

NHH



NORWEGIAN SCHOOL OF ECONOMICS

Bergen, Spring 2015

# **The use of awareness as a tool to mitigate biases related to source credibility**

**-An experimental study**

**Idil Mahamed Abdi and Sultan UI Arfeen**

**Thesis Advisor: Jonas Gaudernack**

Master thesis, Regnskap og revisjon

**NORWEGIAN SCHOOL OF ECONOMICS**

This thesis was written as a part of the Master of Accounting and Auditing at NHH. Please note that neither the institution nor the examiners are responsible – through the approval of this thesis – for the theories and methods used, or results and conclusions drawn in this work.

## **Abstract:**

Auditors have to rely on their professional judgment regularly while performing different tasks in an audit. In some areas of audit the quality of their professional judgment is of very sensitive nature and FVMs (fair value measurements) has been identified as one of them by PCAOB (Public company accounting oversight board)

This study examines the relationship between source credibility and professional judgment of auditors (students as surrogates) when awareness is applied as a tool to improve the judgment quality. In Advertising and marketing previous studies have used awareness as a tool to improve advertisement effectiveness but this study uses this tool to improve auditors' professional judgment quality, which may contribute to the literature. This study has used students of Norwegian School of Economics (NHH) as surrogates; it was made sure that participating students have the necessary skills and knowledge to contribute to the study. Data was collected from a population of 300 students who had taken intensive courses in auditing and accounting at master's level. The findings show that awareness has a significant impact on professional judgment of auditors.

**Key words:** Source credibility, Awareness, Professional Judgment.

## **Abbreviation list:**

|        |   |
|--------|---|
| PCAOB, | Public company accounting oversight board |
| FVMs,  | Fair value measurements                   |
| JDM    | Judgment and decision-making              |
| ISA    | International Standard on Auditing        |
| HSM    | Heuristic-systematic model                |
| NHH,   | Norwegian school of economics             |

## Preface

This thesis is part of our Master degree program MRR (Master in Accounting and Auditing) at Norwegian School of Economics. This study is an experimental study that is carried out with the help of Qualtrics, which is quite well known research tool. The target of our efforts was to find out if awareness could be used as a measure to mitigate biases in professional judgment towards source credibility in complex audit settings. We have tried to obtain empirical evidence through an experiment, to see if awareness can reduce the auditors' tendency of overreliance on expert valuations in areas where they lack expertise. The experiment was carried out in May 2015 among students of MRR at Norwegian school of Economics through Qualtrics.

We would like to pay our sincere gratitude to our supervisor, Jonas Gaudernack, for his immense support and guidance throughout this thesis. Without his advices and personal interest, the completion of this thesis was impossible. Special thanks also goes to all the fellow students who participated in the study and gave their valuable support for this thesis.

