordan Journal of Business Administration,* 12 (2), 377-399.

Arens, A. A., Elder, R. J., & Mark, B. (2014). *Auditing and assurance services: an integrated approach*.USA, NY, Pearson Education, Inc.

Asare, S. K., & Wright, A. M. (2004). The effectiveness of alternative risk assessment and program planning tools in a fraud setting. *Contemporary Accounting Research*, 21(2), 325-352.

Brasel, K. R., Hatfield, R. C., Nickell, E. B., & Parsons, L. M. (2019). The Effect of Fraud Risk Assessment Frequency and Fraud Inquiry Timing on Auditors' Skeptical Judgments and Actions. *Accounting Horizons*, 33(1), 1-15.

Bedard, J. C., & Graham, L. E. (2002). The effects of decision aid orientation on risk factor identification and audit test planning. *Auditing: A Journal of Practice & Theory*, 21(2), 39-56.

Bedard, J. C., Mock, T. J., & Wright, A. M. (1999). Evidential planning in auditing: A review of the empirical research. *Journal of Accounting Literature*, 18, 96.

Bell, T. B., Peecher, M. E., & Solomon, I. (2005). The 21st century public company audit. *New York, NY: KPMG LLP*.

Blay, A. D., Sneathen Jr, L. D., & Kizirian, T. (2007). The effects of fraud and going-concern risk on auditors' assessments of the risk of material misstatement and resulting audit procedures. *International Journal of Auditing*, 11(3), 149-163.

Blay, A., Kizirian, T., & Dwight, S. (2008). Evidential effort and risk assessment in auditing. *Journal of Business & Economics Research*, 6(9), 39-52.

Brazel, J. F., Carpenter, T. D., & Jenkins, J. G. (2010). Auditors' use of brainstorming in the consideration of fraud: Reports from the field. *The Accounting Review*, 85(4), 1273-1301.

Brazel, J. F., Jones, K. L., & Prawitt, D. F. (2013). Auditors' reactions to inconsistencies between financial and nonfinancial measures: The interactive effects of fraud risk assessment and a decision prompt. *Behavioral Research in Accounting*, 26(1), 131-156.

Carpenter, T. D. (2007). Audit team brainstorming, fraud risk identification, and fraud risk assessment: Implications of SAS No. 99. *The Accounting Review*, 82(5), 1119-1140.

Chang, S. I., Tsai, C. F., Shih, D. H., & Hwang, C. L. (2008). The development of audit detection risk assessment system: Using the fuzzy theory and audit risk model. *Expert Systems with Applications*, 35(3), 1053-1067.

Colbert, J. L. (1996). International and US Standards-audit risk and materiality. *Managerial Auditing Journal*, 11(8), 31-35.

De Martinis, M., Fukukawa, H., & Mock, T. J. (2007). Exploring audit planning responsiveness to client risk assessments for private and public sector audits. Working Paper, 2007 AFAANZ Conference.

Fukukawa, H., Mock, T. J., & Wright, A. (2006). Audit programs and audit risk: A study of Japanese practice. *International Journal of Auditing*, 10(1), 41-65.

Graham, L., & Bedard, J. C. (2003). Fraud risk and audit planning. *International Journal of Auditing*, 7(1), 55-70.

Hajiha, Z. (2012). Application of Delphi method for determining the affecting factors upon audit risk model. *Management Science Letters*, 2(1), 379-390.

Hammersley, J. S. (2011). A review and model of auditor judgments in fraud-related planning tasks. *Auditing: A Journal of Practice & Theory*, 30(4), 101-128.

Helliar, C., Lyon, B., Monroe, G. S., Ng, J., & Woodliff, D. R. (1996). UK Auditors' Perceptions of Inherent Risk. *The British Accounting Review*, 28(1), 45-72.

IFAC [International Federation of Accountants]. (2016). *Planning an Audit of Financial Statements.* International Standard on Auditing No. 300. New York, NY: IFAC.

IFAC [International Federation of Accountants].(2016). The Auditor's Responses to Assessed Risks. International Standard on Auditing No. 330. New York, NY: IFAC.

IFAC [International Federation of Accountants]. (2016). *The Auditor's Responsibilities Relating to Fraud in an Audit of Financial Statements.* International Standard on Auditing No. 240. New York, NY: IFAC.

Jans, M., Lybaert, N., & Vanhoof, K. (2010). Internal fraud risk reduction: Results of a data mining case study. *International Journal of Accounting Information Systems*, 11(1), 17-41.

Low, K. Y. (2004). The effects of industry specialization on audit risk assessments and audit-planning decisions. *The accounting review*, 79(1), 201-219.

Mayes Jr, C. R., Landes, C. E., & Hasty, H. (2018). Taking the Risk out of Risk Assessment: Properly Considering a Client's Risks Is Essential to a Quality Audit. Journal of Accountancy, 226(2), 38.

McKee, T. E. (2014). Evaluating financial fraud risk during audit planning. *The CPA Journal*, 84(10), 28-31.

Mentz, M., Barac, K., & Odendaal, E. (2018). An audit evidence planning model for the public sector. *Journal of Economic and Financial Sciences*, 11(1), 14.

Mock, T. J., & Turner, J. L. (2005). Auditor identification of fraud risk factors and their impact on audit programs. *International Journal of Auditing*, 9(1), 59-77.

Montgomery, D. D., Beasley, M. S., Menelaides, S. L., & Palmrose, Z. V. (2002). Auditors' new procedures for detecting fraud. *Journal of Accountancy*, 193(5), 63.

Okoye, E. I., & Gbegi, D. O. (2013). An Evaluation of Forensic Accountants to Planning Management Fraud Risk Detection Procedures. *Global Journal of Management and Business Research*, 13(1), 75-90.

Okoye, E., Okafor, T., & Ijeoma, N. (2009). Impact of the fraud triangle on audit process: the Nigerian Accountant's view. *The University Advanced Research Journal*, 1, 130-145.

Popova, V. (2008). *Integration of Fraud Risk in the Risk of Material Misstatement and the Effect on Auditors' Planning Decisions*. Working paper, Virginia Polytechnic Institute and State University.

Razak, L., Ramly, A., & Fe, H. (2018). Effect of Fraud Risk Assessment, Auditor Independence of Audit of the Quality of Financial Inspectorate Regional Authorities (Case Study in South Sulawesi Provincial Inspectorate).

Wilks, T. J., & Zimbelman, M. F. (2004a). Using game theory and strategic reasoning concepts to prevent and detect fraud. *Accounting Horizons*, 18(3), 173-184.

Wilks, T. J., & Zimbelman, M. F. (2004b). Decomposition of fraud-risk assessments and auditors' sensitivity to fraud cues. *Contemporary Accounting Research*, 21(3), 71 9-745.