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Audit and fraud risk assessment methods and their implications on audit planning decisions

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By

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1 INTRODUCTION

1.1 THE CONTEXT AND BACKGROUND OF THE THESIS

Accounting fraud and fraud related issues continue to be an important discussion among both accounting professionals and academics. Furthermore, despite the issuance of relevant auditing standards, there is a material difference between what the great public and the investors think about the auditor's responsibility in detecting fraud, and what the auditors' feel as their perceived responsibility.

Well-known examples of accounting scandals underpinned the existence of fraud all over the world. Enron, WorldCom, and Lehman Brothers, to mention only the most well-known international cases, are all instances how financial statements can provide distorted information to interested parties on companies' financial position and performance. The question has arisen: to what extent are independent auditors responsible for revealing fraud? Are auditors capable of detecting and preventing such events from occurring at all?

It is worthwhile examining the International Auditing Standards (ISAs) issued by IFAC (International Federation of Accountants) and the Statement on Auditing Standards (SASs) issued by AICPA (American Institute of Certified Public Accountants) from the aspect of how those address the fraud and fraud risk factors that may have implications on financial statements. The scope of this thesis definitely requires the understanding of the auditor's task itself. The ISA 200[1] describes that the overall objective of the auditor is to obtain reasonable assurance about if the financial statements as a whole are free from material misstatement, whether due to fraud or error. Before narrowing the scope for further examination, the term of 'material misstatement' should be delineated. Misstatement, by definition, is the variance between how the amount, classification,

[1] ISA 200 on 'Overall Objectives of the Independent Auditor and the Conduct of an Audit in Accordance with International Standards on Auditing'

and presentation are reported in the financial statements, and how it should have been conforming to the applicable financial reporting framework[2]. Misstatement may arise due to fraud or error, depending on the auditor's professional judgement whether it is intentional or unintentional. On the other hand, the auditor is not responsible for detecting misstatement that are not material to the financial statements as a whole, when planning and performing the audit engagements. The auditor is not in the position to obtain absolute assurance that the financial statements are free from material misstatement due to fraud or error, as inherent limitations of auditing exist: the nature of financial reporting, the nature of audit procedures, and the requisite that the audit should be performed within a reasonable period of time and at a reasonable cost[3] incurred.

It is beyond dispute that the term of 'fraud' should be determined before going further in the discussion. The definition provided by the international standards is regarded as a base further on.

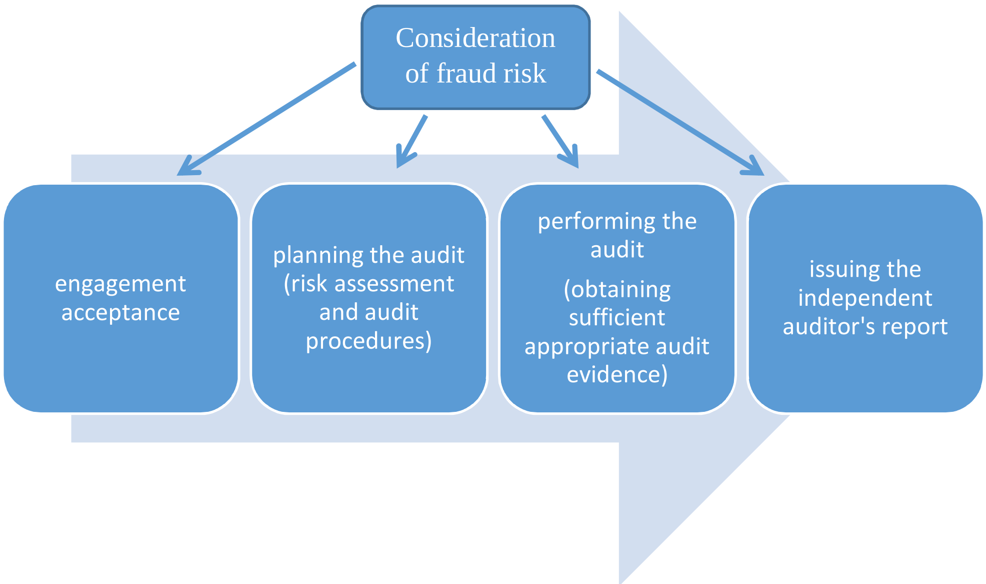
In ASB's (Auditing Standards Board) view, the definition by ISA 240[4], containing the terms of unjust and illegal advantage, is too broad and may result in additional responsibility for auditors in the U.S., while the interpretation by the SAS is more straightforward leaving less room for subjective assessments (AICPA, 2014).

<table>
<tr><th>Definition by ISAs</th><th>Definition by SASs</th></tr>
<tr><td colspan="2">An intentional act by one or more individuals among management, those charged with governance, employees, or thirds parties, involving the use of deception …</td></tr>
<tr><td>… to obtain an unjust or illegal advantage.</td><td>… that results in a misstatement in financial statements that are the subjects of an audit.</td></tr>
</table>

1. Figure Definition of fraud by international standards (Fortvingler and Szívós, 2014)

[2] AU-C Section 200 on the 'Overall objectives of the independent auditor' requires also the fair presentation of items.
[3] AU-C Section 200 on the 'Overall objectives of the independent auditor' demands a 'balance between benefit and cost'.
[4] ISA 240 on 'The Auditor's Responsibilities Relating To Fraud in an Audit of Financial Statements'

The two typical forms of fraud committed in financial reporting that the auditor has to take into account in audits are: fraudulent financial reporting and misappropriation of assets. Fraud itself may contain sophisticated and well-organized schemes to conceal it. Consequently, the consideration of fraud, while exercising professional scepticism, should be embedded in all phases of the audit engagements.



2. Figure Phases of audit engagements

The ISA 210 on ‘Agreeing the terms of audit engagements’ requires that the auditor shall obtain an acknowledgement that the management operates an internal control system ensuring that the preparation of financial statements are free from material misstatement due to fraud or error[5].

A critical element of auditing is the planning phase, in which the risk assessment has extreme importance with respect to fraud. An extensive standard (ISA 240 and AU-C Section 240) contains the auditor’s responsibilities relating to fraud. It emphasizes that the company itself (those charged with governance and the management) is responsible for the prevention and detection of fraud,

[5] AU-C Section 210 on the ’Terms of engagement’ requires, in addition to preparation, the fair presentation.

while an auditor’s task is to obtain reasonable assurance that the financial statements are free from material misstatement whether due to fraud or error. Consequently, the auditor has to identify fraud risk factors: conditions or events that create an incentive or pressure, or give opportunity to commit fraud. The aforementioned fraud standard has relevance for ISA 315 (and AU-C Section 315)[6]: it provides guidance how fraud should be taken into account in risk assessment. Moreover, in the process of obtaining sufficient appropriate audit evidence, the consideration of fraud also plays an important role. In responding to the risks of material misstatement due to fraud, the auditor’s decision on modifying the extension of testing may necessitate the use of computer-assisted audit techniques (CAATs) in consideration of efficiency. Finally, the auditor shall form an opinion on whether financial statements are prepared in accordance with the applicable financial reporting framework, and the auditor has obtained reasonable assurance about whether the financial statements are free from material misstatement, due to fraud or error.

1.2 OBJECTIVES OF THE THESIS

Based on the above introduction, the following research objectives were set. The first objective was to explore prior international and national academic researches on the field which can help to identify the current state of fraud related researches. In Chapter 2 the dissertation provides a comprehensive and thorough presentation of the most important research results from abroad and Hungary. The literature review assissted the authors in setting the objectives of the Hungarian specific research which provided the basis for the present thesis. Two fields of research were highlighted: (1) testing different fraud risk assessment methods among Hungarian auditors and (2) a discussion on the impact of IT system applications on the audit risk assessment process.

[6] ISA 315 on ’Identifying and assessing the risks of material misstatement through understanding the entity and its environment’, AU-C Section 315 on ‘Understanding the entity and its environment and assessing the risks of material misstatement’

The second objective of the thesis was to examine the impact of information technology on the procedures conducted by auditors. Pursuing risk assessment and audit procedures in an engagement where information technology is present requires different skilles and knowledge. It is discussed, by reviewing the relevant standards on auditing, how auditors shall take the features of an IT systems into consideration through the phases of audit. We investigate if there exist specific IT controls on which auditors can rely as effective parts of the company’s internal control system. One control procedure, the data consistency check is discussed from the viewpoint of data validation and consistency and its interrelation to and impact on audit risk assessment is highlighted.

Thesis 1: The application of data consistency check in an ERP (Enterprise Resource Planning) environment will reduce the control risk during the audit risk assessment and as a consequence auditors shall include less extensive substantive procedures and/or decrease sample size in their audit plan in relation to testing data migration process. (Szívós and Orosz, 2014)

Relevant standards on auditing (ISA 240) describes the responsibility of auditors relating to fraud. ISA 240 says that auditors shall assess the risk of material misstatements due to fraud, but it does not provide a ‘ready-to-use’ assessment framework, so auditors usually assess fraud risk in one component (traditional method) on an intuitive bases.

Prior international studies experimented the impact of splitting the fraud risk into its three components (Risk of Incentive, Risk of Attitude and Risk of Opportunity) through the fraud triangle (**decomposition method**).

It was evidenced that the decomposition risk assessment method increased the sensitivity of auditors to fraud clues and could better differentiate between a high and a low fraud risk condition. In Chapter 4 the application of the traditional and the decomposition fraud risk assessment methods was examined with a case study based experiment on a sample of 55 members of the Chamber of Hungarian Auditors. The main aim of this research was to gather evidence on the effectiveness of Hungarian auditors' fraud risk assessment when they apply the two different approaches.

Thesis 2: In line with the international research results, with the assistance of the decomposition fraud risk assessment method Hungarian auditors' sensitivity to fraud cues between a high and low fraud risk scenario is significantly greater than using the traditional audit risk model. (Fortvingler and Szívós, 2016)

Based on ISA 330[7] auditors in their audit program plan shall respond to the risk identified in the risk assessment phase. The Hungarian research tested how auditors amend a preliminary audit program and time budet after assessing risk.

Thesis 3: Contrary to our expextations, if auditors' assessed fraud risk is higher, they do not modify significantly the preliminary audit plan by including fraud effective tests compared to that condition when they assess lower fraud risk. Instead, in a high risk condition Hungarian auditors typically increase sample size and have a higher propensity to consult with an external forensic expert. (Fortvingler and Szívós, 2016a)

[7] ISA 330 on „The Auditor's responses to assessed risks'

Thesis 4: When auditors assess a higher fraud risk level, the total budgeted hours for the engagement is significantly higher compared to the case when auditors assess a lower fraud risk level and the percentage of hours they assign to more experienced audit staff is significantly higher than in a lower assessed fraud risk condition. (Fortvingler and Szívós, 2016a)

The conclusions of the research are beneficial both for professional bodies and also for regulators and standard setters.

2 THE DEVELOPMENT AND CURRENT STATE OF ACCOUNTING FRAUD RESEARCH

It is the responsibility of management and those charged with governance[8] to prepare and publish fairly presented financial statements and disclosures. On the other hand, based on the ISA 200[9] the overall objective of the auditor is to obtain reasonable assurance about if the financial statements as a whole are free from material misstatements, whether due to fraud or error. In this chapter the recent international academic literature is reviewed in relation to financial statement fraud and to the role of external auditors in detection and prevention of fraudulent activities. We place a special emphasis on publications related to the risk assessment methods applied by external auditors and the possible responses of auditors given to the assessed risk. We conduct our review in reflection of the relevant standards issued by IFAC as those lay down the profound bases of addressing fraud. The extent to which independent auditors are responsible for detecting fraud is examined as well as their tools to reveal fraudulent financial behaviour. The major aim here is to develop a literature overview which explores fraud related researches and can be beneficial for both academic researchers and for practitioners. This chapter concludes by identifying future research directions which integrate the independent auditors' practices into the existing academic literature.

2.1 INTRODUCTION

The aforementioned gloomy events in the past directed the attention of legislators and standard-setters to make the necessary amendments: the establishment of the Public Company Accounting Oversight Board (PCAOB) by the Sarbanes-Oxley Act in the U.S., the standards

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[8] Those charged with governance: the person(s) or organizations(s) with responsibility for overseeing the strategic direction and the obligations related to the accountability of the entity.

[9] ISA 200 on 'Overall Objectives of the Independent Auditor and the Conduct of an Audit in Accordance with International Standards on Auditing'

issued by the IFAC, and by the AICPA all address the subject of fraud as a phenomenon to be dealt with.

Irrespective of the fact whether an auditor provides audit services in the U.S, Japan, or Europe, the independent auditor should conform to generally accepted professional standards while involving in audit engagements. In this part, the general approach to fraud included in two leading standard systems on auditing is being examined.

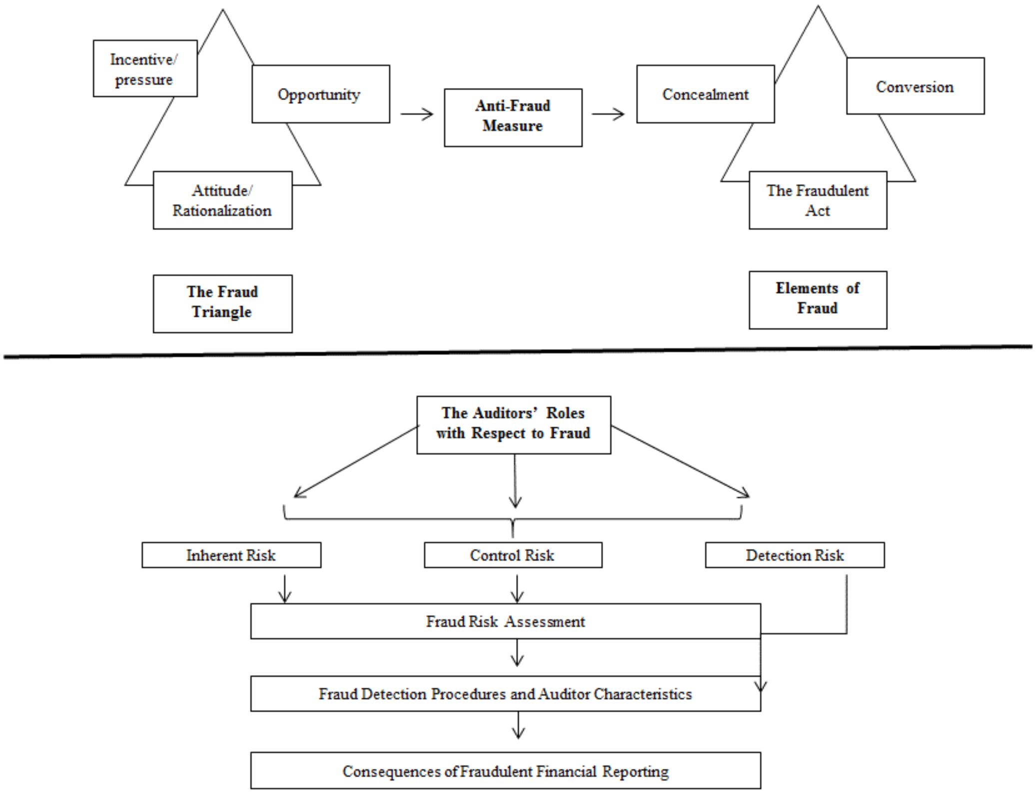
According to IFAC's mission, one of its principal aims is to reinforce the accountancy profession by issuing high-quality international standards applied in auditing. Having more than 170 members and associates in 130 countries (www.ifac.org), one can conclude that it is a globally acknowledged organization. Its independent standard-setting body, the International Auditing and Assurance Standards Board (IAASB) develops standards for, amongst others, auditing, and also promotes the convergence of relevant international standards. Within the framework of the so-called clarity project, the IAASB revised and redrafted the ISAs, being implemented all over the world. In the European context, the Directive 2014/56/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2006/43/EC on statutory audits of annual accounts and consolidated accounts imposed the use of ISAs for statutory audits in the European Union.

In addition to the activity of IAASB, the Auditing Standards Board (ASB) of AICPA, charged of issuing comprehensive standards on auditing in the U.S, also launched a clarity project, in parallel with IAASB, converging Statements on Auditing Standards (SASs[10]) with the ISAs. The so-called generally accepted auditing standards (GAAS) now clearly indicate the requirements the independent auditor has to fulfil when providing audit services.

[10] As a result of the clarity project, the clarified SASs are referred to as 'AU-C' within the AICPA's Professional Standards.

2.2 LITERATURE REVIEW

Fraud related research has an extensive background and history in the international academic literature. Not only researchers but also regulators and practitioners can benefit a lot from the findings of these papers. This section is primarily based on two significant review articles written by Hogan et al. (2008) and Trompeter et al. (2013). Our aim here is to gather an understanding of fraud-related researches, which will serve as an input for us in identifying our own research direction. Recent researches have been conducted based on the Auditor's Model with Respect to Fraud (3. Figure), developed by the synthesis work of Trompeter et al. (2013).



3. Figure The Auditor's Model with Respect to Fraud, Trompeter et al. (2013)

Hogan et al. (2008) reviewed nearly 120 papers published until 2008 covering research areas based on the perspectives of the fraud triangle.

Fraud itself contains three elements; 1) incentive (or pressure) to achieve a target, 2) opportunity to commit a fraud, and 3) rationalization (or attitude) to do so, together widely-known as 'fraud triangle' in the academic literature (Cressey, 1973). The perception and assessment of the three elements is a key dimension of the research as fraud risk related researches define fraud as the function of these three determining factors influencing the behavior of a potential fraudster. Incentive is the perceived motivation or pressure on individual to commit fraud. Such incentive can be the pressure to achieve analysts' forecasts in the case of a listed company, or the motivation to pursue accounting profit which comes from large profit related bonus compensations. The opportunity arises when certain conditions facilitating the perpetration of fraud are in place. The lack or weaknesses of proper internal control might allow the misappropriation of assets. Inappropriate board structure or weak oversight might also facilitate the manipulation of accounting records in order to report higher earnings. Through the attitude, a person can rationalize the act itself.

The research of Hogenet al. (2008) synthesis shows that there is sufficient number of papers on investigating the incentive / pressure and opportunity components of the fraud triangle, however less indicative papers can be found for the attitude / rationalization aspect. There is significant empirical evidence how analysts' forecasts, rapid growth, compensation incentives, stock options, the need for financing and the fact of poor performance contribute to the higher probability of financial statement fraud. The literature synthesis also highlights the importance of corporate governance in reducing opportunity to commit fraud. As a future field of research the authors recommended the investigation of those tools and techniques (e.g. data mining, continuous auditing, pattern recognition etc.) which can be used by both auditors and fraud examiners and could improve the efficiency and effectiveness of the fraud detection process. High-risk areas such as revenue recognition, accruals, fair value measurement or top-level journal entries have been barely researched and evidenced so far. The investigation of the differences between the mind-set of financial auditors and forensic experts would be also beneficial.

In 2013 Trompeter et al. (2013) extended the fraud triangle approach with several aspects (see 3. Figure). In their paper they collect and summarize papers and researches between 2008 and 2013. They criticise the fraud triangle approach as it focuses only on the pre-fraud state. First Dorminey et al. (2012) stepped out of this comfort zone and turned the attention to the fraudulent act, the concealment and the conversion. The fraud triangle represents the fraudster itself, while the right-hand triangle on the figure represents the fraud act, in-between those measures (corporate governance, internal control, regulation, standards, financial audit, forensic examination) can be identified which aim at reducing the opportunity and likelihood of committing fraud. These measures obviously have an impact on how the fraudster evaluates its opportunity within the framework of the fraud triangle. The lower section of the model (below the line) pays a higher attention to the risk assessment procedure of auditors. We can identify that the incentive/pressure aspect has a strong link to the inherent risk while the opportunity aspect interacts with the control risk. All of these have a significant impact on the risk assessment of auditors. After the auditors consider the possible fraud acts together with concealment and conversion possibilities, they can easier determine the efforts which should be made to detect fraud and keep detection risk at an acceptable level. Based on this model it is clear that audit procedures should be based both on the fraud triangle concept and on the elements of the fraud. Trompeter et al. (2013) state that there is a continuing need to explore further questions in the field of the incentive/pressure aspect. Understanding the exact way how incentives have an impact on earnings management would be beneficial for both standard setters and auditors to improve risk assessment procedures. Examining how fraudsters see the anti-fraud measures of the corporation would help to construct a bridge between the fraud triangle and the elements of the fraud. Several papers have been issued on understanding fraud risk assessment procedures, but fewer papers discuss the detection techniques and tools. So future research should also address how auditors respond to the assessed risk.

2.3 FRAUD RISK ASSESSMENT

Both AU-C sec. 240 (previously SAS No. 99.) and ISA 240 base the risk assessment of fraud on the elements of the fraud triangle. This means that auditors have to assess the presence of incentives / pressure, the opportunity, and the rationalization in relation to commit fraud. Hogan et al. (2008) concludes that academic research has brought sufficient evidence, and now it has been proved that there is a strong relationship between the probability of fraudulent financial reporting and the existence of incentives/pressure, opportunity and rationalization in the organization. Bell and Carcello (2000) proved the existence of fraud triangle conditions for companies associated with fraudulent financial reporting and identified the following risk factors indicating fraud: rapid growth, weak control environment, management overly keen on meeting analysts' forecasts, management that deceived auditors. However, this study did not find material relationship between fraud and traditional risk factors, such as high management turnover, rapid industry growth, declining industry conditions, significant and unusual related party transactions, bonuses linked to meeting profit targets etc. Hernandez and Groot (2007b) found that the use of incentive systems and opportunities for fraudulent financial reporting are associated with higher fraud risk. The results also indicate that auditors consider mitigating controls over management attitudes as more important than fraud incentives and opportunities in determining the risk of fraud. They gathered evidence that when high fraud risk was measured internal control (accounting and governance controls) were not effective. Internal control is supposed to be a useful tool for preventing and detecting fraud, but weaknesses in the system may undermine the accomplishment of this goal.

Knapp and Knapp (2001) proved that audit managers are significantly more effective than audit seniors in assessing the risk of fraud with the use of analytical procedures. In their experiment they evidenced that experienced audit managers assessed the risk of fraud high when fraud was present in the case, and low when fraud was not present. In contrast, the audit seniors' risk assessment did not differ significantly when fraud was or was not present. Their study also examined the impact of using instructions for fraud risk assessment and found that fraud risk assessment was more successful when explicit instructions were given than when these were not given to the auditors. Auditors without explicit instructions could not successfully differentiate between a high and a low fraud risk case. As a conclusion, greater experience and explicit fraud risk assessment instructions result in the most effective fraud risk assessment. Researchers like Braun (2000), Hoffman and Patton (1997) and Hackenbrack (1992) tested the impact of the audit environment on the process of fraud risk assessment. The investigations evidenced that time, budget pressure or the accountability to superiors have a negative impact on detecting fraud. When providing relevant and irrelevant information to auditors they suffer from a "dillution effect". Hernandez and Groot (2007b) found that managers' integrity, honesty and ethics are considered to be the most important factors in fraud risk assessment, followed by concerns about aggressive revenue recognition and accounting estimates.

"Red flags" (signals) is the official term used to refer to the symptoms of fraud. Red flags are usually grouped around the elements of the fraud triangle. Albrecht and Albrecht (2003) in their paper drew up the following grouping of red flags: 1) accounting anomalies; 2) internal control weaknesses, 3) analytical anomalies, 4) extravagant lifestyle, 5) unusual behaviour and 6) tips and complaints. They also discuss the factors which increase the opportunity for fraudulent behaviour and highlight the importance of effective internal control as the most prominent tool for minimizing the opportunity of committing fraud. Albrecht and Romney (1986) highlighted that the presence of red flags can frequently be observed without fraud actually to be identified. It is also challenging to factor the red flag into the fraud risk assessment method and into the audit plan (Patterson and Noel 2003) as the number of red flags and their amounts may be relatively small due to the fact that perpetrators do everything to conceal their act.

Relatively extensive researches have already been conducted on using questionnaires and checklists in the process of fraud risk assessment. After testing 137 auditors Pincus (1989) found that the use of “red flag” questionnaire in the process of fraud risk assessment resulted in a lower level of fraud risk perceived in a fraud case than in the case of those auditors who did not use questionnaires. This suggests that the application of questionnaires is not just ineffective but also dysfunctional in a fraud case. Asare and Wright (2004) tested the usage of checklists in fraud risk assessment and found that the checklist users determined fraud risk at lower level than non-users in a high fraud risk case. They also investigated the impact of giving auditors a standard audit program before designing their final audit program as a response given to the assessed risk. Those auditors who were given a standard audit program developed a less effective final program than those without the standard program. Their study also proved that the fraud risk assessment is more effective if auditors’ propensity to consult with a fraud expert is higher.

Significant number of researches are focusing on the impact of fraud related auditing standards. Glover et al. (2003) and Zimbelman (1997) both found that fraud related standards (such as SAS No. 82) improve the auditors’ sensitivity to increased risk and also have an impact on the extent of the audit plan, but not on the nature of the audit plan. Wilks and Zimbelman (2004) proved that auditors using long checklists are usually inaccurate in assessing fraud risk, and that auditors are usually insensitive to new evidences regarding fraud risk. In their research they examined the impact of further decomposition in the auditors risk assessment to consider all three elements of the fraud triangle. They also recommended that auditing standards should encourage auditors to gather new, unusual or random audit evidences. Carpenter (2008) examined the efficiency of brainstorming sessions in fraud risk assessment and experienced more quality risk assessment ideas among audit seniors and audit manager after the brainstorming session than among individual auditors without brainstorming. These findings are consistent with the results of a PCAOB inspection (PCAOB 2007). Brazel et al. (2010) evidenced that face-to-face brainstorming creates a link between fraud risk assessment and fraud related testing, so the quality of the brainstorming session has an impact on the quality of the fraud risk assessment. They found that the brainstorming is more effective if it is done at early stages of the audit process. Efficiency of the brainstorming can be further improved by involving IT experts into to brainstorming. Eining et al. (1997), Bell and Carcello (2000) and Wilks and Zimbelman (2004) evidenced that the use of regression models and expert systems improve the assessment of fraud risk, however there is no evidence that the application of checklists could significantly assist auditors in risk assessment. Researches also indicated that analytical procedures are not really successful in detecting fraud. This can be explained by the fact that managers are in the position of concealing or explaining fraudulent reporting or unusual transactions. However, the usage of methods like the Benford's Law (Durtschi et al. 2004, Cleary and Thibodeau 2005, Nigrini 2005) or neural network systems (Lin et al. 2003, Koskiavaara 2004) facilitates a more accurate risk assessment. Trompeter and Wright (2010) tested analytical procedures and found that as auditors set their expectations and evaluate management explanations based on information received from the client, if the client is actively engaged in committing and concealing the fraud, the traditional analytical procedures are not sufficient. The client can also devise the fraud act and it is very likely that it will not be detected by the traditional analytical procedures. Srivastava et al. (2009) demonstrates an evidential reasoning approach with the Bayesian framework to support fraud risk assaesment. The formula contains the risk and controls linked to the aspects of the fraud triangle (incentives, attitude and opportunity) and facilitates the precise assessment of the impact of the presence or absence of and interrelationships between the three fraud risk factors. The formula can also be used for audit planning and evaluating audit findings. Former research papers recommended the use of decision trees, but this is not appropriate in situations, such as fraud risk assessment, where there are several interrelated variables. The authors emphasized the importance of incorporating the impact of error besides the impact of fraud in the model and set it as a future research direction. Fukukawa et al. (2011) investigated two important questions in their article. First, based on archival working papers of 228 clients of a Japanese audit firm, the authors grouped the individual client risks into risk factors. Second, they proved that there is a relationship between the risk factors and the allocation of audit resources. This means that the total audit hours budgeted are influenced by the risk factors identified by the factor analysis. The authors noted that there are only a few authoritative guidelines on how such grouping should be done. As the research supports the idea that audit resource allocation decisions depend to a greater extent on broad risk factors, rather than on individual risks, it may be beneficial to provide guidelines and training which could enhance audit efficiency. Authors also highlighted the need to relocate research resources from the examination of total budgeted hours as a response to the nature of the audit procedures in the program. Hammersley et al. (2011) investigated how audit seniors modify their audit program if they identify a heightened fraud risk from a different perspective. They found that internal control weaknesses increased the perceived fraud risk level of auditors; however as a response they were unable to develop a higher quality audit program. Trotman et al. (2012) based on their experiment found that the auditors' fraud risk assessment significantly depends on whether or not external evidence disconfirms the attainment of a key business objective, but only when conflicting messages are provided by the two kinds of internal evidence. Auditors tend to ignore external evidence if management controlled internal evidences are showing low fraud risk., Srivastava et al. (2011) tested the Dempster-Shafer theory to assess fraud risk. The model contains four types of risks, a) the risk that management have incentives to commit fraud, b) the risk that management have opportunities to commit fraud, c) the risk that management have attitude to rationalise committing fraud, and finally d) the risk that the auditors will fail to reveal fraud. The study not just demonstrates how to use the model in determining fraud risk, but it also gives guidelines how to use it in planning the audit procedures. It takes into account the risk of both error and fraud. We have to note that this model does not decompose the fraud risk into components of the fraud triangle. The biggest problem of audit risk models is that they do not give a hand to express the perceived risk with numbers, and as a consequence many professionals argue if they have any practical value at all. Chang et al. (2008) focused on the detection risk within the audit risk model in order to increase audit quality. They used fuzzy theory to assist auditors in risk assessment and found the method suitable for fields with high subjectivity, such as audit risk assessment. They identified 43 critical risk factors influencing detection risk (combination of inherent risk and control risk) and allocated them to three dimensions and eight categories. Johnson et al. (2012) conducted an experiment with 101 auditors in order to examine how observable indicators, such as the client narcissism or personality, are taken into consideration by the auditors in the risk assessment process. They found that there is a significant and positive relationship between narcissistic client behaviour and the overall level of risk assessed by the auditor. Favere-Marchesi (2013) conducted an experiment with 60 audit managers and found that those who decomposed fraud-risk had a significantly different assessment of risk than those who only categorized the risks into risk factors. The experiment also found that those auditors, who decompose the fraud risk, usually feel higher need to adjust the audit plan and increase testing in the case of higher perceived risk.

An important examination was conducted by Brazel et al. (2006) which revealed that firms involved in fraudulent financial reporting experienced a significant difference between financial and non-financial measures. This suggests the importance of examining non-financial measures in risk assessment. Brazel et al. (2009) examined if auditors use publicly available non-financial measures effectively in order to assess the reasonableness of financial performance. Their study found that firms that committed financial statement fraud have a higher difference in percent in change in revenue growth and percent change in NFMs than those competitors that did not showed fraudulent behaviour. These differences can be positively associated associated with financial statement fraud. The authors suggested the extension of the traditional fraud risk assessment model with the assessment of non-financial performance measures. The paper also provided benchmarks for the possible inconsistencies between financial and non-financial performance measures.

Besides fraud risk assessment it is also important to examine what is the impact of the risk assessment on the elaboration of the audit plan and audit procedures. Researches provided very diverse results whether auditors amend their audit plan when they experience an increased fraud risk. Neither of the previously mentioned Glover et al. (2003) nor Zimbelman (1997) could prove that the increased level of fraud risk is also presented in the content and quality of the audit plan. Johnstone and Bedard (2001) examined the impact of increased error and fraud risk factors on the audit engagement planning. They identified that higher error risk factor had an effect on the engagement, but higher fraud risk did not have any identifiable impact on the engagement planning. Hoffman and Zimbelman (2009) evidenced that auditors affectively modify their audit plans when it is reasoned by the brainstorming. Hammersley et al. (2011) found an improving relationship between fraud risk assessment, evidence evaluation and the testing conducted by auditors. Carpenter et al. (2011) proved that internal auditors conduct more fraud related audit procedures when fraud risk is increased if they work in groups. PCAOB observations (2008, 2010) say that deficiencies exist in the response of auditors to the perceived fraud risk. It is not clear if auditors do not know how to respond, or they do not respond with the right procedures. The latest researches say that brainstorming, strategic reasoning, and documentation changes can result in enhanced links between auditors' fraud risk assessment and their testing. Trompeter et al. (2013) indicates this field as a prosperous field of future research.

2.4 RESEARCH RESULTS AND PUBLICATIONS FROM HUNGARY

As our research, among other objectives, aims at testing the application of different fraud risk assessment approaches on a sample of Hungarian auditors, it was inevitable to present and discuss the relevant national research results and professional papers published on this field.

Lukács (2007) in his paper used the results of an international survey published by ACFE (Association of Certified Fraud Examiners) to present the most commonly involved general ledger accounts in fraud cases. The author differentiates between the concepts of creative accounting, unintentional error and fraud.

Szász (2013) in her dissertation examined the nature and concept of accounting fraud on international level by reviewing and analysing past cases of fraudulent financial reporting. She stated that accounting fraud occurrences cannot be treated as purely accounting issues, usually the fraudulent case cannot be described and analysed entirely by accounting principles and categories. After a thorough examination the author concluded that the main motivating factor for fraudulent financial reporting is the high profit requirement which pressures management. It is also noted that in the examined cases the main features of corporate governance (board of directors, internal audit etc.) were not able to serve the interest of the owners and prevent the fraud. The author concluded that more rigorous accounting and auditing standards, the maintenance of moral intactness and an effective corporate governance system itself will not bring solution to the problems.

Mádi-Szabó (2015) discusses the responsibility of auditors in detecting fraud. After presenting the concept of the fraud triangle, the author emphasizes the importance of the risk assessment process and the responses given by auditors to the assessed risk.

When discussing audit or fraud risk assessment one shall have a thorough understanding of the concept of risk. The dilemma of risk and uncertainty was discussed by Bélyácz (2010) and Bélyácz (2011). Both risk and uncertainty has a strong relation to the concept of probability. Probability can be discussed either from an objective or from a subjective approach. The objective approach tries to quantify probability through the number of occurrences, while the subjective approach is based on the personal feelings of individuals towards certain assertions. Mohl (2013a) states that audit standards apply the subjective approach as risk assessment is based on the professional judgements of auditors. The author also argues that the auditors' scenarios can rather be described as an uncertainty than a risk. In a risky scenario we know the possible outcomes and we can assign probabilities to the outcomes, while in an uncertain condition we have information neither of the outcomes nor of their probabilities.

The first influential domestic papers on the field of audit risk assessment were published by Lukács (1998a, 1998b). Besides discussing the different risk components based on the classification given by the audit standards (Audit risk = Inherent risk x Control risk x Detection risk), the author differentiates the internal risk factors from the detection risk. Internal risk factors cover the inherent risk and the control risk. The paper emphasizes the risk which arises from inappropriate regulation. Detection risk is described by more than 20 different risk factors which arise partly from the personality of the auditor and partly from the procedures conducted by the auditor.

Szekeres (2007) examines the importance of quality assurance in the audit process. The author states that on one hand the quality assurance system contributes to the reduction of overall audit risk, while on the other hand high quality audit work partly depends on the risk assessment method which provides basis for planning the audit engagement, ensures the identification of critical and important fields of the audit.

Bordáné (2008) clarified a miss-concept regarding the improper understanding and application of the term ‘control risk’ in Hungarian language. Among Hungarian professionals control risk is frequently mixed up with the risk of internal audit. With the term ‘control risk’ the international profession refers to the risk that the internal control system of the company may not detect or prevent misstatements either due to fraud or error. When assessing the audit risk one shall consider the inherent limitations of control risk, that the internal control system of the company cannot detect entirely all the inherent errors or intentional misstatements. Consequently, the level of inherent risk cannot be reduced to zero.

Lukács (2008) in his empirical research investigated how Hungarian auditors conduct their tasks and typically what type of risk assessment method they use in their practice. The research revealed that only 60 % of the respondents complete the risk assessment regularly as part of the audit planning process, 22 % only if it is necessary and 11.5 % never includes this step into the planning process. He concluded that auditors in Hungary are not really fond of and comfortable with the risk assessment as an activity. The author stated that in default of audit risk assessment there is no room for a risk based audit. Here we have to note that these figures might have changed favourably in the last couple of years as a result of the more and more rigorous quality assurance system imposed by the Chamber of Hungarian Auditors.

Ladó (2010) examines whether the risk based approach is applied cost efficiently in practice. The author says that if auditors are asked to identify risks they usually review financial statements. By doing so the auditors can can identify the impact of different risks, but this approach does not underpin the identification of the significant and comprehensives risk sources. It is also advised to examine the roots of risks instead of focusing only on the symptoms.

Wágner (2011) in his paper talks about the difficulty of developing an objective risk assessment method. All the qualitative methods are really resource intensive and are based on professional judgements. Another important drawback of the audit risk assessment methods is that they approach risk basically from the financial statement point of view and ignore organizational and managerial issues. The majority of the risk assessment systems used in practice measures the level of risk as the function of its expected impact and the probability of its occurrence. However, in practice it is difficult to decide which of the following two cases represents higher risk for the business: an event with huge impact but low probability or one with high probability but low impact. Risk assessment methods usually evaluate risk factors individually (separated from other factors), however they ignore the impact of their interrelation. In an effective risk assessment system several, frequently hard to measure factors and also their interrelations shall be considered. This problem can only be resolved by the application of multi-dimensional decision modelling techniques with which a better quality of audit work can be achieved.

In his paper Ámon (2011) talks about the possible responses that an auditors can give to the assessed fraud risk. The author identifies that it is more important to focus on the nature and type of the audit procedures instead of the number of procedures conducted (e.g. sample size). The paper also suggests that auditors shall take the fraud risk into consideration in the planning stage of the audit.

Mohl (2012) examined and discussed the application of belief functions for risk assessment in the practice of credit institutions. Belief functions are well-recognized and broadly used on international level, but unknown for the Hungarian profession. Belief functions better describe the risk approach than probability functions, as they take into consideration three possible options: positive assurance, negative assurance and the lack of assurance.

In his doctoral dissertation Mohl (2013a) described the development of risk's concept in the practice of auditing. The author found that a part of Hungarian auditors, mainly those working individually or for smaller audit firms, conduct the risk assessment on an intuitive basis instead of following an audit risk assessment policy developed internally by their audit firm. The study also revealed that those auditors who regularly conduct risk assessment mainly use qualitative categories (low, medium, high) instead of quantifying the given component of the risk. The research work also evidenced that the majority of the auditors assessing the risk use a transaction based approach instead of a business based approach. A further finding of the study is that auditors conducting risk assessment could also benefit from the outcome of the risk assessment in later stages of the audit process (planning the audit program and procedures, executing the audit program and evaluating it. In a later study Mohl (2013b) concludes that the business risk based models are deemed to be the most effective methods to keep audit risk at an acceptable low level while maintaining the required standard of audit.

Fortvingler (2012) examined the importance of risk based approach in the audit of EU funds. The author stated that independent of the fact if EU funds or a business association is audited it is of vital importance to identify, analyse and manage the risk. In the case of auditing EU funds it is secondary to test controls that is based on a risk based approach. Fortvingler (2013) in a paper dealing with the audit of EU funds found that a higher convergence between IT systems at the EU level would result in a more efficient audit system.

2.5 Conclusions

Based on the numerous research papers reviewed, together with the two synthesis papers (Hogan et al. (2008) and Trompeter et al. (2013)) we can conclude that international academic research activity on the field of financial statement fraud is turbulent, extremely extensive and multidisciplinary. Prior international researches deeply investigated the components of the fraud triangle (incentive, opportunity and attitude) and brought several outcomes which are beneficial both for auditors and for standard setters as well. As a consequence of the complexity of this field, future research directions are expected to be even more cross-disciplinary, expanding well beyond the boundaries of accounting. Future accounting fraud related researches might be conducted on the field of psychology (e.g. decision theories such as evidential reasoning), management studies (organizational behaviour, human resources) and also on information technology. In the future a considerable research effort shall be made into the further investigation of the relationship between the incentives and management decisions, and the impact of internal control systems on the opportunity aspect of the fraud triangle. Fraud risk assessment will continue to be a highly and frequently tested issue, where there is a need to understand the impact of risk assessment on the audit planning procedure. It is also known from prior researches that auditors proved to be weak in producing a better quality audit plan in a high fraud risk case. This might result in an ineffective audit program which is not just unable to reveal and identify fraud, but it is also very expensive for the client. Very little research has been conducted on topics which examine how information technology solutions, such as the application of ERP systems, e-business and e-commerce influences the work of auditors.

Referring to Hungary we found that fraud in general and the auditors' risk assessment methods have already been discussed and investigated by some academics. Prior national researches used mainly the survey method to collect data. For instance the Hungarian auditors' practice and risk assessment was examined by Lukács (2008) and Mohl (2013a) by empirical surveys. However, we can conclude that neither of the implication of fraud risk assessment methods nor the relationship between IT systems and audit risk assessment were investigated. Case study experiments, which are frequent tools of international researches, have not been conducted by Hungarian academics so far. Research objectives are set out in line with the above observations. Our deliberate aim is to add valuable observations to the national audit profession.

3 THE IMPACT OF DATA AUTHENTICATION AND SECURITY ON THE RISK ASSESSMENT OF AUDITORS

3.1 INTRODUCTION

Fairly presented financial statements are factual, free from bias and any material misstatements, and reflect the commercial substance of the financial transactions at a company. These statements have a standardized format and should be prepared in accordance with the applicable financial reporting framework. External audits provide reasonable assurance to the owners of the business's on to what extent financial statements are free of material misstatement whether due to error or fraud. There is always a risk (control risk) that the business's internal control system cannot prevent, detect or correct misstatements. The necessary sources of the financial data are handled nowadays by ERP systems, triggered out the manual handwork. The applied ERP systems are different in companies according to the size and the business flows of the company. When it comes to a small or middle sized company, many of them use one generic system, which operates both the OLAP[11] (analysis) and the OLTP[12] (transaction processing) functions. There is a common risk to overwrite either intentionally or unintentionally the master data, which can influence the reliability of financial statements. Lots of control procedures assure that the contained data are valid and show the true and fair state of the business. In this paper, we review how control procedures in an ERP system can influence the level of control risk and thus the scope and quantity of the audit procedures performed by the financial auditor.

In the audit of financial statements there is always a risk that a misstatement appears at the assertion level which is material either individually or when aggregated and could not be

[11] OLAP: On-Line Analytical Processing
[12] OLTP: On-Line Transactions Processing

prevented, detected or corrected by the internal control of the company. This type of risk is called control risk and it plays an important role in the risk assessment of auditors.

The accuracy and relevance of master data and master files are essential for the fair presentation of financial statements. Today the application of ERP systems is quite common in business. It also means that ERP provides the platform where master data and master files are managed and maintained. There are transactions which increase the risk of misstatements in the financial statements. Such transactions are e.g. data migration, or unauthorized change of data in master files. These can have an adverse impact on the level of risk perceived by auditors who have to maintain the overall audit risk at an acceptable level.

This part of the dissertation is structured as follows. First, the authors define the risk assessment procedure of the financial auditors and then give a thorough literature review on the impact of information technology applications on the financial audit procedure and on risk assessment. Secondly, they prove the importance of master data management in the accuracy of financial statements and demonstrate an available tool in Microsoft Dynamics AX environment for checking the integrity and consistency of master data across all relations. In the conclusion section they investigate the interrelation between consistency check and the financial audit procedure.

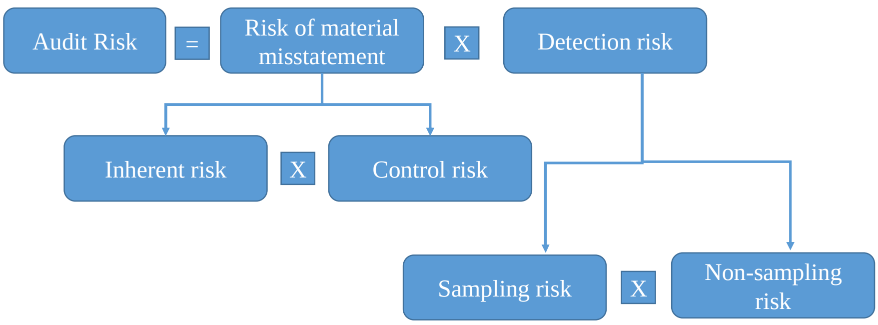
3.2 THE RISK[13] OF AUDITING FINANCIAL STATEMENTS

There is always a risk that the auditor expresses an inappropriate audit opinion about the financial statements, this is called audit risk. Risk assessment procedures are conducted by the auditor to understand the entity and its environment, including its internal control, to identify the

[13] Definitions are based on ISA 200

risk of material misstatement either due to error or fraud. Audit risk is made up of two components: the material misstatement risk and the detection risk.

Material misstatement risk can be split to inherent risk and control risk (Figure 9). Inherent risk is the susceptibility of an assertion to a misstatement that could be material, either individually or when aggregated with other misstatements, assuming that there were no related internal controls. Control risk arises in an assertion that could be material, either individually or when aggregated with other misstatements that will not be prevented, or detected and corrected on a timely basis by the entity's internal control. Detection risk is the risk when the procedures conducted by the auditor will not detect a misstatement. This derives from the fact that the auditor does not, and cannot examine all available evidence. The control risk and the inherent risk are the risks of business and exist independently from the audit procedure.



4. Figure The components of audit risk

AR (Audit Risk) = IR (Inherent Risk) x CR (Control Risk) x DR (Detection Risk)

ISA 200 states that in order to provide reasonable assurance the auditor should gather appropriate and sufficient audit evidence to keep audit risk at an acceptable level. Our study investigates the control risk, which is one of the three above mentioned risk factors. Control risk depends on the effectiveness of internal control designed and implemented by the management of the entity. Efficient internal control, however, can only decrease but not totally eliminate the existence of control risk. This means that a certain level of control risk will always exist. The most common examples are human errors and mistakes, and examples when the management and those charged with governance override control.

Based on ISA 315 definition, internal control is ‘the process designed, implemented and maintained by those charged with governance, management and other personnel to provide reasonable assurance about the achievement of an entity’s objectives with regard to the reliability of financial reporting, effectiveness and efficiency of operations and compliance with laws and regulations’. During a financial statement audit the auditor should acquire a reasonable understanding of the relevant aspects of the client’s internal control system. This covers the identification of potential misstatements, the consideration of the factors that affect the risks of material misstatement, and based on the first two the design of the nature and timing of further audit procedures.

Hypothesis 1: The application of data consistency check in an ERP (Enterprise Resource Planning) environment will reduce the control risk during the audit risk assessment and as a consequence auditors shall include less extensive substantive procedures and/or decrease sample size in their audit plan in relation to testing data migration process.

In order to test our hypothesis we provide an overview both of the relevant ISAs and of prior researches on the field. To demonstrate the impact of IT controls on audit risk assessment and planning, one possible control procedure, the data consistency check will be presented and discussed from standpoint of data validity and accuracy.

3.2.1 The impact of information system applications on the level of control risk

Companies can gain substantial benefits from using IT systems, however, this can also bring significant risks. The financial statement can be prepared based on information derived from IT systems which inaccurately process data or process inaccurate data, or in certain cases both at the same time. If users have unauthorized access to data it might result in improper changes in data or in the record of unauthorized or non-existent transactions, or inaccurate recording of transactions.

ISA 315 says that the auditor should understand the information systems applied by the company and all the related issues relevant to financial reporting. ISA 315 also says that the auditor shall overview the related accounting records, supporting information and specific accounts that are used to initiate, record, process and report transactions. It is also important for the auditor to understand the way the information system captures transactions and events that are significant to the financial statement.

Furthermore the auditor should understand how the company responds to the risks arising from the application of IT systems. An auditor can examine a computerized information system on one of the following ways:

- if the auditor has the required knowledge the IT system can be tested by the auditors itself,
- if the auditor does not have the required knowledge for the test it is recommended to involve IT expert,
- If the auditor does not have the required knowledge for the test and for some reason does not want to involve IT experts, the number of manual tests shall be increased.

Information technology controls (IT controls) are controls that provide reasonable assurance that the information techonology used by an organization operates as intended, that data is reliable and that the organization is in compliance with laws and regulations.

The expected **IT control procedures** an entity shall conduct can be split into two categories: 1) General IT controls and 2) Application controls.

General IT controls are those policies and procedures which support the appropriate operations of an information system. General IT controls cover the following: 1) data centre and network operations, 2) system software acquisition, change and maintenance, 3) program change, 4) access security and 5) application system acquisition, development and maintenance.

Application controls are procedures, either manual or automated, that run at business process level. The purpose of these controls is to maintain the integrity of accounting records. They are either preventive or detective. Most common application controls are: 1) controls over input: completeness, accuracy and authorization, 2) controls over processing, 3) controls over master file and standing data. The application of general IT controls and application controls are strictly interrelated in a way that they can either support or undermine each other. The strength of general controls can increase or decrease the reliability of application controls. For example the weaknesses in general control procedures, e.g. system development or software maintenance, or the authority of system users to sensitive data or system functions might result in a higher control risk as it can deteriorate the efficiency of application controls.

The level of control risk depends on the nature and characteristics of the company's information system. The company must manage the risk of using IT applications by setting up effective controls in respect of the nature of the information system.

3.2.2 The response of auditors to increased control risk

As stated in ISA 200 the auditor is responsible for maintaining the audit risk at an acceptable level. As the audit risk is the function of the risk of material misstatement and the detection risk, if the internal control system fails to operate efficient and effective controls over the IT system it necessarily results in increased control risk and thus in increased material misstatement risk. In order to maintain the acceptable level of audit risk the auditor should outweigh this effect by reducing the risk of detection. In this part we review what ISA 330 says about the auditor's required responses.

Based on ISA 330 the auditor must design and apply appropriate responses to the assessed risk of material misstatement at the financial statement level. If the auditor reveals that the risk of material misstatement (including the control risk) is high, substantive procedures that respond to the assessed risk shall be conducted. The auditor can respond the assessed risk of material misstatement by means of:

- maintaining the professional scepticism in the engagement team,
- more experienced staff with more sophisticated skills should be appointed,
- the use of the work of experts,
- higher supervision over the audit process,
- higher unpredictability in the selection and application of audit procedures,
- general changes in the nature, timing and scope of the audit procedures.

The response of the auditor to the assessed risk highly depends on the auditor's opinion of the control environment. If the control environment is effective the auditor might put higher confidence in the internal control and the audit evidence gathered internally. Inefficiencies of the control environment, however, have the opposite impact on the procedures conducted by the auditor. The auditor's responses to the ineffective control environment are as follows:

- more audit procedures shall be conducted,
- gathering more audit evidence from substantive procedures,
- greater number of locations shall be included in the audit.

Any material misstatement revealed by the auditor is an indicator of the weakness in the internal control system. The auditor may decide to:

- perform only substantive analytical procedures as they are sufficient to reduce audit risk to the required level,
- conduct test of details only,
- use a combination of substantive analytical procedures and test of details.

As the assessment of the risk of material misstatement considers the characteristics and reliability of the internal control system, the extent of the substantive procedures should be increased if internal control turns to be inefficient.

However, it should be highlighted that the auditor's risk assessment is a matter of professional judgement, so might not take into consideration all risks of material misstatement and there are inherent limitations to internal control, i.e. management can override controls.

3.3 LITERATURE REVIEW

Both the function of audit and the required audit procedures (analytical and substantive) went through significant changes as a consequence of more intensive ERP system application among businesses. The research conducted by Wright and Wright (2002) evidenced the fact that the application of ERPs significantly increases the control risk. They also stated that many of the risks come from inadequate training of personnel. However, efficient internal control procedures can outweigh the risk arising from the application. The companies must manage the control procedures properly as it costs approximately 50 to 100 times more to add functionality or to correct an error post-implementation that it would have cost to provide the proper functionality during the implementation (Goldberg and Godwin 2003).

Bae and Aschroft (2004) stated in their study that external auditors shall focus on two issues, on control activities and on information and communication, out of several components of an internal control system. Control activities are procedures to protect the company's assets and prevent the manipulation of accounting records. Information and communication are the timely identification, collection, processing and reporting of relevant data in a useful format, such that employees can effectively meet their responsibilities. It is essential for an external auditor to understand and document how the ERP system collects and processes data and what are the controls implemented in relation to the ERP system.

The research conducted by Messier et al. (2004), surveying the six biggest public accounting firms in Norway, investigated the impact of IT on the audit procedures performed by external auditors. The research also examined whether the origins of misstatements revealed by the audit are different for computerized and non-computerized business processes. They found that control procedures were missing more often in computerized rather than non-computerized business processes and there is an increase in the cause of misstatements resulting from missing and poorly designed controls and audit test. They also found that as IT emerged in business, a deterioration of the control environment and excess workload of accounting staff could be observed. The authors identified that the main reason auditors could not rely on the internal control was their belief that substantive testing was more effective.

Some earlier researches indicated (e.g. Hunton et al., 2004) that financial auditors recognize the risk associated with the ERP systems differently than IT auditors. Only certified public accountants were included in the research and the survey found that financial auditors were less concerned than IT auditors with the increased risk of the ERP implementation (e.g. business continuity, database security, application security). Financial auditors had a higher belief in their capabilities to evaluate risk in both computerized and non-computerized information systems. Financial auditors need the expertise of IT auditors and a strong cooperation between them is required. A study conducted by Brazel and Agoglia in 2007 showed that auditors having a higher information system expertise assessed higher control risk in the case of new information system (e.g. ERP) implementation than those not having previous IT experience and when internal control and computer assurance specialist competence was low, financial auditors planned more extensive substantive testing. As we evidenced above the relevant standard on auditing (ISA 315) requires the financial auditors to change their audit procedures and strategies in response to changes in the audit clients' information systems. However, some researches indicated (e.g. POB 2000) that the level of and the change in control risk sometimes are not reflected in the audit procedures performed by financial auditors.

As the consequence of using IT applications and ERP systems in businesses, the auditors were forced to cope with the challenges of providing audit in IT environment. Many professional bodies (IFAC – International Federation of Accountants, ISACA – Information System Audit and Control Association, AICPA - American Institution of Certified Public Accountants) have issued standards referring to this issue. The survey of Yang and Guan in 2004 examines the importance and advantages of using these standards in financial statement audits and emphasizes the importance of having a thorough understanding of these guidelines, standards by the auditors. Vendrzyk and Bagranoff in 2003 investigated the impact of information system audit on the work of financial auditors. They found that in the last couple of decades the role of IT audit has shifted from a support tool towards an important pillar of financial audit. They also revealed that financial auditors found the test of general and application controls very important and the weaknesses of these controls have an impact on the scope of the audit procedures performed by financial auditors.

Based on reviewing all relevant literature Kanellou and Spathis 2011 stated that ERP systems exert a significant impact on financial audit and internal audit. According to Kuhn and Sutton 2010 in ERP environment errors might be undetected if there are no sufficient audit procedures performed, so internal control procedures shall be improved. Several risks appear and the most significant ones are related to information integrity, transaction errors, transparency of data and fraud.

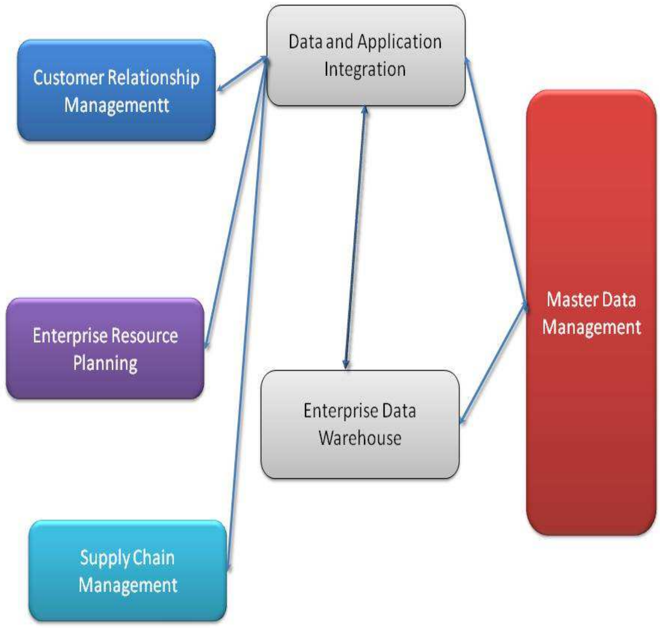
3.4 MASTER DATA MANAGEMENT

One of the first steps of keeping the system data validation is to secure the integrity and consistency of the Master Data. If Master Data records can be overridden, like the legal entity, this could lead to a serious problem. The area of the Master Data has to be first identified, and rules must be declared on how the change process will look like in this area. The area which will be called Master Data can be described on its way by interacting with other data areas. In ERP systems, the generally called Master Data is usually involved in each transaction (Forester, 1961). For instance a customer can buy a product; a vendor can sell an accessory. Between the master data and the transactional data, these relationships can be examined. These are the main areas, which can be covered by this definition:

- Vendor and customer core data
- Global Address Book
- General Ledger

- Inventory
- Fixed Assets
- Open Financial Transactions (e.g. open purchase order, open sales orders etc.)
- Warehousing and transportation data
- Production data

There is another way of defining Master Data by its life cycle. These functions describe the following operations: Create, Read, Update, Delete, Search, generally called SCRUD. When we define the Master Data this way, it will slightly change from company to company. It is a common experience that Master Data generally tends to be more volatile than transactional data, which means that it is important to keep the validity. The key usage of Master Data is reusability; we want to use the valid data as a basic of the transactions entered in the system. ERP's role is becoming more and more complex and the need is common for storing the Master Data only in one place and reuse it via a common channel. Proper Master Data Management could be vital (Figure 10), for instance a typing mistake in an invoice ship-to or bill-to address may cause problem and confusion. But we also mention the possibility of a mistyped price in the item master, an incorrect account number in account master – these actions can lead to even fraud-like actions. So maintaining the Master Data, and keeping the validity and consistency is very important to avoid these kind of issues when operating an ERP system.



5. Figure Data flow in the area of master data management

Suppose that the current status of the Master Data does not contain any errors. In this case, we should secure, that only one used entity exists, and no one uses local copies from cache, etc. An older and not up-to-date version of Master Data could cause exactly the same problems as mentioned in the previous section.

There are many conglomerates, which are expanding via mergers and/or acquisitions. Each time they acquire a company, the following problem occurs: the acquired company has its own Master Data and transactional data. This fact can lead to issues at merging: the structure of the data is different, sometimes came from different ERP, and there are possible duplicates. When the company acquired comes from a corresponding area of business, which is a possible situation, they likely to have the same customers, vendors. Transactional data have to be checked one by one for all of these vendors and customers. Items, attributes and inventory Master Data could be even harder to reconcile, when the corresponding parts were supplied by the same vendor, but probably with different item and vendor identifiers. Handling these kind of problems can be a part of the company's change management process (Figure 11).

6. Figure Change management structure

Common data cleansing issue is to consolidate the different versions of the same data element. Let's get an example, the same vendor, who can have several business names, site addresses, phone and fax numbers. The name of the business responsible can be written as Mátyás Gábor, Gábor Mátyás, Gabor Matyas, Matyas Gabor, and in a lot of other versions. The data cleansing in this case needs a lot of manual handwork, because normal database data update queries cannot resolve this issue correctly (Ősz and Fodor 2013).

At this stage it is important to estimate the amount of fully or partly invalid data. There are just limited tools for this estimation and only fot the syntax issues. Right now the exact estimation needs a lot of handwork beacuse of the hardnesses in semantic comparison automatization.
There are a lot of advantages, when a company has a clean, up-to-date and valid Master Data:

- can improve customer satisfaction,
- could save time and money in business operations,
- could reduce the danger of loss of revenue,
- could reduce the possibility of legal issues when preparing financial statements,
- reduces the time need of the database maintenance,
- minimizes the possible impact of having a corrupt database.

It is clear about these reasons, that having a real consistent and valid set of Master Data is vital for every ERP systems. All the policies, processes and systems, which are needed to achieve this is known as Master Data Management.

If Master Data Management is well defined, we should note, that it is just partly a technological problem, but the most difficult things to solve in this area are related to business processes and internal data flows.

Standardizing the data is often the most difficult part of making the right Master Data. On the technical side, at first the data structure has to be normalized to 4th normal form. After normalization the missing values have to be inserted, for instance the default values and the initial setups. Often there is a next step when standardizing the values, e.g. convert all dimensions to metric, all prices to a common currency. In this case at multinational companies there is a need to have a solution for cross-converting.

In this chapter we turn our attantion to a specific method of Master Data validation. What kind of algorythms can be used to automatize the validation process, and how can the human factor be minimized? Future research efforts are needed on how can the amount of invalid data be determined and how can it be estimated?

3.4.1 Consistency Check, a proposed methodology to reduce control risk

Consistency Check is one of the strongest tools in Microsoft Dynamics AX to secure the validity and consistency of the transactional data. Technically it is a batch processing tool, which validates every transactional data in the system, and checks the connections between the other transactions and Master Data as well. The running time of this tool can be extremely long, depending on the number of the transactions in the system.

Tables in Dynamics AX can be divided into three categories: 1) master data tables like Customers, Ledger Accounts, Vendors, etc.; 2) transaction headers like Sales Orders, Purchase Orders and 3) transaction details like Sales Order Lines, Purchase Order Lines, etc. When a transaction is entered into Dynamics AX, the necessary indexes and keys are updated for connecting Sales Orders and Lines. Sometime these records can be abandoned, which means, that the parent record was deleted while the child records still exist. These are called orphan records[14], because the transaction still exists, but either the parent or the child does not exist anymore.

If we have numerous orphan records, it can slow down the performance. To avoid these situations, AX2012 has a tool, which is called consistency check. The basic idea behind this tool is to go through the whole database and scan for orphan records. Keeping the transactional data up-to-date is vital for every ERP system, no matter what was the scenario because these records remained orphaned.

[14] Orphan records are records of data that have no longer connection to other data.

The ConsistecyCheck framework is the core of the Dynamics AX data migration process. If we want to use it as a whole integrity check for the database, more tables and rules can be inserted into the validation process. These modifications should be derived from the SysConsistencyCheck base class, and should make the following methods: executionorder(), run(), description(), helptext() (Figure 12). All the derived classes should overwrite these methods to specify the related tables and methods. The kernelCheckTable and kernelCheckRecords methods check the relation between these tables. The modifications are essential, because the standard consistency check which comes out of the box with dynamics AX does not contain the necessary areas for a specific implementation.

```
Query                           query;
QueryBuildDataSource            qbds;
QueryRun                        queryRun;

// LedgerTable
this.kernelCheckTable(tableNum(LedgerTable));

// LedgerJournalTable
query    = new Query();
qbds     = query.addDataSource(tablenum(LedgerJournalTable));
qbds.addRange(fieldNum(LedgerJournalTable,posted)).value(enum2
queryRun  = new QueryRun(query);
this.kernelCheckRecords(queryRun);

// LedgerTableAlterntive
this.kernelCheckTable(tableNum(LedgerTableAlternative));

// LedgerTableAlternativeTrans
this.kernelCheckTable(tableNum(LedgerTableAlternativeTrans));
```

7. Figure LedgerConsistencyCheck run() method

These customizations enable for example an Independent Solution Provider (ISV) to include their data area in the consistency and integrity check. This also prevents users from false positive checks.

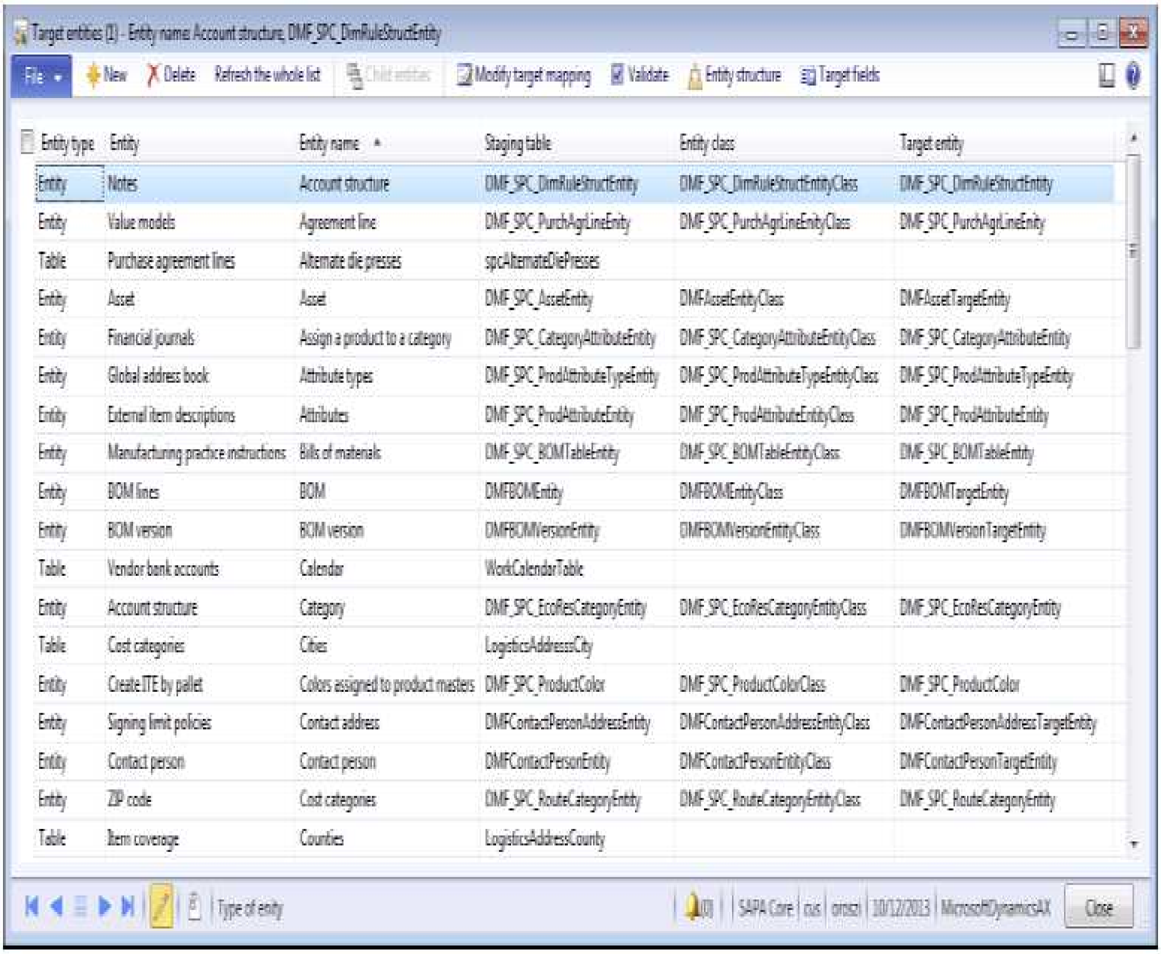
There are standard tools for maintaining transaction integrity in Dynamics AX, like ttsLevel (SQL transaction level) checking and forUpdate checks within data manipulation codes. Although these are low level tools, we should mention them, as the right usage of them makes the consistency check cleaner on the technical side. If we check the functionality of forUpdate, we can see that it ensures that a record can be deleted or updated only if it was first selected for update. The ttsLevel check works similarly, ensures that a record can be updated or deleted only in the same transaction scope as it was selected for update. The transaction scope is bordered by the ttsBegin and ttsCommit. The first marks the beginning of the scope, and guarantees that all updates are consistent which are performed until the transaction ends. The second marks the successful end of a transaction, and commits all the changes. If there are any circumstances which deny the transaction to be consistent, the ttsAbort can discard all the changes and rolls back the database in the previous state. Maintaining referential integrity is a vital point for any ERP applications. In Dynamics AX 2012, we can model table relations with rich metadata content and express referential integrity. Dynamics AX 2012 does not represent table relations as SQL foreign table key constraints, because of the huge performance overhead in the SQL server. The application code can also violate referential integrity. In this case, referential integrity maintenance means that the data manipulating operations have to be performed in correct order. This is most vital when records are deleted and created. The parent record must be created first, before the child records can get the correct foreign key. And the following is also true; the child records must be deleted first before the parent records. Ensuring this from code can be hardly maintained, especially with the strongly normalized data structure of Dynamics AX 2012. That is the reason, why Dynamics AX 2012 provides a new programming concept, which is called Unit Of Work. This is basically a set of data manipulation methods, which are performed on the related data. The application code establishes the connection within the data in memory, modifies them, registers the modifications and then requests the Unit Of Work to perform the necessary operations in the correct sequence. For example, if the RecId of the header comes as a foreign key to the lines, we cannot insert lines first because we need the RecId of the header record. Also we cannot insert the header first, if we need SUM from the lines. If we use the Unit Of Work class, all these are handled by the AX kernel itself.

Troubleshooting these data consistency issues during upgrading to a newer version of Dynamics AX or migrating to / from a different ERP system is vital part of the Data Migration process. In the first test after the migration, it is natural to have consistency errors both during and after the process. There are some guidelines to follow which can help quickly to find the root cause of the issues. At first, one has to check the generate mapping form to see if there are any mapping errors. After this it has to be determined if the issue is on the source or the target side of the process. Data Consistency Check can help this decision. There are two options:

- <u>The data looks corrupt</u>: which means that the issue occurred in the source side. We have to determine the source table and the transformations made on this table. If the table is part of a transformation, one has to be sure which tables were populated and with what kind of outcomes.
- <u>The data is ok</u>: the issue is on the target side. If the data were copied correctly during the bulk copying, the script, which was used during the data migration, has to be determined. From this point, we can debug the script to determine the critical operation. It is also useful to check the dependencies of the script.

After this decision, the data migration process has to be corrected, reran, and the consistency should be checked again. After the check, we can quickly determine if there are any modifications needed for the process.

The most important usage of the Data Consistency Check is carried out after a successful import of data, thus after the Data Migration. It assures that data are consistent through different relations and cross references. It prevents the system from becoming corrupted, and can warn for the underlying problems under the hood. If we cannot pay enough attention to these issues, they can seriously jeopardize the stability of the system.



Entity type	Entity	Entity name	Staging table	Entity class	Target entity
Entity	Notes	Account structure	DMF_SPC_DimRuleStructEntity	DMF_SPC_DimRuleStructEntityClass	DMF_SPC_DimRuleStructEntity
Entity	Value models	Agreement line	DMF_SPC_PurchAgrLineEnity	DMF_SPC_PurchAgrLineEnityClass	DMF_SPC_PurchAgrLineEnity
Table	Purchase agreement lines	Alternate die presses	spcAlternateDiePresses		
Entity	Asset	Asset	DMF_SPC_AssetEntity	DMFAssetEntityClass	DMFAssetTargetEntity
Entity	Financial journals	Assign a product to a category	DMF_SPC_CategoryAttributeEntity	DMF_SPC_CategoryAttributeEntityClass	DMF_SPC_CategoryAttributeEntity
Entity	Global address book	Attribute types	DMF_SPC_ProdAttributeTypeEntity	DMF_SPC_ProdAttributeTypeEntityClass	DMF_SPC_ProdAttributeTypeEntity
Entity	External item descriptions	Attributes	DMF_SPC_ProdAttributeEntity	DMF_SPC_ProdAttributeEntityClass	DMF_SPC_ProdAttributeEntity
Entity	Manufacturing practice instructions	Bills of materials	DMF_SPC_BOMTableEntity	DMF_SPC_BOMTableEntityClass	DMF_SPC_BOMTableEntity
Entity	BOM lines	BOM	DMFBOMEntity	DMFBOMEntityClass	DMFBOMTargetEntity
Entity	BOM version	BOM version	DMFBOMVersionEntity	DMFBOMVersionEntityClass	DMFBOMVersionTargetEntity
Table	Vendor bank accounts	Calendar	WorkCalendarTable		
Entity	Account structure	Category	DMF_SPC_EcoResCategoryEntity	DMF_SPC_EcoResCategoryEntityClass	DMF_SPC_EcoResCategoryEntity
Table	Cost categories	Cities	LogisticsAddressCity		
Entity	Create ITE by pallet	Colors assigned to product masters	DMF_SPC_ProductColor	DMF_SPC_ProductColorClass	DMF_SPC_ProductColor
Entity	Signing limit policies	Contact address	DMFContactPersonAddressEntity	DMFContactPersonAddressEntityClass	DMFContactPersonAddressTargetEntity
Entity	Contact person	Contact person	DMFContactPersonEntity	DMFContactPersonEntityClass	DMFContactPersonTargetEntity
Entity	ZIP code	Cost categories	DMF_SPC_RouteCategoryEntity	DMF_SPC_RouteCategoryEntityClass	DMF_SPC_RouteCategoryEntity
Table	Item coverage	Counties	LogisticsAddressCounty		

8. Figure Data Migration Framework entities

There are some challenges with customizing complex business rules in integrity checks but the need for avoiding the manual checks is always stronger. Using Consistency Check with Data

Migration is an essential step for a successful migration (Figure 13). This tool provides a wide range of information, which needs to be evaluated by the data steward or master data track lead, because of the complexity of the field.

3.5 CONCLUSION

The aim of the Data Consistency Check is similar in every ERP system. With this tool, the system can guarantee that the master data is valid in all respects. If we develop the necessary parts for the customized code, it will also be true for those parts as well. The outcome of this function is a report, which contains all the table records with issues. If the report is empty, than it is a theoretically perfect database. Based on practical experience usually it is not the case, so after a migration cycle there are always consistency issues arising, so data inaccuracies and corruptions can be fixed immediately before transactional records start to use the corrupt data.

The application of Data Consistency Check is optional but not mandatory after data migration. Data migration carries the risk of data corruption and inconsistencies in master data and transactional data. In the absence of effective control procedures the reliability of the data from which the amounts in the statements are calculated is highly questionable. As a consequence, auditors should perform more extensive substantive procedures to check master data and transactional data accuracy in order to detect material misstatements at financial statement level. **With all of the above discusssion one can conclude that Hypothesis 1 is supported.**

As many researches proved that it is 50 to 100 times more expensive to correct mistakes than to prevent them, the usage of control procedures becomes more important. If effective general and application IT controls are in place, after these controls having been tested, financial auditors can rely on them. So the application and proper documentation of Data Consistency Check and other similar control procedures would decrease the control risk and as a consequence would result in:

- lower level of audit risk,
- less extensive substantive procedures,
- lower sample sizes,
- shorter audit procedure.

We can also conclude that the current methodology of the consistency check in Dynamics AX is useful for providing necessary information about the validity of transactional data, but it needs to have a broader validity area to be useful enough. We need to make a detailed description of the validity of a business rule, not just white and black. When it comes to enhancing the possibilities of this tool, we need to focus on advanced machine learning and intelligence techniques, e.g. fuzzy logic (Chang et al. 2008). Master Data management needs extensive standardization as it is heavily dependent on the methodology of the project.

For testing information technology controls succesfully auditors shall acquire a reliable knowledge on IT systems and on application and general IT controls. Lacking this knowledge they are unable to reveal the strengths and weaknesses of the IT control procedures and their implications on the level of control risk. It requires either the involvement of IT experts or the participation of IT specific trainings.

On 22 September 2016 Mádi-Szabó (chair of the Quality Control Committee of the Hungarian Chamber of Auditors) gave a presentation on the results of the Quality Control Committee's operation in 2016. Besides mentioning the observed weaknesses of Hungarian auditors in assessing fraud risk, the Committee also found during its quality inspections that auditors have problems or sometimes entirely skip the examination of IT systems.

For assessing and testing IT controls auditors might benefit a lot from the COBIT model. COBIT (Control Objectives for Information and Related Technologies) constructed by ISACA (Information System Audit and Control Association) is an international standard to develop information systems. It is a collection of internationally accepted control objectives that is generally applicable and accepted in IT security and control. Auditors can successfully apply COBIT in testing IT systems as control objectives are discussed from business process point of view. It contains 34 high level control objectives broken down into four main chapters: (1) Planning and Organization, (2) Acquisition and Implementation, (3) Delivery and Support and (4) Monitoring. COBIT aims at providing a control model which facilitates the proper management of risks arising from information technology (Triász-Audit).

4 DIFFERENT APPROACHES TO FRAUD RISK ASSESSMENT AND THEIR IMPLICATION ON AUDIT PLANNING

This section of the thesis specifically examines how auditors perform fraud risk assessment by applying either the traditional or the decomposition methods to different perceived risk level settings. We also investigate how the outcomes of risk assessment influence the audit planning phase.

4.1 INTRODUCTION

The renowned accounting malfeasances of the past decades have raised the question to what extent users of financial information can be convinced that those truly and fairly represent the financial position and performance of a company. The scandals of Enron, WorldCom, and AIG are examples how fraud itself can deteriorate the trust in financial statements disclosed. In addition, as a secondary impact, some aspects of auditing had to be reconsidered all over the world. Fraud has been an important concern even in Hungary, provoked by recent collapses of some brokerage firms (Buda-Cash Zrt., Questor Zrt.), which has a serious social and economic effect on other sectors as well. Examining the patterns of such financial scandals, one can conclude that all directed the attention to the accountability of independent auditors in terms of material misstatements due to fraud; are they responsible for and capable of detecting fraud in all circumstances? How does the suspicion of fraud affect the nature of audit procedures to be performed?

From auditors' point of view, the rational approach to answer the aforementioned questions requires the profound understanding what professional auditing standards comprise regarding the terms and signals of fraud, and also the responses to the assessed risks of material misstatement due to fraud. Regardless the place in the world where an independent auditor performs audit services, one shall conform to generally accepted professional standards while conducting or participating in audit engagements. In the context of this research, two auditing frameworks are of crucial importance: on the one hand, the International Standards on Auditing (ISAs) released by the International Auditing and Assurance Standards Board (IAASB) and, on the other hand, the so-called Statements on Auditing Standards (SASs) issued by the Auditing Standards Board (ASB) of the American Institute of Certified Public Accountants (AICPA). The rationale behind this is twofold: our research concept is based on a study carried out in the U.S. where auditors shall comply with the standards issued by the ASB, while ISAs are mandatory for statutory audits in Europe proclaimed by the Directive 2014/56/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2006/43/EC on statutory audits of annual accounts and consolidated accounts.

In 2007, the ASB launched a clarity project in order to form standards that are easier to comprehend and apply, with remarkable efforts to converge its standards with ISAs. As a result, clarified SASs are different from the parallel ISAs only to a smaller extent where persuasive explanations exist (AICPA, 2014). The applicable fraud-related standards were deeply investigated in order to reveal if any differences had implications on our research process. We conclude that minor dissimilarities we found between ISAs and SASs (hereinafter Standards) do not impose limitations on our findings.

As laid down in the Standards, the suspect of fraud shall be taken into consideration in the whole process of auditing. This study focuses on the second step: the planning of audit. Out of the planning tasks, the risk assessment in terms of fraud, and its implication on the audit procedures are investigated by applying and contrasting two different approaches. Our research examines how different approaches of risk assessment (traditional vs. decomposition methods) influence the perceived level of fraud risk under different risk scenarios.

In the planning stage of an audit engagement auditors are expected to assess the components of the audit risk (i.e. inherent risk, control risk, and detection risk) with the traditional audit risk model required by the prevailing standards and then evaluate fraud risk separately. The audit risk formula given:

$$AR=IR*CR*DR. \qquad (1)$$

where:

AR = Audit Risk

IR = Inherent Risk

CR = Control Risk

DR = Detection Risk.

In the decomposition fraud risk assessment method, besides the traditional audit risk assessment model, the fraud risk is also broken down into sub elements of the fraud triangle; (1) the risk of incentives or pressure, (2) the risk of rationalization or attitude, and finally (3) the risk of opportunities to commit fraud (Wilks and Zimbelman, 2004; Favere-Marchesi, 2013). Srivastava et al. (2009) proposed a further consideration in addition to the three previously mentioned components of the fraud triangle. The authors recommended to incorporate a fourth risk factor, (4) the risk that fraud specific procedures performed by auditors will fail to detect fraud, into the model. These four components together will draw the attention of auditors not only to fraud cues, the risks arising along the elements of the fraud triangle, but also to the risk that audit plan might contain ineffective fraud detecting procedures. The function of the aforementioned four factors represents the overall fraud risk:

$$FR=RI*RA*RO*RSP \qquad (1)$$

where:

FR = Fraud Risk

RI = Risk of Incentives

RA = Risk of Attitude

RO = Risk of Opportunities

RSP = Risk that Special Procedures fail to detect fraud.

In addition to the examination of the impacts of the aforementioned two approaches on risk assessment, it is also explored how the fraud risk assessment affects the auditing procedures to be implemented by the auditor. From a research standpoint, it is essential to overview to what extent and how Standards support auditors' work as far as it is relevant to our research.

The Standards describe characteristics of fraud as misstatements in financial statements generated by an intentional action, involving either misappropriation of assets or fraudulent financial reporting (ISA 240). Each of the aforementioned factors are necessary but not sufficient conditions for committing fraud, so fraud risk assessment should consider the interaction of these factors (Loebbecke et al., 1989).

With regards to the responsibility of the auditor, reasonable assurance shall be obtained that the financial statements are free from material misstatements, whether caused by fraud or error. Consequently, professional skepticism should be maintained to suspect or to identify the occurrence of fraud, and the necessity of continuous consideration of fraud is beyond dispute.
Based on the auditor's risk assessment, appropriate responses to the assessed risks of material misstatement caused by fraud shall be determined. The procedures shall reflect the fact that the auditor perceives higher risk of fraud.

The Standards provide broad guidance in terms of fraud risk factors based on the elements of the fraud triangle, possible procedures to address the fraud risk, and depict circumstances that tend to indicate the occurrence of fraud.

ISA 240 (A33-A48) defines the following responses an auditor shall give to the assessed risk of material misstatement due to fraud:

- increased professional skepticism through increased sensitivity in the selection of the nature and extent of the documentation to be examined;
- assigning additional individuals with specialized skills and knowledge (e.g. a forensic expert);
- increase unpredictability in the selection of the nature, timing and extent of audit procedures (e.g. perform substantive procedures on accounts otherwise not tested, change timing of audit procedures from what is expected, applying different sampling methods, performing procedures at different locations etc.);
- at the assertion level auditors may change the nature, timing and extent of audit procedures by the following: (1) physical observation and inspection of certain assets usually not tested and the application of computer-assisted audit techniques, (2) designing procedures to obtain additional corroborative information;
- increasing sample size and perform analytical procedures at a more detailed level.

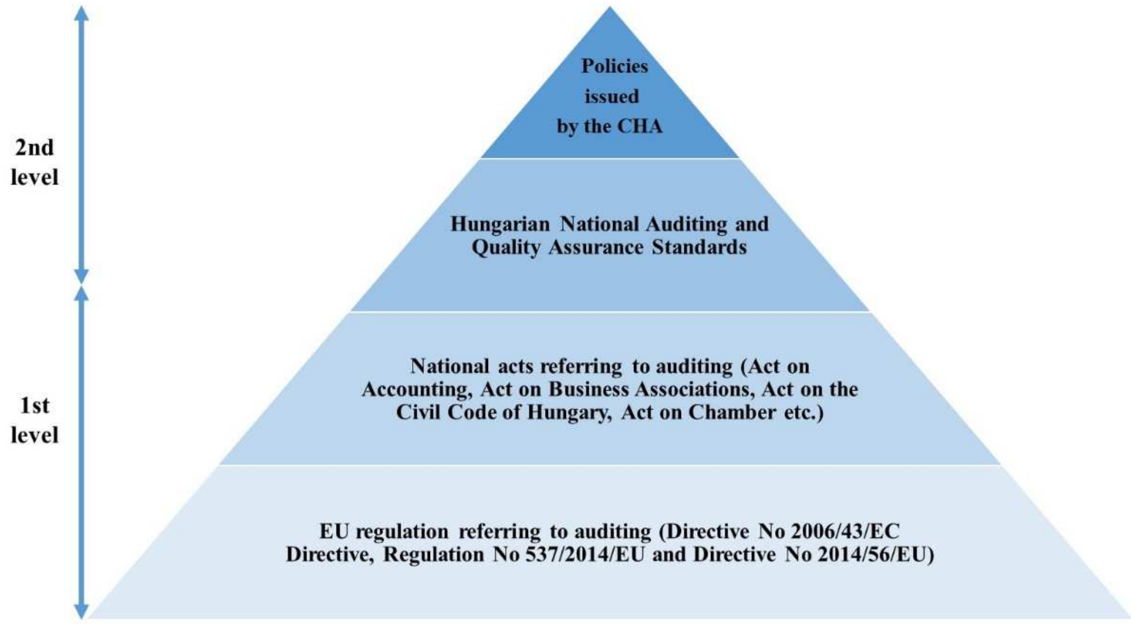
The expertise of professional Standards, reinforced by extensive audit experience and appropriate training, all fundamentally contribute to the ability of performing audit engagements of high quality in general, and from the aspect of fraud particularly.

4.2 THE SYSTEM OF EXTERNAL AUDITING IN HUNGARY

Before setting the hypothesis of the Hungarian field research it is inevitable to get a thorough understanding of the system of auditing in Hungary.

The provision of external audit services is regulated at two levels in Hungary. EU regulations and directives, national acts and government decrees are specifying the main rules on the first level while professional standards and regulations are set by the Chamber of Hungarian Auditors on the second level (Figure 9).

Szekeres (2007) in her dissertation describes the development of the Hungarian audit profession in details. Auditing was acknowledged as a profession by the Act XXXVII of 1875 which established a regulatory framework for the accounting of manufacturers and sole traders. The act also introduced the mandatory qualification of accountants and the mandatory audit in litigious cases. The Magyar Revizori Szövetség (Association of Hungarian Auditors) was founded in 1911 and the Magyar Kereskedelmi és Iparkamara (Hungarian Chamber of Commerce and Industry) established the Kamarai Hites Könyvvizsgálók Egyesülete (Union of Sworn Auditors) in 1926. The Act V of 1930 specified the rights and obligations of auditors. The mandatory qualification of auditors was developed, regulated and imposed on auditors by the Magyar Hites Könyvvizsgálók Egyesülete (Union of Hungarian Sworn Auditors) which was founded in 1932. After World War II the emerging communist regime required a different type of state control over the socialized companies. The Hites Könyvvizsgálók Szövetsége was dispersed and classical audit profession could not be identified in this era. Despite these facts, audit qualification could be acquired by the Ministry of Finance but it mainly qualified candidates for leading roles in accounting and control.



9. Figure Regulation of auditing in Hungary (Füredi-Fülöp, 2015)

The Association of Hungarian Auditors was established in 1987 after re-introducing the market economy in Hungary. The Act VI of 1988 made the free choice of auditor available for business associations and specified the responsibilities, rights and obligations of auditors. The Chamber of Hungarian Auditors (Magyar Könyvvizsgálói Kamara) was founded in 1997. In the same year audit obligation was officially imposed on Hungarian business associations by the Act CXLIV of 1997 on Business Associations. This act prescribed an external, independent and standardized audit to be conducted for the involved business associations.

The formation of the Chamber of Hungarian Auditors opened the new and modern era of the Hungarian audit profession. The Chamber became member of IFAC (International Federation of Accountants) in 1992 and of FEE (Fédération des Experts-comptables – Federation of European Accountants) in 2002.

From 2001 the Hungarian National Auditing and Quality Assurance Standards are in full compliance with the ISAs (International Standards on Auditing).

The Act of 2000 C on Accounting defines the objective of auditing as giving an assurance that the financial statements of the business association were prepared in accordance with the prevailing standards and as a consequence they show the fair and true view of the business association's financial performance and position.

External audit is mandatory for all business associations that are registered in Hungary and pursuing a double-entry bookkeeping system unless they qualify for exemption. Business association who meet both of the following conditions are exempt from the mandatory external audit:

- in two consequitve business years before the actual year the average annual net sales revenue did not exceed 300 million HUF and;
- in two consequitve business years before the actual year the average number of employees employed by the business association did not exceed 50.

It is important to note that despite the fact that a business association complies with the above conditions and qualifies for the exemption it cannot get the exemption if it had a higher than 10 million HUF public debt which was due over 60 days at the end of the previous fiscal year.

For the following business associations audit is always mandatory:

- those business associations which are leading double-entry bookkeeping system and mandatory audit is prescribed by an act or regulation,
- saving associations,
- business associations involved in consolidation,

- Hungarian branch of foreign business associations,
- business association subject to public interest,
- those business associations that in their bookkeeping and accounting system divert from regulations given by the Act on Accounting for the purpose of supporting true and fair view.

For public and private limited companies external audit is primarily mandatory but these business association also have the possibility to get exemption.

Based on Act of 2007 LXXV on "the Chamber of Hungarian Auditors, on audit services and on the supervisory of audit services" audit service can only be provided by that private individual who has acquired the chartered auditor qualification issued by the Chamber of Hungarian Auditors and completed successfully the professional competence exams. A private individual can pursue audit service in Hungary only if this individual is member of the Chamber of Hungarian Auditors and acquired the audit license.

The active and inactive number of members of the Chamber of Hungarian auditors between 2010 and 2015 are presented in Table 1. We can observe a slow, but continuous decrease both in the number of members and also the number of audit reports issued over the period covered between 2010 and 2015.

1. Table The number of members of the Chamber of Hungarian Auditors 2010 – 2015[15]

	2010	**2011**	**2012**	**2013**	**2014**	**2015**
Active members	3 376	3 296	3 141	3 030	2 931	2 831
Inactive members	2 317	2 318	2 313	2 317	2 270	2 199
Total	**5 693**	**5 614**	**5 454**	**5 347**	**5 201**	**5 030**
Number of association conducting audit services	1 929	1 922	1 871	1 861	1 828	1 735
Number of audit reports issued	44 723	42 499	35 242	33 124	30 483	27 710
Revenue from audit activity (million HUF)	33 271.9	33 411.2	31 285.1	30 700.2	29 706.7	29 489,2
Revenue / report issued (HUF / report)	743 955	786 165	887 722	926 826	974 532	1 064 207

[15] Source: based on direct query from the Chamber of Hungarian Auditors

Between 2008 and 2013 the Public Oversight Committee of Auditors were responsible for the supervision of auditors and the operation of the Chamber. The foundations of an independent quality control system of auditors that are providing audit service for business associations which are subject to public interest were established in this period. From 1 July 2013 this supervision belongs to the Ministry for National Economy and the Public Oversight Board of Auditors was established as a subset of the Ministry.

In the following cases extraordinary quality control procedures might also be conducted:

- if it is initiated by the disciplinary committee of the Chamber,
- if it is required by a member of the Chamber as a self control,
- if it is initiated by the Public Oversight Board of Auditors.

2. Table Number of Quality control procedures conducted by the Public Oversight Board of Auditors[16]

	2013	**2014**	**2015**
Individual auditors			
Passed	31	10	10
Passed with remark	4	1	2
Failed	3	7	8
Total	**38**	**18**	**20**
Audit firms			
Passed	15	4	4
Passed with remark	3	1	0
Failed	1	3	1
Total	**19**	**8**	**5**

Table 2 show the activity of the Public Oversight Board of Auditors in the period between 2013 and 2015.

The Hungarian Chamber of Auditors also has a Quality Control Committee which primary objective is to operate a quality control system. The purpose of the quality control system is to

[16] Source: based on direct query from the Chamber of Hungarian Auditors

improve the quality of the audit work performed by auditors and as a consequence to strengthen the credibility of the audit opinion issued by auditors and to improve the prestige of the profession as a whole. Individual auditors and audit firms are regularly controlled whether they comply with the Hungarian National Auditing Standards and with their internal quality standards in their audit engagements. And finally, based on ISA 220[17] auditors and audit firms are also obliged to draw up and operate a quality assurance system with a quality assurance policy.

4.3 LITERATURE REVIEW

Zimbelman (1997) tested 108 auditors with a computer based case study and found that those auditors who were asked to assess fraud risk separately (intentional and unintentional misstatements) spent more time with reading red-flag cues compared to those who used the holistic method[18]. The research supported the hypothesis that the time taken to collect the necessary information from the case was mainly determined by the pursued risk assessment methodology. It was also evidenced that auditors using the decomposition method of risk assessment were more sensitive to fraud risk and, as a response, increased number of hours were budgeted for the higher fraud risk case. The study also addressed how auditors respond if higher fraud risk is perceived. The author found that there were no qualitative differences in responses, for which three possible reasons can be brought. Either (1) auditors do not have the professional and technical knowledge how to adjust audit plan with fraud specific procedures, or (2) auditors generally think it is not effective to adjust the audit plan, or (3) they do not believe that this adjustments is necessary.

Knapp and Knapp (2001) in their study examined the impact of professional experience on the ability of auditors to apply analytical procedures to detect fraud. The authors' research proved

[17] ISA 220 on Quality Control for an Audit of Financials

[18] The term of "holistic method" was later replaced by "traditional approach" to risk assessment by several academics. Within the framework of this study, we use also the expression of 'traditional'. Details of both the traditional and the decomposition approaches are elaborated in the Introduction section.

that more extensive experience will positively affect auditors' performance in detecting fraud. Audit managers were significantly more effective in assessing the risk of financial statement fraud with analytical procedures than were audit seniors. The authors also found that if auditors are provided with explicit fraud risk assessment instructions they assess the risk of fraud consistently and significantly higher for the fraud case than without these instructions. In the lack of explicit fraud risk assessment, however, auditors did not assess significantly different fraud risk for the fraud case than for the non-fraud case. The study concluded that the combination of higher professional experience and explicit fraud risk assessment instructions brought more effective fraud risk assessment.

The effectiveness of using checklists in the risk assessment process and fraud detection responses was tested by Asare and Wright (2004). Standard risk checklists are frequently used in practice where risk factors are usually broken down into three categories recommended by AICPA (AU-C Sec. 240 on 'Consideration of Fraud in a Financial Statement Audit'). The experiment conducted supported their hypothesis that auditors in a no-checklist condition assess higher fraud risk than in a standard checklist condition. It was also revealed by the experiment that higher fraud risk assessment was not associated with more effective audit program plan, which means that audit program plans were not adjusted appropriately to reflect the measured fraud risk. Auditors without a standard audit program prepared a more effective set of fraud related tests and were more likely to consult with a fraud expert than those with a standard program. Authors also found that there is a positive association between fraud risk assessment and the auditors' intention to consult with fraud professionals.

A quite early research (Shelton, 2001) found that auditors may focus too much on the attitude component of the fraud triangle while tend to neglect the two others. As it was presented previously, the risk of fraud cannot be exclusively explained by the attitude of management, but it is a function of attitude, opportunity, and incentive. Several common sense explanations can be brought up to support this previous idea. On the one hand, the decomposition of fraud risk might reveal information which may be overlooked in the holistic case. On the other hand, the decomposition approach requires less cognitive effort than the holistic decision. Wilks and Zimbelman (2004) examined how the fraud-triangle decomposition affects overall fraud risk assessment. Instead of using long standardized fraud checklists, they recommended to split the risk assessment along the components of the fraud-triangle. They hypothesized that with focusing on seemingly unrelated list of fraud cues, auditors might lose sight of the overall fraud risk. Using the decomposition method in line with the fraud-triangle auditors not only free up resources of cognitive effort but auditors, before setting overall fraud risk level, are also enforced to focus better on the three components of the fraud risk. In their experiment they found that auditors' component assessments of opportunity and incentive risks are more sensitive to variations in those risks when they anticipate making these component assessments via a fraud triangle decomposition.

Hammersley et al. (2011) reported about an experiment testing how audit seniors respond to heightened fraud risk when constructing their audit plan. In the case study provided to the auditors, the authors manipulated the risk level by describing material weakness conditions in controls. The research proved that auditors assess higher fraud risk when material weakness information is present, but fail to produce a better quality audit plan. In contrast, the constructed audit plan was less efficient and of lower quality. Based on the study auditors, after assessing higher fraud risk, involved less efficient procedures by typically increasing the sample size instead of changing the nature of the audit program and/or involving more fraud specific procedures. The authors did not investigate training related questions, however they emphasized the need to reconsider and improve the auditors' professional trainings to assist them in fraud detection. They also identified two limitations of their study. First, auditors usually work in a team, so researches focusing on individual risk assessment and audit planning might not be representative. Secondly, the study failed to address the question why audit seniors draw up a lower quality audit plan if they assess higher fraud risk. Future research direction, to investigate the explanatory factors of the less efficient audit plan, was recommended by the authors.

Carpenter (2007) conducted an experiment to investigate the efficiency of team brainstorming in assessing fraud risk. 40 audit teams with three members each, representing all of the BIG 4 firms, participated in the study. She concluded that brainstorming sessions resulted in an overall loss of the individuals' ideas generated before the brainstorming session. However, it was also evidenced that the overall quality of the fraud related ideas was improved after the session. As for the fraud risk, the results suggested that when fraud cues are present the audit team's fraud risk assessment after the brainstorming sessions is significantly higher than the assessed risk level of individual auditor's.

Seow (2009) tested the impact of technical knowledge and decision aid use on fraud risk assessment. It was found that decision aid use had a negative effect on high-knowledge participants while resulted in an improved performance in the case of low-knowledge students. The experiment was conducted in two groups where in one of the group's case text diagnostic and non-diagnostic fraud cues, taken from ISA 240, were disclosed. Other researches (Fukukawa et al., 2011; Favere-Marchesi 2013) deal with the impact of fraud risk categorization on the risk assessment and audit planning decisions. Fukukawa et al. (2011) revealed that the auditors' grouping of individual client risks is basically in line with the categories provided by the prevailing auditing standards. Based on their findings, and on the fact that there is less or little guideline in the standards addressing the grouping of individual client risks, the authors urged the need to give training guidelines how auditors should draw up the groups. They also identified that the way to improve audit planning efficiency and effectiveness lays in the more efficient grouping of individual risks. However, Favere-Marchesi (2013) proved with their experiment involving 60 audit managers that auditors decomposing fraud risk assess a significantly different fraud risk than those who simply categorize fraud cues. The author also found that auditors decomposing fraud risk felt a higher need to modify audit plan and to enhance the extent of audit testing.

Several studies (e.g. Srivastava et al., 2011; Fukukawa and Mock, 2011) approach the fraud risk assessment from decision theory point of view. Fukukawa and Mock (2011) tested if assertion framing affects risk assessments and whether the effects hinge on risk assessment approach. In the experiment, assertion framing was manipulated by stating financial statement assertions in both positive and negative forms. The test indicated that when the belief-based assessments were transformed into probabilities, the difference was not significant. The authors could evidence significant assertion framing effects. As a final conclusion it can be stated that both the chosen risk measures and the way assertions are framed are proved to be important audit decisions and both have a large impact on the effectiveness and efficiency of an audit. The introduction of the Dempster-Shafter evidential reasoning theory (Srivastava et al. 2011) could be used with success in fraud risk assessment as the method can manage uncertainties related to audit risk, information security and information quality assessment. Authors also argue that instead of using a single audit risk model it is advised that auditors should assess separately the risk of errors, irregularities and management fraud.

A number of researchers (Loebbecke et al., 1989; Gold et al., 2010; Hoffman and Zimbelman, 2009; Asare and Wright, 2004; Hammersley et al.; 2011, and Hammersley, 2011) examined how frequently auditors meet with fraudulent financial statements, and all found that fraud is relatively rare. This raises the question how auditors gain most of their knowledge and ability to detect fraud and give the required responses. Hammersley (2011) stated that fraud related knowledge is gained mostly through training and not through experience, and this knowledge can be increased by higher problem solving ability and epistemic motivation. The aforementioned three factors (i.e. knowledge, problem solving ability and epistemic motivation) infiltrate into the process of audit planning, and explain how auditors modify their plans as a response to the assessed fraud risk.

4.4 HYPOTHESES DEVELOPMENT

Taking into consideration the fundamental differences between the two approaches (traditional vs. decomposition) elaborated previously, the decomposition fraud risk model is expected to result in a more precise risk assessment where auditors tend to be more sensitive, and their attention is notably directed to the successful identification and consideration of fraud cues. By using the decomposition approach, auditors might better identify the incentives/pressures management members might face to commit fraud. The decomposition model may also support auditors in revealing the weaknesses of internal control systems with higher success, and in more efficiently identifying the attitude through which perpetrators may rationalize their fraudulent acts. We set up a hypothesis in line with these aforementioned ideas cited:

Hypothesis 2: In line with the international research results, with the assistance of the decomposition fraud risk assessment method Hungarian auditors' sensitivity to fraud cues between a high and low fraud risk scenario is significantly greater than using the traditional model.

By assessing the fraud risk, auditors express their opinion, being partially objective or partially subjective, on the probability that financial statements are misstated due to fraud. Both fraud red flags, embedded in a scenario, and also individual sentiments are expressed in the level of the fraud risk assessed by a professional. We believe that all the consecutive actions made by the auditor, will be based on the outcome of this risk assessment, so most of our further hypotheses will examine how the responses given in the audit plan (audit procedures and time budget) correspond to the level of fraud risk assessed. However, in certain cases, mainly to conform to previous academic researches, we also examine the impact of the initial condition (applied risk assessment method, high or low risk scenario) on the audit planning decisions.

Nowadays a great variety of forensic services has been offered by professional consulting companies. The success in detecting fraud lies in a mixture of broad skills and knowledge (internal control, information technology, digital evidence recovery, auditing, psychology etc.), which are not always in the possession of auditors. Some researches concluded that auditors are reluctant to consult with external fraud experts, while other studies evidenced that the propensity to consult with experts increases as the level of assessed fraud risk is getting higher (e.g. Asare and Wright, 2004).

Based on ISA 330, auditors shall determine overall responses to address the risks of material misstatement. As it was previously demonstrated ISA 240 (A33-A48) also defines the responses an auditor shall give to the assessed risk of material misstatement due to fraud. Under circumstances where risk of material misstatement due to fraud is identified, the auditors' responses shall address the identified risks, and may include amendments into the nature, the extent and timing of audit procedures to be performed. Fraud effective tests are procedures, other than regularly conducted audit procedures, which specifically address the detection of material misstatement due to fraud.

Several international studies evidenced (Zimbelman, 1997; Asare and Wright, 2004) that auditors are not successful in adjusting their audit programs to respond properly to the assessed level of fraud risk. The reason auditors fail to prepare a more effective audit program can be twofold. Either auditors do not have the knowledge of fraud specific procedures, or they simply do not feel the necessity to plan these procedures into the program. One might expect, as recommended by Srivastava et al. (2009), that by incorporating RSP into the fraud risk assessment model, the importance of proper fraud specific responses is more emphasized and highlighted, and the awareness of auditors is directed. However, we assume that by simply embedding RSP into the fraud risk assessment, auditors' attention will not significantly turn to fraud specific tests as they, either due to lack of proper training or experience, do not have the required knowledge.

Hypothesis 3: In line with the relevant auditing standards, if auditors' assessed fraud risk is higher, they will either modify the preliminary audit plan by including fraud effective tests or they express a higher propensity to consult with an external forensic expert compared to that condition when they assess lower fraud risk.

In a high risk condition where the assessed fraud risk is expected to be greater, auditors might assign more audit hours to perform the fraud effective tests and to extend procedures than previously budgeted. If auditors prepare a more effective audit plan including fraud related tests and procedures, then they will increase the budgeted hours of more experienced staff, so typically managers and partner hours will be enhanced.

Hypothesis 4: When auditors assess a higher fraud risk level, the total budgeted hours for the engagement will be significantly higher compared to the case when auditors assess a lower fraud risk level and the percentage of hours they assign to less experienced audit staff will be significantly higher than in a lower assessed fraud risk condition.

4.5 METHODOLOGY

The above hypotheses are tested with four versions of a realistic case study[19] (2 x 2 experiment) which vary in terms of the fraud risk assessment approach required (traditional vs. decomposition, Appenndix 4 and 5) and fraud risk setting (low risk vs. high risk, Appendix 2 and3). Participants received one type out of the four case versions. In the traditional method, auditors were expected to assess the components of the audit risk (i.e. inherent risk, control risk, and detection risk) with the traditional audit risk model required by the prevailing standards, and then to evaluate fraud risk separately. In the decomposition method besides the traditional audit risk assessment model participants were required to break down the fraud risk into sub elements of the fraud triangle; the risk of incentives or pressure, the risk of rationalization or attitude, and finally risk of opportunities to commit fraud. On the online questionnaire platform the RSP (Risk of special procedures) was automatically calculated with the assumption that the acceptable level of FR (Fraud Risk) is 0.05. A lower than 1.00 RSP indicated to auditors that they need to apply special forensic (fraud specific) procedures in order to keep FR at the desired 0.05 level.

Information provided to auditors differed to some extent whether low risk or high risk cases were delivered. In the low risk setting, management is compensated by a base salary and there do not exist extraordinary earnings targets to be achieved and also less details of the suspicious sales transaction are shared. In the high risk setting, management can get significant bonuses and share options if challenging targets are accomplished. In addition, a newly launched marketing campaign might have resulted in misstating revenues once distributors fail to increase sales despite the enhanced marketing efforts. Recognizing red flags (fraud cues) in the high risk setting was a key factor in the research as it directly relates to addressing the hypotheses.

[19] This research is based on the case study (Precision Equipment Inc.) originally developed by Asare and Wright (2004) and used by several further fraud related studies (e.g. Hammersley et al. 2011; Mock et al., 2011 etc.). In the original case only minor adjustment and modifications were made in order to adopt it to the Hungarian conditions.

As described in the introduction to the case study, participants were asked to finalize the audit programme for the revenue cycle of the designated client. Background information and key financial highlights (i.e. balance sheet, income statements, and key financial ratios) were provided, and a short industry analysis along with the firm's marketing strategy were also available. Based on previous years' audit experience, participants had information on the control environment and the revenue cycle.

In the first part of the case assignment, auditors were requested to complete the risk assessment by applying either the traditional or the decomposition approach.

As a second step, participants had to confirm/adjust the audit program for the revenue cycle. A preliminary substantive audit programme was offered, and participants had the opportunity to alter the programme in any way, even by deleting or adding new procedures or changing the extent of audit procedures, while keeping in mind the efficiency and the assessed level of risk.

In the third section, auditors were expected to update total budgeted hours (total 65 hours) by staff level (staff/senior/manager/partner hours) in order to reflect the proposed amendments in the audit procedures that address the perceived level of risk. On the other hand, participants were asked to express their opinion on the necessity of consulting a forensic expert to complete the audit plan on a 10 point Likert scale (1= needless to consult, 5= moderate need to consult, 10= high need to consult).

In the final part, auditors responded to some fundamental demographic questions. The main issues encompassed auditing experience (BIG 4 or non-BIG 4, years of experience), position taken, educational background, membership in professional bodies, and prior knowledge of fraud triangle.

4.6 MANIPULATION CHECK

It was tested by a distinct question in the survey if the risk manipulation was successful or not. Respondents were asked to “Assess the level of fraud risk for the revenue cycle” on a 7 point Likert scale, where 1 = low risk and 7 = high risk. As it can be seen in Table 3 (Appendix 1), from the aspect of the overall fraud risk question, the manipulation was successful ($p = 0.0186$) which means that the auditors encoded the two different risk settings as it was intended.

4.7 PARTICIPANTS

The case study experiment targeted the registered members of the Chamber of Hungarian Auditors. The participants voluntarily completed the case study online. They were instructed not to discuss their answers with colleagues, as individual judgement was of crucial importance. The Chamber of Hungarian Auditors assisted the research with informing its members about the online survey. Altogether 61 responses were collected electronically, out of which six were removed from the sample before further analysis due to either the incompleteness or inconsistency of answers, or even failure in the manipulation check.

Demographic information on the sample is detailed in Tables 3 and 4. Table 3 demonstrates that 65 % of participants (20 seniors, 15 partners, 1 executive director of audit firm) indicated high profile positions in which risk assessment and audit planning are core activities of their job. The risk assessment and the audit planning, tested by this study, are also performed by those auditors who do not work for audit firms as employees but run their own audit business individually (13 %, 7 persons). Subsequently, 78 % of participants have profound experience in performing the tasks (revenue cycle) investigated through this research. As indication of successful randomization of the sample, statistical tests did not show significant differences in the demographic variables between the distinct survey conditions (low risk vs. high risk, decomposition vs. traditional).

Participants had an average of 186 months of professional experience, with a standard deviation of 81 months. The indicated prior experience with the revenue cycle audit (mean 5.96 on a 7 point Likert scale) also supports the idea that participants had the necessary skills and experience for answering the case assignment.

Only 64 % of the auditors involved into the sample heard about the fraud triangle before participating in the experiment. As the decomposition method case study description explained the fraud triangle concept in details, we believe that this fact did not have an impact on the outcome of the research. This idea was also confirmed by the manipulation check.

3. Table Current position and professional background of the respondents (N)

Manager	11 (20 %)
Senior	20 (36 %)
Partner	15 (27)
Other[20]	9 (16 %)
Total	**55 (100 %)**
ACCA student	4 (7 %)
ACCA member	7 (13 %)
MKVK[21] student or mentoring phase	5 (9 %)
MKVK active member	42 (76 %)
MKVK inactive member	2 (36 %)

[20] Other: 7 individual auditors, 1 executive director of audit firms, 1 freelance audit tutor

[21] MKVK: Chamber of Hungarian Auditors

4. Table Other charachteristics of the sample

	Mean (SD)	Min	Max
Total audit experience (months)	185.7 (80.9)	37	363
Experience with revenue recognition (1-7)	5.96 (1.43)	2	7

Note: Experience with revenue recognition: 1 = no prior experience, 7 = dealt with it very often

The IT background ensured randomly that the sample is consistent in terms of the four versions; 29 participants by the traditional approach (15 low risk, 14 high risk), 26 auditors by the decomposition approach (13 for both low and high risk).

We consider that the size and proportion of the sample is suitable for analysis and for making conclusion referring to the whole population. To support this opinion we collected and presented the sample sizes of the most important previous international researches on the field (Table 5).

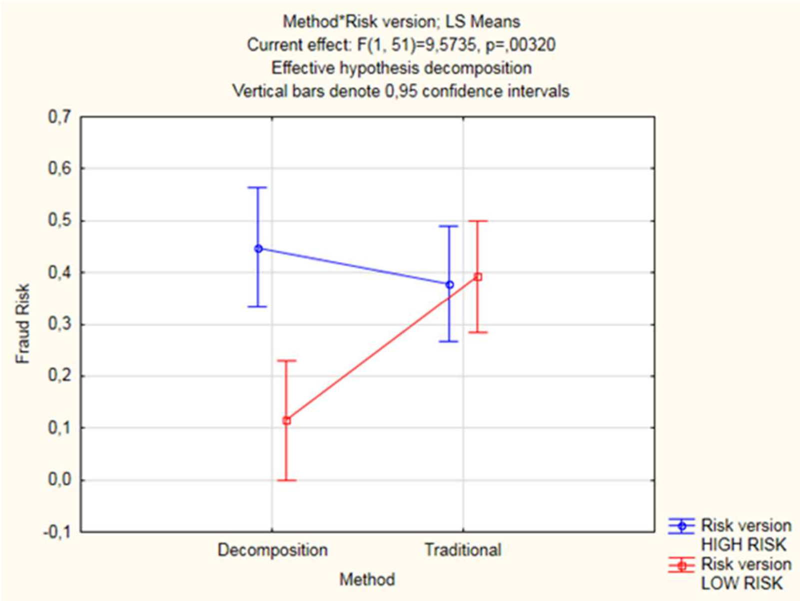
5. Table Previous case study researches and their sample size

Research, publication	Sample	Target country
Wilks and Zimbelman (2002)	52 audit managers	United States
Asare and Wright (2004)	69 participants	United States
Hammersley et al (2011)	54 senior level auditor	United States
Favere - Marchesi (2011)	60 audit managers	Canada and United States
Trotman and Wright (2012)	124 auditors attending a national training class	United States

4.8 RESULTS

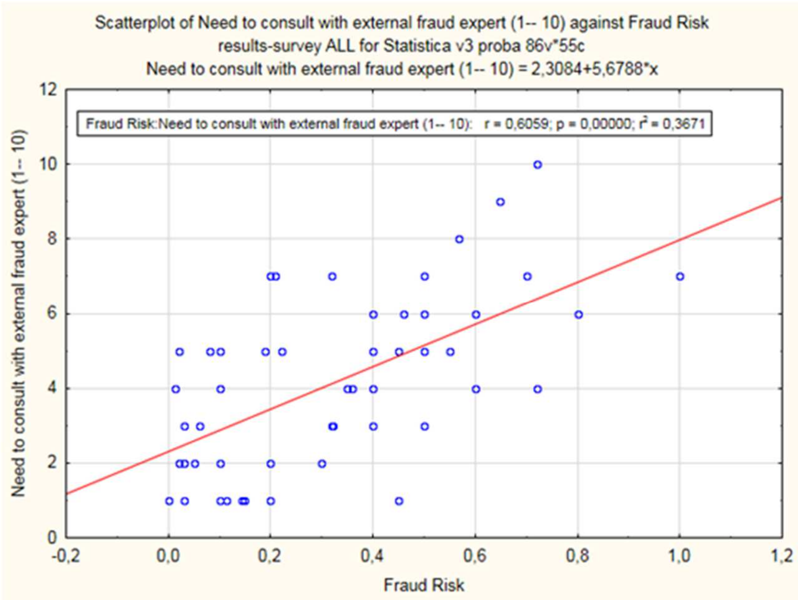
Performing the ANOVA (Table 4 in Appendix 1) analysis to understand the impact of the case version (high vs. low risk scenario) and the applied risk assessment method (traditional vs. decomposition) on the level of fraud risk, we found that there is a significant main effect for risk version (p=0.006217) and for the interaction between risk version and risk assessment approach (p=0.00321). Single significant main effect could not be identified for the chosen risk assessment method (p=0.069598), however, it is demonstrated in Figure 10 (and Table 5 in Appendix 1) that with the application of the decomposition risk assessment method auditors could better differentiate between the high (mean: 0.488) and low (mean: 0.115) risk scenarios than applying the traditional one. We can conclude that the decomposition method of fraud risk assessment drew the attention of auditors to fraud cues more successfully than the traditional approach, thus enhanced the sensitivity to fraud risk. While in case of participants using the traditional approach, the lack of sensitivity to fraud risk can be identified. **With all of the previous hypothesis 2 can be supported and justified.**

It was an interesting observation that with the traditional approach both in the case of the high and the low risk scenario the tested auditors assessed a relatively high fraud risk (high risk scenario: mean of 0.392; low risk scenario: mean of 0.379), while among those auditors who used the decomposition risk assessment method a significant fall in the assessed risk for the low risk scenario (mean: 0.115) and a slighter increase in the assessed risk for the high risk scenario (0.488) was observed. This finding is in line with prior international research conducted by Wilks and Zimbelman (2004).

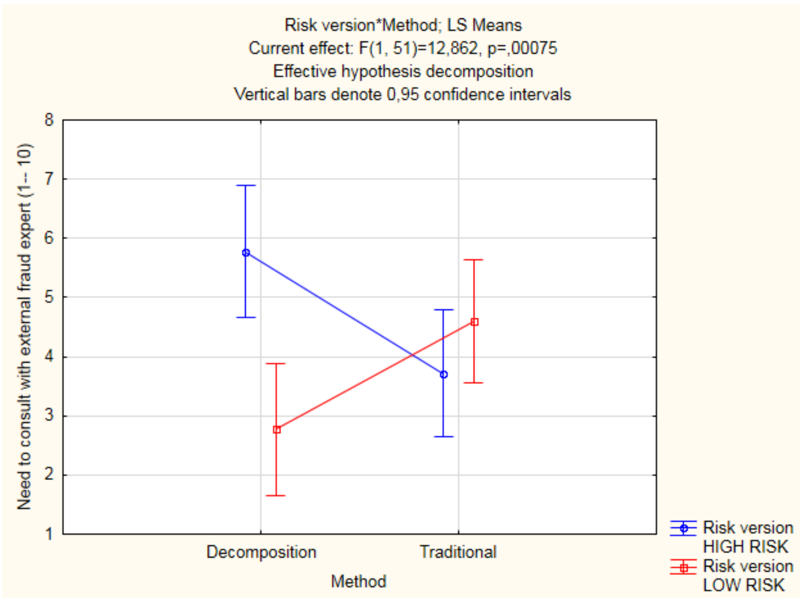


10. Figure Assessed fraud risk

Regarding the propensity of the auditors to consult with external forensic experts, first the relationship between the level of fraud risk they assessed and the strength they felt (10 point Likert scale) the need to consult was tested. Figure 11 shows that a medium strong relationship ($r = 0.6059$, $r2 = 0.3671$) can be identified between the fraud risk assessed by auditors and the need they felt to consult with external forensic experts. This means that the higher the fraud risk assessed by the auditors is, the higher need they feel to consult with an expert. As it was previously evidenced, the level of fraud risk is determined primarily by the risk version and the interaction between the risk version and the applied risk assessment method. We can assume that these two factors also have a significant main effect on auditors' intention to consult with experts.



11. Figure The relationship between the Assessed Fraud Risk and the Need to Consult with external fraud expert



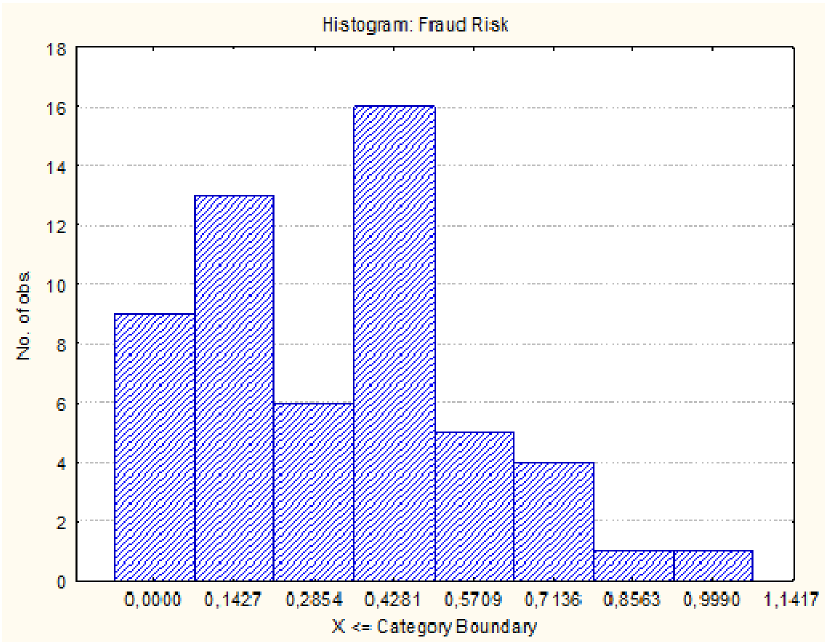
12. Figure Need to consult with external fraud expert

The ANOVA analysis in Table 6 in Appendix 1 (and Figure 12) shows that separately neither the risk version (p = 0.056512) nor the applied method (traditional vs. decomposition) (p = 0.836907) has significant main effect on the auditor's propensity to consult with fraud experts, however their interaction is significant (p = 0.000750). This means that by applying the decomposition fraud risk assessment method, auditors can more effectively differentiate between the high and the low fraud risk setting, and as a consequence, they can better adjust their consideration whether to consult with external fraud expert. The highest need to consult with external forensic experts (mean 5.77, SD 2.28) was revealed in the high risk setting with the decomposition approach.

In order to test the auditors' responses to a higher assessed fraud risk level from the standpoint of the audit procedures, the modified audit plan responses received from participants were split into two categories. Responses with an assessed fraud risk below 0.28 were grouped together into Category "low", while the responses above 0.28 fraud risk level were clustered to Category "high". As standard distribution for the assessed fraud risk cases could not be observed from the sample, the separation between low and high fraud risk responses was performed on the basis of Figure 13, which shows a well-identifiable gap in the responses at 0.28 assessed level of fraud risk. Examining the audit planning decisions (Table 8 in Appendix 1) one can find that auditors primarily chose either to perform the standard procedure or they increase sample size. Performing the Chi-Square test for the two most commonly indicated answers we can see that the fraud risk level has significant impact on neither of the most frequently given answers ("Perform standard procedure": Chi-Sq = 8.251, DF = 12, P-Value = 0.765; "Increase sample size": Chi-Sq = 9.951, DF = 12, P-Value = 0.62).

Thus, the above discussions are proving that Hypothesis 3 was not entirely correct. If auditors' assessed fraud risk is higher, they do not modify significantly the preliminary audit plan by including fraud effective tests compared to that condition when they assess lower fraud risk. Instead, in a high risk condition Hungarian auditors typically increase sample size and have a higher propensity to consult with an external forensic expert.

Further analysing the collected data it turns out that only 38 % of respondents (21 out of 55) took part previously in specific fraud related trainings. As fraud is not a frequent occurrence in professional practice, thus auditors cannot gain substantial experience in revealing and detecting it through their audit engagements. Organizing fraud related trainings and case study workshops would enhance the auditors' sensitivity to fraudulent scenarios and their ability to properly respond to the assessed risk with fraud effective tests as described by IAS 240.



13. Figure Observed fraud risk level

For testing Hypothesis 4, first a Sign test for median was performed (Table 9 in Appendix 1) which indicates that auditors prepared a significantly different time budget compared to the preliminary time budget given. The Mann-Whitney U test (Table 10 in Appendix) performed indicates that the fraud risk category ("high" and "low") has a significant main effect both on the total hours budgeted (p = 0.015633) and on the manager hours budgeted (p = 0.003273). We can conclude that auditors not only give a significantly different total hours staffing compared to the preliminary budget but they also most typically increase manager hours, **thus Hypothesis 4 is supported**.

However, consolidating the results of the time budget and the audit planning tests it turns out that auditors, as a response to higher assessed fraud risk, routinely increase sample size or perform standard procedure for which they typically budget higher manager hours. Using more experienced staff for doing more from the same procedures is not effective, and could make an audit engagement excessively expensive.

4.9 CONCLUSION

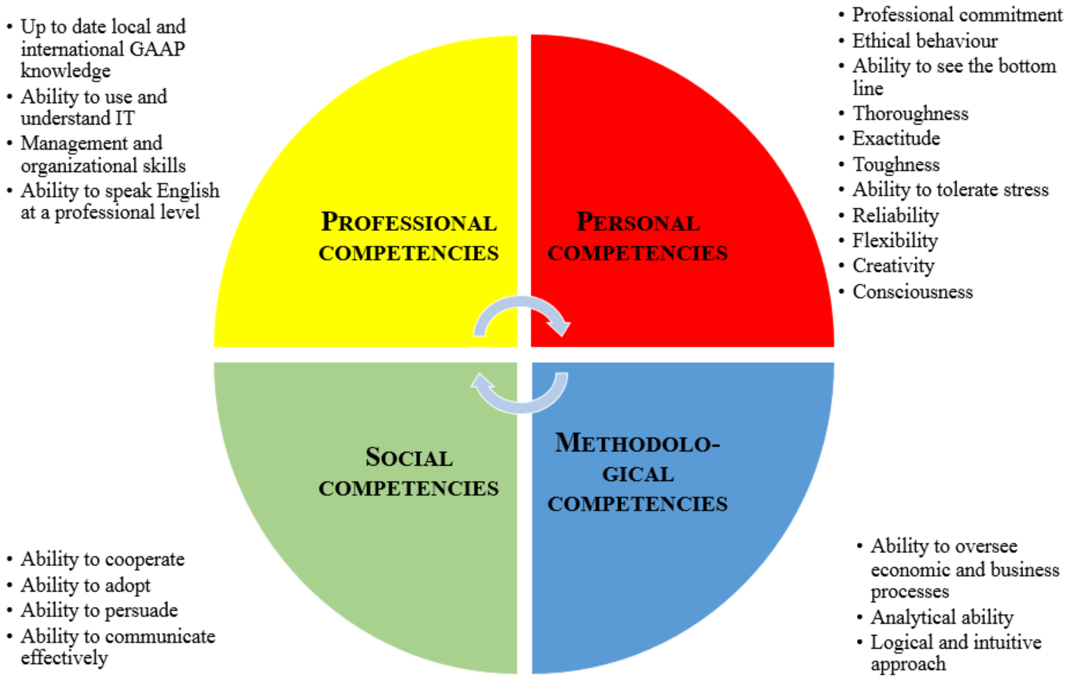
Our study examined two crucial steps of the audit process; the fraud risk assessment and the audit program planning tasks. Fraud, its detection and prevention are not just exciting current issues, but also their academic investigation has an extended background. The contribution of this research to the academic literature and to the auditing profession itself is twofold. First, our fundamental objective was to conduct a test in Hungary which delivers answers to a commonly tackled questions in the international literature. Secondly, by contrasting our results to previous researches, we intended to give a hand to the development of external audit profession at national level.

One of our major findings is that the application of the decomposition fraud risk assessment method enhanced the sensitivity of auditors to fraud cues, and as a consequence, they could better differentiate between a high and low fraud risk scenario, while by using the traditional approach they failed to make a significant distinction. The results suggest that the higher the assessed fraud risk is, the more likely auditors will feel the need to consult with external forensic experts is. Examining audit planning decisions the study revealed that decomposition fraud risk assessment improved the ability to identify high risk engagements, however, does not result in an audit plan of higher quality. Auditors generally either perform the standard procedure or increase sample sizes, but do not imply remarkable fraud effective tests. From the aspect of the time budget setting, higher assessed fraud risk usually results in higher total budgeted hours, and most typically auditors increase the budgeted hours for more experienced staff (managers). This might result in an ineffective audit program, where auditors use managers' capacity to cope with increased sample sizes. The failure in giving proper responses to higher fraud risk might arise from two sources. By incorporating the risk of special procedures into the fraud risk assessment model and evaluating the results, we can conclude that the shortcoming of knowledge is a more significant factor than the lack of the auditors' attention towards the necessity of these procedures. As the occurrence of fraud is quite rare in real life, the most effective way of improving the auditors' knowledge can be overcome by trainings and professional education.

The results could also have a primary impact on our professional practice, as the obvious advantages of the decomposition method might result in its widespread practical implementation. The fact that auditors proved to be unable to give proper responses to a higher assessed fraud risk, might urge the need to make the necessary modifications in the field of professional trainings as well. In order to support the latter idea, further research directions should investigate the relationship between different demographical aspects of participants, such us previous professional experience and training, and the quality of the audit plan responses give.

Laáb (2016) described the carreer opportunities of accounting professionals and identified the core competencies accountants need. The author collected 23 competencies broken down into four main categories (Figure 14): (1) Professional competencies, (2) Personal competencies, (3) Social competencies and (4) Methodological competencies. Among the listed competencies one can see the ability to use information and communication technology, analytical ability and ethical behaviour all mentioned in the dissertation several times.

Investigating issues in relation to accounting and auditing education and qualification requirements is a necessary future research direction. It is inevitable to provide a thorough and detailed analysis of the Hungarian auditors' qualification and subsequent mandatory continuous development program whether it assists and supports auditors in the investigated fields. For instance, the programs shall include the previously discussed COBIT framework in the curricula to prepare auditors for pursuing their activity in IT environment. As for applied fraud risk assessment methods and the responses given by auditors the effectiveness of case study based teaching shall be assessed. The Hungarian audit qualification shall be compared to an international one, for example ACCA, from the perspective of the curricula, the syllabus and the exam requirements.



14. Figure Core competencies a professional accountant needs (Laáb, A. 2016)

Herewith, it is important to mention another field, the question of **professional scepticism**, which was out of the scope of the current research, but deserves a lot more attention from academic point of view. Today we say that a person is skeptic when this persion relies on his or her own experience and well-founded knowledge, and do not accept the assertions of others without elaborate explanation and proof. There is always a risk that the obtained evidence by auditors do not reflect the truth. It is especially true if misstatements are a consequence of intentional acts, so auditors shall always maintain their professional scepticism throughout the whole audit engagement. With appropriate professional skepticism the risk that fraud clues will remain unnoticed and unidentified by the auditor can be reduced.

The fundamental need for professional scepticism was also identified by standards setters and the concept was included into auditing standards (ISA 200, ISA 240 and ISA 500[22]). Based on the relevant clauses of auditing standards an auditor shall assume that evidences gathered are reflecting the truth as long as the auditor obtains evidence which proves the contrary. This means that auditors shall assume sincerity as long as they find signals for fraud. This type of attitude was called neutral doubt by Nelson (2009).

Academic researches define a totally different approach to scepticism, and advise that auditors shall assume fraud as long as sufficient evidences to the contrary are obtained. This type of scepticism is called presumptive doubt. Nelson in his paper enforces that auditing standards shall move from the neutral doubt approach to the direction of presumptive doubt approach.

There are several international papers discussing the professional skepticism of auditors (McMillian and White 1993, Hurtt 2007, Nelson 2009, Hurtt 2010) and also gathering empirical evidences on the impact of apllying different approaches of professional skepticism. Some Hungarian studies were also published (Fekete 2012, Hokky 2012, Veit 2014, Siklós 2016), however, these are mainly summarizing the standard background and the results of international studies with some guidance for practical application.

[22] ISA 500 on 'Audit Evidence'

In the future it is recommended to examine professional skepticism more closely to fraud and launch empirical researches in Hungary in order to answer the following questions: (a) How the change in the approach to professional skepticism (from neutral to presumptive) will have an impact on fraud risk assessment of auditors? (b) What is the impact of using the presumptive doubt approach instead of the neutral one on the effectiveness of audit planning decision as a response to assessed fraud risk?

5 FINAL CONCLUSION AND THESES OF THE DISSERTATION

During the period of conducting the researches included in this dissertation serious collapses of brokerage firms have shattered the accounting and audit profession in Hungary. The responsibility of both those charged with governance of the collapsed brokerage firms and of their auditors was heavely investigated by the Ministry for National Economy. As a result of the series of national and international scandals financial statement fraud and the responsibility of auditors have become an imporant issue for academics, regulators and also practitioners of the profession.

Perpetrators usually do everything to conceal their acts, thus fraud and more specifically accounting fraud is not a straightforward issue to investigate and to research. The first pivotal objective of the research project was to explore the related academic research activities in the field both nationally and internationally. In Chapter 2 all the relevant and significant international and national papers and publications were reviewed. The purpose was to identify those topics and research questions which can be investigated and tested objectively with accepted methods of science. One of the major findings of this step was that fraud related researches go well beyond the boundaries of accounting and auditing. Financial statement fraud cannot be investigated and interpreted only with the toolkit of accounting and auditing. Accounting fraud cannot be analysed without having an understanding about its relation to information technology, management science, corporate governance and psychology. Among several research direction prior international researches have placed a special emphasis on the risk assessment and audit planning decisions of auditors (Zimbelman, 1997; Knapp and Knapp, 2001; Asare and Wirght, 2004; Wilks and Zimbelman, 2004; Hammersley et al., 2011; Favere-Marchesi, 2013). Trompeter et al. (2013) in their synthesis paper highlighted the role of information technology in auditing and different decision making theorys as recommended future research directions. Academic fraud related researches in Hungary are not rare but far from common. Lukács (1998a, 1998b), Lukács (2007), Lukács (2008) and Mohl (2013a) were identified as the most relevant academic papers in the field discussing and investigating fraud and the practice of auditors. Mohl (2013a) completed a research that surveyed the risk assessment practice of Hungarian auditors and revealed some weaknesses in the risk assessment process.

The impact of information technology on the risk assessment of auditors was discussed in Chapter 3. By reviewing the relevant auditing standards (ISA 200, 315, 330) it was explained that to what extend and how the auditor shall test the internal control system of the client as part of the audit risk assessment procedure. In an environment where transactions are recorded, processed and reported via information technologies (for example in an ERP system), the effective internal control system of the company should be embedded and operated as part of the IT system. Effective application and general IT controls have an impact on the risk assessment of the auditors (control risk) and consequently on the audit program prepared as a response to the assessed risk. After discussing thoroughly the relevant standards on auditing from the viewpoint of an IT control procedure (the data consistency check) the first thesis could be stated.

Thesis 1: The application of data consistency check in an ERP (Enterprise Resource Planning) environment will reduce the control risk during the audit risk assessment and as a consequence auditors shall include less extensive substantive procedures and/or decrease sample size in their audit plan in relation to testing data migration process. (Szívós and Orosz, 2014)

This suggests that application and general controls embedded in an ERP system improve the effectiveness of the company's internal control system. By implementing these easily accessible tools companies can establish a better quality internal control system on which the auditor can rely, thus less substantive procedures will be required.

In Chapter 4 the risk assessment practice of auditors was examined more specifically from the fraud risk point of view. The aim of this research was to conduct a case study experiment among Hungarian auditors and test the impacts of the traditional and the decomposition fraud risk assessment approaches on the level of fraud risk assessed by auditors. The research also aimed at investigating how Hungarian auditors respond to assessed fraud risk in their audit planning and time budget decisions. 55 responses were included into the final sample in a 2 x 2 panel (High risk and Low risk scenario; Traditional and Decomposition Fraud Risk Assessment).

ISA 240 states the auditors' responsibility related to fraud and expands on how ISA 315 and ISA 330 shall be applied in relation to risk of material misstatement due to fraud. When conducting audit risk assessment the auditor shall separately assess the risk of material misstatements due to fraud. Although ISA 240 gives guidelines how the risk of fraud shall be assessed but does not provide an applicable methodology or framework. Prior international researches tested the impact of decomposing fraud risk into its components via the fraud triangle (Risk of Incentive, Risk of Attitude, Risk of Opportunities). The experiment among Hungarian auditors aimed at testing the impact of the decomposition method of the fraud risk on the level of assessed risk and on audit planning decisions.

Thesis 2: In line with the international research results, with the assistance of the decomposition fraud risk assessment method Hungarian auditors' sensitivity to fraud cues between a high and low fraud risk scenario is significantly greater than using the traditional audit risk model. (Fortvingler and Szívós, 2016)

Both ISA 240 and ISA 330 defines the responses auditors shall give to the assessed risk. As fraud is not a frequent (not an everyday) occurrence in practice and many fraudulent cases will never be detected and revealed, it has a low probability that auditors will encounter either with red flags (fraud cues) or with specific fraudulent cases during their professional career. Thus, they cannot gain experience in detecting and managing fraudulent cases from their audit engagements. International researches evidenced that auditors are weak in giving the appropriate responses to the assessed fraud risk. The Hungarian experiment placed a special emphasis on the audit planning decisions made by the involved auditors. Auditors were required to modify a preliminary audit plan and a time budget according to the previously assessed fraud risk. The main findings are presented by Thesis 3 and 4.

Thesis 3: Contrary to the expectations, if auditors' assessed fraud risk is higher, they do not modify significantly the preliminary audit plan by including fraud effective tests compared to that condition when they assess lower fraud risk. Instead, in a high risk condition Hungarian auditors typically increase sample size and have a higher propensity to consult with an external forensic expert. (Fortvingler and Szívós, 2016a)

Thesis 4: When auditors assess a higher fraud risk level, the total budgeted hours for the engagement is significantly higher compared to the case when auditors assess a lower fraud risk level and the percentage of hours they assign to more experienced audit staff is significantly higher than in a lower assessed fraud risk condition. (Fortvingler and Szívós, 2016a)

The results of the fraud risk assessment research brought several benefits both for the profession and for academics. A conscious application of the decomposition fraud risk assessment method will sharpen the sensitivity of auditors to fraud cues. Regulators and professional bodies shall focus in their curricula more on this technique. The continuous development of registered auditors shall also contain more fraud related trainings and lecture sessions. Auditors involved into the research proved to be weak in giving the correct responses. As experience in this field can hardly be gained by auditors, a special emphasis shall be placed on trainings to improve the skills and knowledge of auditors on developing an effective audit program. Based on international studies the case study based training seems to be more efficient for fraud detection and fraud risk assessment issues than the traditional classroom sessions. The applicability and the benefits of converting from a classroom session to a case study based training under the Hungarian conditions shall be examined and tested in the future.

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APPENDIX 1: STATISTICS AND CALCULATIONS

Table 1 Manipulation check

Variables	T-test; Grouping: Risk version Group 1: HIGH RISK Group 2: LOW RISK									
	Mean High Risk	Mean Low Risk	t-Value	df	p	Valid N High Risk	Valid N Low Risk	Std.Dev. High Risk	Std.Dev. Low Risk	F-ratio Varian-ces	p Varian-ces
Overall Fraud Risk	4.37	3.36	2.429	53	0.0186	27	28	1.6443	1.4457	1.2937	0.5102

Table 2 Assessed Fraud Risk - ANOVA results

	Univariate Tests of Significance for Fraud Risk Sigma-restricted parameterization Effective hypothesis decomposition				
Effect	SS	Degr. of	Mean Square	F	p
Intercept	6.090096	1	6.0900	141.53	0.000000
Method	0.147830	1	0.1478	3.4355	0.069598
Risk version	0.350617	1	0.3506	8.1481	0.006217
Method*Risk version	0.411953	1	0.4119	9.5735	0.003201
Error	2.194546	51	0.0430		

Note: Method = traditional fraud risk assessment vs. decomposition fraud risk assessment; Risk version= low vs. high risk scenario

Table 3 Descriptive statistics - Assessed fraud risk (Mean (SD) [N])

Method	**Low Risk Scenario**	**High Risk Scenario**	**Total**
Traditional	0.392 (0.271) [15]	0.379 (0.148) [14]	0.386 (0.217) [29]
Decomposition	0.115 (0.192) [13]	0.488 (0.190) [13]	0.281 (0.253) [26]
Total	0.263 (0.273) [28]	0.412 (0.167) [27]	0.336 (0.238) [55]

Note: Dependent variable – fraud risk assessment 0.00 – 1.00 (probability of fraud, where 0 = no chance of occurrence and 1.00 = 100 % chance of occurrence)

Table 4 Need to consult with external fraud expert - ANOVA results

	Univariate Tests of Significance for Need to consult with external fraud expert (1—10) Sigma-restricted parameterization Effective hypothesis decomposition				
Effect	SS	Degr. of Freedom	Mean Square	F	p
Intercept	972.8497	1	972.8497	241.9	0.000000
Risk version	15.3120	1	15.3120	3.808	0.056512
Method	0.1721	1	0.1721	0.042	0.836907
Risk	51.7185	1	51.7185	12.86	0.000750
Error	205.0725	51	4.0210		

Note: Method = traditional fraud risk assessment vs. decomposition fraud risk assessment; Risk version = low vs. high risk scenario

Table 5 Descriptive statistics - Need to consult with external fraud expert (1 - 10) (Mean (SD) [N])

Method	Low Risk Scenario	High Risk	Total
Traditional	4,600 (1.957) [15]	3.714 (1.939) [14]	4.172 (1.965) [29]
Decomposition	2.769 (1,833) [13]	5,769 (2,279) [13]	4.269 (2.539) [26]
Total	3.750 (2.084) [28]	4.704 (2.317) [27]	4.218 (2.234) [55]

Note: Dependent variable – Need to consult with external fraud expert 1 – 10

Table 6 Descriptive statistics – Distribution of auditors' answers regarding their audit planning decision

	Omit procedure / not meaningful		Perform standard procedure		Increase sample size		Other modifications in the audit program	
	„low" risk	„high" risk	„low" risk	„high" risk	„low" risk	„high" risk	„low" risk	„high" risk
AP1	4,35	0,00	73,91	71,88	21,74	15,63	0,00	12,50
AP2	0,00	0,00	60,87	46,88	34,78	46,88	4,35	6,25
AP3	4,35	0,00	39,13	34,38	47,83	56,25	8,70	9,38
AP4	0,00	0,00	39,13	25,00	47,83	62,50	13,04	12,50
AP5	0,00	0,00	69,57	43,75	30,43	46,88	0,00	9,38
AP6	8,70	9,38	56,52	53,13	30,43	34,38	4,35	3,13
AP7	8,70	0,00	52,17	25,00	34,78	62,50	4,35	12,50
AP8	26,09	9,38	69,57	50,00	4,35	31,25	0,00	9,38
AP9	30,43	6,25	52,17	68,75	13,04	25,00	4,35	0,00
AP10	8,70	18,75	69,57	40,63	21,74	28,13	0,00	12,50
AP11	0,00	0,00	52,17	75,00	47,83	25,00	0,00	0,00
AP12	4,35	3,13	82,61	81,25	8,70	15,63	4,35	0,00
AP13	17,39	6,25	52,17	46,88	26,09	40,63	4,35	6,25

Table 7 Sign test for median – Time budget

	Sign Test of median = 0.00000 versus > 0.00000						
	N	**N***	**Below**	**Equal**	**Above**	**p**	**median**
Assistant hours	54	1	8	20	26	0.0015	0.0000
Senior hours	54	1	8	12	34	0.0000	5.0000
Manager hours	54	1	6	22	26	0.0003	0.0000
Partner hours	54	1	3	16	35	0.0000	2.0000
Total hours	54	1	5	5	44	0.0000	14.5000

Table 8 Time budget modification responses to the assessed fraud risk

Variables	Mann-Whitney U Test (w/ continuity correction) By variable Kock_kat Marked tests are significant at p <,05000								
	Rank Sum high	**Rank Sum low**	**U**	**Z**	**p-value**	**Z adjusted**	**p value**	**Valid N high**	**Valid N low**	**2*1sided exact p**
Assistant Hours	951.0	589.0	313.0	0.9299	0.352404	0.964163	0.334965	32	23	0.355370
Senior Hours	973.0	567.0	291.0	1.3053	0.191783	1.339110	0.180536	32	23	0.193459
Manager Hours	1065.5	474.5	198.5	2.8837	0.003931	2.990834	0.002782	32	23	0.003273
Partner Hours	983.0	557.0	281.0	1.4759	0.139956	1.509977	0.131050	32	23	0.140908
Total Hours	1037.0	503.0	227.0	2.3974	0.016514	2.408555	0.016016	32	23	0.015633

APPENDIX 2: CASE STUDY (LOW RISK VERSION)

A KÖNYVVIZSGÁLÓ KOCKÁZATBECSLÉSE ÉS A KÖNYVVIZSGÁLATI PROGRAM ÖSSZEÁLLÍTÁSA

A könyvvizsgálat hatékonysága és eredményessége szempontjából rendkívül fontosak a könyvvizsgálati program összeállításával kapcsolatos döntések, azaz a könyvvizsgálati eljárások jellege, terjedelme, ütemezése. Mindezek ellenére nagyon keveset tudunk arról, hogy a könyvvizsgálók hogyan is hozzák meg ezen a döntéseiket a különféle ügyfél környezetekben. Jelen kutatást egy amerikai és magyar kutatókból, egyetemi oktatókból álló csapat koordinálja és felügyeli! **Az Ön részvétele kulcsfontosságú a siker érdekében!**

A kutatáshoz felhasznált esettanulmány egy valós eseten alapszik. A kutatás során az Ön szakmai megítélésére vagyunk kíváncsiak, így arra kérjük, hogy a kérdések megválaszolása során úgy járjon el, mintha ez az Ön valódi megbízásainak egyike lenne. Kérjük, hogy válaszait ne vitassa meg másokkal, mivel az Ön személyes megítélésére vagyunk kíváncsiak. A kérdések megválaszolása **15-20 percet** vesz igénybe.

Amennyiben kérdése lenne az esettanulmánnyal kapcsolatban, kérjük lépjen kapcsolatba velünk!

Köszönjük részvételét ebben a könyvvizsgálati szakma szempontjából jelentős projektben!

Az esettanulmány a következő linkre kattintva érhető el:

Üdvözlettel:

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Precision Equipment Orvosi Berendezés Gyártó Nyrt.

A könyvvizsgálat során Önt azzal bízzák meg, hogy készítse el a Precision Equipment Nyrt. (továbbiakban Társaság) 2006. december 31-i mérlegfordulónappal készített beszámolójának **könyvvizsgálati kockázatbecslését**, és az árbevétel elszámolási rendszer ellenőrzésére vonatkozó **munkaprogramot**. Az alábbi információk állnak rendelkezésére:

1. Az ügyfélre vonatkozó információk

A Társaságot 1960-ban alapították. Székhelye Budapesten van, de további 9 országban is folytat tevékenységet. Összesen mintegy 20.000 munkavállalót foglalkoztat. A Társaság alaptevékenysége gyógyszeripari termékek gyártása és forgalmazása, kiemelt termékei között találhatóak az analóg és digitális lázmérők, vérnyomásmérők, CT és MRI vizsgálat során használt gépek, valamint vércukormérő készülékek.

A Társaság legfontosabb partnerei maguk a kórházak, a nagykereskedők, és az orvosok. A Társaságnak jelentős piaci versenytársai vannak. Mivel a Társaság a digitális termékek piacára viszonylag későn lépett be, ezért e területre jelentős figyelmet és erőforrásokat összpontosít. Eközben a Társaság az analóg termékek piacán az utóbbi években visszaeséssel szembesült, ugyanakkor az e termékekből származó bevétel ezzel együtt is a bevételeinek körülbelül 70 százalékát teszi ki.

A 2005. és 2006. üzleti évek konszolidált beszámolói a mellékletben találhatóak. Jelen esettanulmány a 2006. üzleti év könyvvizsgálatára fókuszál.

2. A korábbi könyvvizsgálatok során gyűjtött tapasztalatok

Az Önt alkalmazó könyvvizsgáló vállalat végzi a Társaság könyvvizsgálatát 1989 óta. Az ezen évekre kibocsátott vélemény minden esetben minősítés nélküli jelentés volt. A korábbi munkaanyagok áttekintése alapján kiderül, hogy eddig csak néhány jelentősebb tétel kijavítását kérte a könyvvizsgáló.

Az ellenőrzési környezetre vonatkozó információk és a lényegességi küszöbérték meghatározása

A korábbi könyvvizsgálati tapasztalatok azt mutatják, hogy a vállalat vezetése megbízhatóan végzi a számviteli becsléseket és készíti el a beszámolót. Az is látszik, hogy a vezetés megbízható kontrollrendszert működtet, és döntései során megbízik a számviteli rendszer által előállított információkban. A belső kontrollrendszer hatékonyan működik a rutin tranzakciók területén, és a felelősségi területek elkülönítése is kielégítő. Az igazgatóság tagjai és az auditbizottság rendszeresen találkoznak. Az auditbizottság három olyan taggal is rendelkezik, akik a Társaságnál nem töltenek be vezetői pozíciót. A Társaság vezérigazgatója nagy hangsúlyt fektet a menedzsment ellenőrzésére és a pénzügyi jelentések rendszeres áttekintésére.

A felsővezetés javadalmazási rendszere a következő elemekből épül fel: 90 % fix munkabér valamint 10% részvényopció. A menedzsment fluktuációja alacsony, munkáját széles társadalmi megbecsülés övezi.

Az elmúlt év, valamint az idei évre vonatkozó nyers beszámoló számai alapján a lényegességet 8 millió euróban határozta meg a könyvvizsgáló.

3. Iparági helyzet

A gyógyászati berendezéseket az egészségipar legösszetettebb és legváltozatosabb területének tekintik. A 2004-es csúcs óta a legtöbb gyógyászati berendezéseket gyártó cég visszaesést tapasztal. A tapasztalható negatív folyamat egyértelmű oka egyrészt az egészségügyi kiadások költségvetési szintű csökkentése, valamint a fizetési feltételek kedvezőtlen irányban történő változása.

4. Az árbevétel elszámolásának folyamata

Az értékesítési árbevétel elszámolása a termékek kiszállítása után, az ügyfeleknek kiállított számla alapján történik. A fizetési határidőt, az iparági szokásoknak megfelelően, 45 napban határozzák meg. Hasonlóan az évközi audit eredményéhez, az év végi audit tesztelései is azt mutatták, hogy e területen a kontrollok megfelelően működnek.

Az évközi audit óta eltelt időszakban, pontosabban 2006 novemberében, a Társaság elindított egy marketingkampányt. A kampány célja, hogy válaszlépésként szolgáljon a versenytársak által a disztribútorok ösztönzésére kialakított akciókra.

A kampány eredményeképpen az értékesítés árbevétele 10 millió euróval, az adózás előtti eredmény pedig 1,1 millió euróval nőtt. A marketingstratégia részletei a következőkben kerülnek bemutatásra.

5. Marketing stratéga

2006. végén a vezetés úgy döntött, hogy a stratégiai célok elérése érdekében átszervezi az értékesítési csatornák marketing tevékenységét. A Társaság korábban analóg és digitális termékeit két fő csatornán keresztül értékesítette: saját alkalmazottaival direkt módon, illetve disztribútorainak hálózatán keresztül. Az új stratégia részeként, az analóg termékek értékesítése terén az elsődleges értékesítővé a disztribútorokat léptette elő. Ennek célja, hogy az így felszabadult belső direkt értékesítési erőforrásait a digitális termékek értékesítésére tudja irányítani.

A novemberben elkezdődött kampány keretében a disztribútoroknak meg kellett vásárolniuk egy minimálisan elvárt mennyiséget, amely a Társaságnál raktáron lévő analóg termékek készletét (1,8 millió darab) a disztribútorok értékesítési teljesítményének arányában osztotta fel. Annak érdekében, hogy a disztribútorok széles köre bekapcsolódjon a programba, az analóg készülékek végső vásárlóinak a Társaság kedvezményeket nyújtott, hogy így ösztönözze a disztribútorok eladásait a végfelhasználók felé.

Az eladás ösztönzésének további eszközeként a Társaság – az adatvédelmi szabályokkal összhangban – hozzáférést biztosít olyan nagyobb ügyfelekhez, kórházakhoz, orvosokhoz, akiket korábban a Társaság közvetlenül szolgált ki. Mindezek mellett, a Társaság azt tervezi, hogy a piaci növekedésből származó nyereség egy részét, a még erősebb ösztönzés érdekében megosztja a disztribútorokkal.

Előbbieken felül, a Társaság bevezetett egy programot, amelynek keretében a kiskereskedők, amennyiben a disztribútoroktól analóg készüléket vásároltak, olyan kedvezményre jogosító pontokat gyűjthettek, amelyeket később digitális berendezések vásárlása során válthattak be. Az ilyen programok az iparági lassulás megjelenése óta, az egész iparágban általánosan alkalmazott eszköznek tekinthetőek.

A program keretében a disztribútoroknak alá kellett írniuk egy kötelezettségvállalási nyilatkozatot is, melyben vállalták, hogy 2007. június végig teljesítik minden tartozásukat a Társaság felé, amely tartalmazza a 2006. novemberi marketing akció során vásárolt berendezések ellenértékét is. A kötelezettségvállalás értelmében a disztribútoroknak a novemberi program keretében megvásárolt készletek kapcsán keletkezet tartozásukat folyamatosan kell rendezniük a Társaság felé olyan arányban, ahogy a program során megvásárolt készleteket értékesíteni tudják. 2007. júniusában a kötelezettségvállalás értelmében azonban a disztribútoroknak a fennálló teljes tartozásukat ki kell egyenlíteniük.

2006. november 13-án a Társaság találkozóra hívta a disztribútorait, ahol részleteiben bemutatásra került a marketing program, amely a disztribútorok körében nagy népszerűségnek örvendett. A program sikerét fémjelezi, hogy a disztribútorok azonnal nagy volumenben rendelték meg az analóg berendezéseket, valamint az, hogy év végéig négy disztribútor kivételével az összes csatlakozott a programhoz.

2006. december 10-én a Társaság kontrollere 11 disztribútor estében kérte a hitelkeret megemelést. A kontroller indoklásában bemutatta a novemberi kampány eredményeit, potenciális hasznát, a biztosítékul szolgáló kötelezettségvállalási nyilatkozatokat, a disztribútorok múltbeli fizetési szokásait és jelenleg fennálló tartozásaikat. Mindezek alapján a vezetés elfogadta a kontroller javaslatát, és jóváhagyta a hitelkeretek megemelését.

Végezetül, számos disztribútor jelezte a november 13-i találkozó során vagy azt követően, hogy nem rendelkeznek elegendő raktározási kapacitással ekkora készlet megfelelő tárolására. Ennek rendezésére, a Társaság raktárakat bérelt ki.

Összességében, a vezetés elégedett volt a marketing kampánnyal. A jövőbeli kilátások azonban erősen függnek attól, hogyan reagálnak a versenytársak.

KONSZOLIDÁLT EREDMÉNYKIMUTATÁS

(ADATOK EZER EURBAN)	2005/01/01 - 2005/12/31 (auditált)	2006/01/01 - 2006/12/31 (nyers)
I. Értékesítés nettó árbevétele	1 709 086	1 872 184
II. Értékesítés közvetlen költségei	778 684	841 429
III. Értékesítés bruttó eredménye	**930 402**	**1 030 755**
IV. Értékesítés közvetett költségei	660 157	779 886
A: Üzemi eredmény	**270 245**	**250 869**
B: Pénzügyi műveletek eredménye	**13 700**	**13 561**
D: Adózás előtti eredmény	**256 545**	**237 308**
Adófizetési kötelezettség	85 125	80 761
E: Adózott eredmény	**171 420**	**156 547**
Osztalékfizetési kötelezettség	47 558	52 266
G: Mérleg szerinti eredmény	**123 862**	**104 281**
Egy részvényre jutó eredmény (EPS)	2,84	2,60

KONSZOLIDÁLT MÉRLEG

	2005/12/31 (auditált)	2006/12/31 (nyers)
A Befektetett eszközök	**791 974**	**1 109 867**
Immateriális javak	503 922	541 061
Tárgyi eszközök	288 052	568 806
Befektetett pénzügyi eszközök	0	0
B Forgóeszközök	**974 034**	**1 302 970**
Készletek	279 825	297 208
Követelések (Vevőkövetelések)	277 338	384 973
Értékpapírok	98	74 753
Pénzeszközök	416 773	546 036
C. Aktív időbeli elhatárolások	**107 779**	**173 844**
ESZKÖZÖK ÖSSZESEN	**1 873 787**	**2 586 681**
D Saját tőke	**898 282**	**1 001 580**
Jegyzett tőke	113 238	112 255
Eredménytartalék	661 182	785 044
Mérleg szerinti eredmény	123 862	104 281
E Céltartalékok	**0**	**0**
F Kötelezettségek	**654 661**	**1 183 771**
Hosszú lejáratú kötelezettségek	408 707	870 312
Rövid lejáratú kötelezettségek	470 545	594 390
Szállítók	422 788	503 573
Rövid lejáratú hitelek	10 657	21 935
Adótartozások	37 100	68 882
G. Passzív időbeli elhatárolások	**97 253**	**120 399**
FORRÁSOK ÖSSZESEN	**1 873 787**	**2 586 681**

CASH FLOW

	2005/01/01 - 2005/12/31 (auditált)	2006/01/01 - 2006/12/31 (nyers)
I Működési cash flow	177 284	116 482
II Befektetési cash flow	-152 553	-387 567
III Finanszírozási cash flow	-19 702	400 348
Pénzeszközök változása	**5 029**	**129 263**

KIEMELT PÉNZÜGYI MUTATÓK

	Számítás	2005/12/31 (auditált)	2006/12/31 (nyers)
Likviditási ráta	(Forgóeszközök + Aktív időbeli elhatárolások) / (Rövid lej. kötelezettségek + Passzív id. elh.)	1,9	2,1
Követelések forgási sebessége	Értékesítés nettó árbevétele / Követelések állománya	6,2	4,9
Követelések behajtási ideje	365 nap / Követelések forgási sebessége	59 nap	75 nap
Készletek forgási sebessége	Értékesítés közvetlen költségei / Átlagos készlet állomány	2,78	2,83
Készletek tartási ideje	365 nap / Készletek forgási sebessége	131 nap	129 nap
Bruttó eredmény színvonal	Értékesítés bruttó eredménye / Értékesítés nettó árbevétele	54,4%	55.1%
Eszköz arányos megtérülés	Adózás előtti eredmény / Eszközök átlagos állománya	9,2%	13,7%
Eladósodottsági fok mutató	Idegen tőke / Összes forrás	52,1%	61,3%
Működési cash flow / értékesítés nettó árbevétele	Működési cash flow / Értékesítés nettó árbevétele	10,4 %	6,2 %

APPENDIX 3: CASE STUDY (HIGH RISK VERSION)

2. A korábbi könyvvizsgálatok során gyűjtött tapasztalatok

A felsővezetés javadalmazási rendszere a következő elemekből épül fel: 50 % fix munkabér, 30% eredményalapú bónusz, 20% részvényopció. Az iparági sajátossággal összhangban, a vezetésre jelentős nyomás nehezedik a tekintetben, hogy a Társaság rendszeresen képes legyen hozni a piaci pénzügyi elemzők eredményre vonatkozó előrejelzéseit. Ezt támasztja alá az is, hogy a Társaság az elmúlt három évben mindig elérte vagy túlszárnyalta a bevételre vonatkozó piaci elvárásokat. A menedzsment fluktuációja alacsony, munkáját széles társadalmi megbecsülés övezi.

4. Az árbevétel elszámolásának folyamata

Az évközi audit óta eltelt időszakban, pontosabban 2006 novemberében, a Társaság elindított egy marketingkampányt. A kampány célja, hogy válaszlépésként szolgáljon a versenytársak által a disztribútorok ösztönzésére kialakított akciókra.

A kampány eredményeképpen az értékesítés árbevétele 22 millió euróval, az adózás előtti eredmény pedig 9,2 millió euróval nőtt. A marketingstratégia részletei a következőkben kerülnek bemutatásra.

5. Marketing stratégia

A program keretében a disztribútoroknak alá kellett írniuk egy kötelezettségvállalási nyilatkozatot is, melyben vállalták, hogy 2007. június végig teljesítik minden tartozásukat a Társaság felé, amely tartalmazza a 2006. novemberi marketing akció során vásárolt berendezések ellenértékét is. A kötelezettségvállalás értelmében a disztribútoroknak a novemberi program keretében megvásárolt készletek kapcsán keletkezet tartozásukat folyamatosan kell rendezniük a Társaság felé olyan arányban, ahogy a program során megvásárolt készleteket értékesíteni tudják. 2007. júniusában a kötelezettségvállalás értelmében azonban a disztribútoroknak a fennálló teljes tartozásukat ki kell egyenlíteniük, amelynek a mértéke a Precesion becslései szerint a novemberi akció keretében felvásárolt készletek értékének 70 %-ára fog rúgni. Amennyiben a disztribútorok júniusban nem képesek a fennálló összes tartozásukat törleszteni, a még el nem adott készleteket vissza kell, hogy küldjék a Precision számára.

APPENDIX 4: QUESTIONNAIRE (TRADITIONAL APPROACH)

A Kérdőív és a kitöltéshez szükséges információk

Arra kérjük Önt, hogy az esettanulmány információira támaszkodva, az alábbi útmutatás alapján végezze el a könyvvizsgálati kockázatbecslési eljárást, és állítsa össze a könyvvizsgálati munkaprogramot! Kérjük, hogy a kérdésekre a megadott sorrendben válaszoljon. Szükség esetén bármikor visszatérhet az esettanulmányhoz és újraolvashatja a releváns részeket.

Útmutató a kockázatbecslés elvégzéséhez

A jelenlegi könyvvizsgálati gyakorlat alapján a könyvvizsgálati eljárások megtervezése előtt fel kell mérnie számos kockázatot. Az Önt foglalkoztató könyvvizsgáló cég könyvvizsgálati kézikönyvében a kockázat becsléssel foglalkozó fejezete szerint a következő kockázatokat kell figyelembe venni:

Könyvvizsgálati kockázat (a 200. témaszámú, „A független könyvvizsgáló átfogó céljai és a könyvvizsgálatnak a nemzetközi könyvvizsgálati standardokkal összhangban történő végrehajtása" elnevezésű nemzetközi könyvvizsgálati standard szerint):

AR = IR x CR x DR

Ahol:

AR= **Könyvvizsgálati kockázat (A**udit **R**isk**) –** Annak kockázata, hogy a könyvvizsgáló nem megfelelő könyvvizsgálói véleményt bocsájt ki olyan esetekben, amikor a beszámolóban lényeges hibás állítások vannak.

IR = **Eredendő kockázat** (**I**nherent **R**isk) – Egy ügyletcsoportra, számlaegyenlegre vagy közzétételre vonatkozó állítás hibás állításnak való kitettsége, amely hibás állítás lényeges lehet akár önmagában, akár egyéb hibás állításokkal együttesen, bármely kapcsolódó kontroll mérlegelése előtt.

CR = **Ellenőrzési kockázat** (**C**ontrol **R**isk) – Az a kockázat, hogy egy olyan hibás állítást, amely egy ügyletcsoportra, számlaegyenlegre vagy közzétételre vonatkozó állításban felmerülhetett, és amely lényeges lehetett akár önmagában, akár egyéb hibás állításokkal együttesen, a gazdálkodó egység belső kontrollja nem fog időben megelőzni vagy feltárni és helyesbíteni.

DR = **Feltárási kockázat** (**D**etection **R**isk) – Az a kockázat, hogy a könyvvizsgáló által a könyvvizsgálati kockázat elfogadhatóan alacsony szintre történő csökkentése érdekében végrehajtott eljárások nem fognak feltárni egy meglévő hibás állítást, amely lényeges lehet akár önmagában, akár egyéb hibás állításokkal együttesen.

RMM = Lényeges hibás állítás kockázata (**R**isk of **M**aterial **M**isstatement), amely a kombinált kockázata az eredendő kockázatnak és az ellenőrzési kockázatnak (IR x CR).

Kockázat értékelés

Az esettanulmányban megismert ügyfélre vonatkozó információk, és a fenti iránymutatások alapján végezze el az alábbi kockázatbecslést! A válaszaiban 0.00 – 1.00 közötti skálán jelölje értékítéletét.

0.00: 0 % egyáltalán nem érez valószínűségét a megjelenésnek.

0.50: 50 % esély a megjelenésre, amely egyenlő a pénzfeldobás valószínűségével

1.00: 100 % esély a megjelenésre.

(0.00 és 1.00 között bármely számot megjelölhet)

1. **Elfogadható könyvvizsgálati kockázat (AAR):** Az elfogadható könyvvizsgálati kockázat szintje általában 10 % (0.1) és 50 % (0.5) között helyezkedik el.

   AAR = _____

2. **Eredendő kockázat (IR):**

   IR = _____

3. **Ellenőrzési kockázat (CR)**:

   CR = _____

4. **Feltárási kockázat (DR)**:

   DR = _____

5. **Könyvvizsgálati kockázat (AR):** A 2. – 4. pontokban meghatározott kockázati szintek segítségével meghatározhatjuk, hogy mekkora a kockázata annak, hogy az ügyfél árbevétel elszámolása **véletlen** eredetű lényeges hibás állítást tartalmaz!

   AR = IR x CR x DR = (_____) x (_____) x (_____) = _______

6. **Csalási kockázat (FR) = _____**

Könyvvizsgálati program az árbevétel elszámolás vizsgálatára

Az esettanulmány ezen részében azt a feladatot kapja, hogy véglegesítse a Társaság árbevétel elszámolási rendszerét vizsgáló könyvvizsgálati munkaprogramot. A következő oldalon egy munkaprogram tervet talál, amelyet a 2005-ös év könyvvizsgálata alapján készített el Önnek asszisztense. A könyvvizsgálati partner arra kéri Önt, hogy nézze át, és szükség esetén módosítsa a programot a 2006-os év körülményeinek megfelelően. Ahogy a gyakorlatban is, szabadon megváltoztathatja a programot, bevehet új eljárásokat, megváltoztathatja az eljárások jellegét, növelheti illetve csökkentheti azok terjedelmét.

Kérem, hogy minden eljárás esetében jelölje választását legjobb szakmai megítélése alapján. Szabadon dönthet arról, hogy egy eljárást kivesz-e a munkaprogramból, a standard eljárást végzi-e el, vagy adott esetben módosítja az eljárást annak érdekében, hogy a könyvvizsgálati kockázat elfogadható szintjét elérje. Ugyanakkor vegye azt is figyelembe, hogy könyvvizsgálati munka költségeinek kordában tartása végett a hatékonyság figyelembevétele elengedhetetlen. A könyvvizsgálatot vezető partner az Ön által kialakított programot annak várható hatékonysága és eredményessége alapján fogja megítélni. A programhoz saját belátása szerint szabadon adhat hozzá olyan eljárásokat, amelyek korábban nem szerepeltek a programban.

Miután elkészítette a könyvvizsgálati munkaprogramot, arra kérjük, hogy becsülje meg a könyvvizsgálatra fordítandó órák számát, amely természetesen tartalmazza az asszisztensek munkaóráit is. Ennek érdekében aktualizálja a 2006. szeptemberi évközi könyvvizsgálat időtervét és az órák felosztását!

PRECISION EQUIPMENT Nyrt

Árbevétel elszámolási rendszer tervezett munkaprogramja

2007. December 31.

(A táblázatban X-el jelölje az egyes eljárásokkal kapcsolatos megítélését!)

	Eljárás kihagyása/ Nem értelmezhető	Standard eljárás elvégzése (véletlen mintavétel, alacsony és közepes kockázat)	Mintaméret növelése (magas kockázat)	Egyéb módosítás az auditprogramban	
Elemző eljárások elvégzése és eredmények dokumentálása	☐	☐	☐	☐	……………………
Egyenlegközlők kiküldése a vevőknek	☐	☐	☐	☐	……………………
Értékvesztésekre és behajthatatlan követelésekre vonatkozó számviteli becslések áttekintése	☐	☐	☐	☐	……………………
Kedvezmények és visszaküldések megfelelő elszámolásának tesztelése	☐	☐	☐	☐	……………………
Értékesítés vizsgálata időbeli elhatárolás szempontjából (cut-off teszt)	☐	☐	☐	☐	……………………
Bevételek és követelések könyvelési tételeinek ellenőrzése mintavételezéssel	☐	☐	☐	☐	……………………
Jelentős és szokatlan tételek azonosítása, amelyek kívül esnek a gazdálkodó szokásos üzletmenetén, vagy amelyek - figyelembe véve a könyvvizsgáló ismereteit és egyéb információit - egyébként szokatlannak tűnnek	☐	☐	☐	☐	……………………
Interjú készítése a vezetéssel arról, hogy a vezetés hogyan méri fel annak kockázatát, hogy a pénzügyi kimutatások csalás miatt lényeges hibás állításokat tartalmazhatnak	☐	☐	☐	☐	……………………
Interjú egyéb személyekkel:					

………………………………………..					
………………………………………..					
………………………………………..					
………………………………………..					
………………………………………..					
Bizonyos releváns szerződéses feltételek megerősíttetése a vevőkkel	◻	◻	◻	◻	……………………
Számítógéppel támogatott ellenőrzési technikák alkalmazása (CAAT)	◻	◻	◻	◻	……………………
A leltározáson történő részvétel megszervezése, majd a leltározás megfigyelése a helyszíne(ke)n	◻	◻	◻	◻	……………………
Korosított vevői lista áttekintése	◻	◻	◻	◻	……………………
Bevételek és követelések megfelelő besorolásának tesztelése					
Egyéb:					
………………					
……………....					
………………					

Könyvvizsgálati időtervezés az árbevétel elszámolására vonatkozóan

Az év végi könyvvizsgálati időterv a 2006. szeptemberi évközi könyvvizsgálati munkákhoz készült, és nem tért el jelentősen az előző évek időterveitől. Amennyiben szükségesnek ítéli, aktualizálhatja az időtervet.

Az előzetes időterv az előző években ledolgozott tényleges könyvvizsgálati órák alapján készült, amely az előző részben bemutatott előzetes könyvvizsgálati program végrehajtásához tartozott.

	Előzetes időterv (előző évek alapján)	**Végleges időterv**
Asszisztens	30	_____
Szenior asszisztens	20	_____
Menedzser	10	_____
Könyvvizsgáló partner	5	_____
Összesen	**65**	_____

Külső szakértővel történő konzultáció szükségessége

Az előzőekben Ön csalási kockázatbecslést végzett a Társaság árbevétel elszámolására vonatkozóan. Valószínűleg Ön is tudja, hogy a csalások felismerése egyre nagyobb hangsúlyt kapott az elmúlt években, ami egyrészt a pénzügyi beszámolók felhasználóinak a kifejezett elvárása, másrészt erős szabályozói elvárás. Tételezzük fel, hogy a könyvvizsgáló partner tudni szeretné, hogy a korábban Ön által javasolt könyvvizsgálati program mennyire tudja megfelelően kezelni a Társaság kitettségét a tekintetben, hogy a jelentős csalások feltárhatóak legyenek. Ennek érdekében kíváncsi arra, hogy Ön szerint szükséges-e kockázat menedzsment szakértővel / csalási szekértővel konzultálni a könyvvizsgálat program véglegesítése előtt. Az ilyen szakemberek széleskörű tapasztalattal rendelkeznek csalások felderítése területén. Tekintettel arra, hogy a könyvvizsgálatnak költség hatékonynak kell lennie, ilyen szakemberek bevonására nincs minden megbízás esetében lehetőség/szükség, csak akkor, amikor a könyvvizsgálati munkát végző csoport úgy érzi, hogy a könyvvizsgálati programjával nem tudja a feltárási kockázatot elfogadható szintre csökkenteni.

Kérem, hogy ítélje meg egytől tízig terjedő skálán, hogy mennyire tartja szükségesnek csalás szakértő vagy kockázat menedzsment szakértő bevonását a könyvvizsgálati program véglegesítése előtt!

1-------2-------3------4----------5------ 6------7-------8--------9---------10

Nincs szükség konzultációra	Közepesen tartom szükségesnek a konzultáció	Nagy szükségét érzem a konzultációnak

DEMOGRÁFIAI INFORMÁCIÓK: Végezetül arra kérjük, hogy válaszoljon az alábbi demográfiai kérdésekre. KÉRJÜK, HOGY NE LAPOZZON VISSZA KORÁBBI VÁLASZAIHOZ!

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1. Értékelje, hogy mekkora az átfogó **LÉNYEGES HIBÁS ÁLLÍTÁS KOCKÁZATA (IR x CR)** a Társaság árbevétel elszámolását illetően:

Alacsony			Közepes			Magas
1	2	3	4	5	6	7

2. Értékelje, hogy mekkora a **CSALÁSI KOCKÁZAT** a Táraság árbevétel elszámolását illetőn:

Alacsony			Közepes			Magas
1	2	3	4	5	6	7

3. Könyvvizsgálati tapasztalat: _________év _________hónap

4. Betöltött pozíció (X-el jelölje): Szenior___ Menedzser___ Partner___ Egyéb___

5. Jelölje (X-el), szakmai képzettségét és képesítését az alábbi lista alapján:

ACCA hallgató: ___

ACCA tag: ___ Tagság kezdete (év): ___

Hallgató, MKVK könyvvizsgálói képesítés megszerzéséért tanul: ___

Mentori fázis, MKVK könyvvizsgálói képesítéssel rendelkezik: ___

Aktív regisztrált tagja az MKVK-nak: ___ (Regisztráció éve:_____)

Inaktív regisztrált tagja az MKVK-nak: ___ (Regisztráció éve:_____)

Egyéb: ____

6. Van-e könyvvizsgálati tapasztalata BIG4 könyvvizsgáló cég alkalmazottjaként?

   Igen: ___ Nem: ___

   Eltöltött évek száma: ___

7. Adja meg azt a három iparágat, amelyben a leghosszabb tapasztalattal rendelkezik:

   (1):____év tapasztalat a ______________________________iparágban.

   (2):____év tapasztalat a ______________________________iparágban.

   (3):____év tapasztalat a ______________________________iparágban.

8. Adja meg, hogy hány év tapasztalattal rendelkezik az alábbi vállalatok könyvvizsgálatában.

   (1):____év tapasztalat mikrovállalkozásoknál.

   (Alkalmazottak létszáma < 10; Forgalom < 600 mFt vagy Mérlegfőösszeg < 600 mFt)

   (2):____év tapasztalat kisvállalkozásoknál.

   (Alkalmazottak létszáma < 50; Forgalom < 3 mrd Ft vagy Mérlegfőösszeg < 3 mrd Ft)

   (3):____év tapasztalat középvállalkozásoknál.

   (Alkalmazottak létszáma < 250; Forgalom < 15 mrd Ft vagy Mérlegfőösszeg < 13 mrd Ft)

   (4):____év tapasztalat nagyvállalatnál.

   (5):____év tapasztalat tőzsdén jegyzett vállalatnál.

9. A kutatás kérdéseinek megválaszolása előtt hallott már a **csalási háromszögről**?

Igen: ___

Nem: ___

10. Vett már részt számviteli visszaélésekkel kapcsolatos képzésen?

Nem: ___

Igen, vállalati belső tréning/képzés keretei között: ___

Igen, a MKVK szervezésében: ___

Igen, egyéb szervezet szervezésében: ___

11. Az alábbi skálán jelezze, hogy a korábbiakban milyen tapasztalata volt az árbevétel elszámolásának könyvvizsgálatában:

Egyáltalán nincs korábbi tapasztalatom	Számos alkalommal találkoztam már vele	Rendszeresen találkoztam vele a korábbi években

1------------2----------3--------------4-----------5------------6--------------7

KÖSZÖNJÜK RÉSZVÉTELÉT A KUTATÁSBAN!

APPENDIX 5: QUESTIONNAIRE (DECOMPOSITION)

A következő kérdések a számviteli csalás kockázatának értékelésére irányulnak a korábbiakban bemutatott csalási kockázat értékelési módszerére építve:

FR (Csalási kockázat, Fraud risk) = RI x RA x RO x RSP

(a rövidítések magyarázata alább található)

Az esettanulmányban megismert ügyfél információk és a fenti iránymutatások alapján végezze el az alábbi kockázatbecslést! A válaszaiban 0.00 – 1.00 közötti skálán jelölje értékítéletét.

0.00: 0 % egyáltalán nem valószínű a csalás megjelenése.

0.50: 50 % esély a csalás megjelenésére, amely egyenlő a pénzfeldobás valószínűségével

1.00: 100 % esély a csalás megjelenésére.

(0,00 és 1.00 között bármely számot megjelölhet)

7. **Csalás elkövetésére irányuló ösztönzők vagy nyomás jelenlétének kockázata (RI).** Annak a kockázata, hogy a vállalat vezetői ösztönözve vagy kényszerítve vannak arra, hogy visszaélést kövessenek el.

   RI = _____

8. **Indoklás / attitűd kockázat (RA)**: Annak kockázata, hogy a elkövetők morálisan igazolni tudják saját maguk számára az általuk elkövetett visszaélést, valamint a csalásra való hajlamot támogató attitűddel rendelkeznek.

   RA = _____

9. **A lehetőség kockázata (RO).** Annak kockázata, hogy a vezetők találnak megfelelő lehetőséget arra, hogy visszaélést kövessenek el.

   RO = _____

10**. Csalási kockázat (FR**): Számítsa ki a csalási kockázatot a csalási kockázat model (FR = RI x RA x RO x RSP) valamint a 7 – 9. pontokban becsült értékek segítségével!! Éljen azzal feltételezéssel, hogy semmilyen speciális eljárást nem folytatott le, azaz RSP=100 %.

Csalási kockázat (FR) = RI x RA x RO x RSP = (_____)x(_____) x(_____) x(1.0) = _____

11**. Speciális eljárások kockázata (RSP):** Tételezzük fel, hogy 5 % (FR = 5 %) szinten szeretné tartani a csalási kockázatot annak érdekében, hogy minősítés nélküli könyvvizsgálói jelentést tudjon kibocsájtani. A 7 -9. pontokban meghatározott értékek segítségével számítsa ki annak a kockázatát, hogy a speciális eljárások nem tárják fel a jelentős vezetői visszaéléseket.

$$RSP = \frac{FR}{RIxRAxRO} = \frac{0.05}{(\quad)x(\quad)x(\quad)} = \_\_\_\_\_$$