Bergen , June 2015

Idil Abdi and Sultan ul Arfeen

# Table of Contents

|   |           |
|---|-----------|
| <b>Abstract:</b> .....                                      | <b>2</b>  |
| <b>Abbreviation list:</b> .....                             | <b>3</b>  |
| <b>Preface</b> .....  | <b>4</b>  |
| <b>Table of Contents</b> .....                              | <b>5</b>  |
| <b>1. Introduction:</b> .....                               | <b>8</b>  |
| 1.1 Research objective and contribution of the study: ..... | 9         |
| 1.1.1 <i>Judgment framing:</i> .....                        | 10        |
| 1.1.2 <i>Problem formulation:</i> .....                     | 10        |
| 1.2 Research Question: .....                                | 11        |
| 1.3 Limitations of the study: .....                         | 11        |
| 1.4 Outline of the thesis: .....                            | 12        |
| <b>2. BACKGROUND &amp; RELATED LITERAURE</b> .....          | <b>12</b> |
| 2.1 What is judgment and decision-making? .....             | 13        |
| 2.1.1 <i>Judgment and decision-making defined</i> .....     | 13        |
| 2.1.2 <i>JDM Research</i> .....                             | 13        |
| 2.1.2 <i>Heuristics and Biases Research</i> .....           | 15        |
| 2.3.3 <i>The Heuristic-Systematic model</i> .....           | 15        |
| 2.2 Professional judgment defined.....                      | 16        |
| 2.2.2 <i>The KPMG Professional Judgment Framework</i> ..... | 17        |
| 2.2.3 <i>Judgment framing</i> .....                         | 19        |
| 2.3 Source credibility .....                                | 19        |
| 2.3.1 <i>Source credibility in psychology</i> .....         | 19        |
| 2.3.2 <i>Source credibility in auditing (ISA 620)</i> ..... | 21        |
| 2.3.3 <i>Reliance of experts in auditing:</i> .....         | 22        |
| 2.3.4 <i>Fair value measurement</i> .....                   | 22        |
| 2.3.5 <i>PCAOB investigation</i> .....                      | 24        |
| 2.3.6 <i>Research findings of FVMs in auditing:</i> .....   | 26        |
| <b>3.1 Conceptual model and hypothesis.....</b>             | <b>27</b> |
| 3.2 Conceptual model.....                                   | 27        |
| 3. 2 Hypothesis.....  | 28        |
| <b>4. Methodology:</b> .....                                | <b>30</b> |
| 4.1 Research approach: .....                                | 30        |
| 4.1.1 <i>Experimental design of the study:</i> .....        | 30        |
| 4.2 Data type and research tool:.....                       | 31        |
| 4.2.1 <i>Time horizon:</i> .....                            | 31        |
| 4.2.2 <i>Sample:</i> .....                                  | 31        |
| 4.2.3 <i>Questionnaire:</i> .....                           | 32        |
| 4.2.4 <i>Pre test and post experimental questions</i> ..... | 34        |
| 4.3 Explanation of Variables .....                          | 34        |
| 4.3.1 <i>Independent variables:</i> .....                   | 34        |
| 4.3.2 <i>Dependent variable:</i> .....                      | 35        |

|  |           |
|--|-----------|
| <b>5. Statement of results</b> .....       | <b>35</b> |
| 5.1 Manipulation checks .....              | 35        |
| 5.2 Results.....                           | 36        |
| <b>6. Conclusion</b> .....                 | <b>37</b> |
| 6.1 Answers to research question .....     | 37        |
| 6.2 Contribution to research.....          | 38        |
| 6.3 Contribution to audit practice .....   | 38        |
| 6.4 Suggestions for future research.....   | 39        |
| <b>References</b> .....                    | <b>40</b> |
| <b>Appendix 1: Introduction</b> .....      | <b>43</b> |
| Appendix 2: Example of cases .....         | <b>44</b> |
| <i>Example for Expert*Awareness</i> .....  | 44        |
| Appendix 3: Post experimental survey ..... | <b>48</b> |
| <b>Tables</b> .....                        | <b>50</b> |
| Table 1:.....                              | 50        |
| Table 2:.....                              | 50        |
| Table 3:.....                              | 51        |
| Table 4 .....                              | 52        |
| Table 5:.....                              | 52        |



## 1. Introduction:

Professional judgment is a matter of considerable interest for both academics and practitioners in the world of auditing and accounting services. A very decent amount of literature has focused on the judgment and decision-making research; among this literature a lot of papers have examined the factors, which affect the professional judgment of auditors. Auditors and audit firms have a very key role in our current financial and economical structure; legislating bodies, regulatory authorities, investors, shareholders and creditors, use their reports before making important decisions.

During the process of auditing and preparation of audit reports, at many instances auditors have to rely solely on their professional judgment. The three main areas where an auditor has to rely on their professional judgment are evaluation of evidence, estimating probabilities and making choices between different options. However, if professional judgment is a gift or a skill that can be acquired through practice or knowledge has remained a focus of immense discussion in literature.

This study has utilized the Heuristic-Systematic model towards an understanding of possibilities of improvement in the quality of professional judgment of auditors. Previous studies have found that *“additional knowledge about common threats, together with tools and processes for making good judgments, can improve the professional judgment abilities of both new and seasoned professionals”* (Eilifsen, Messier, Glover, & Prawitt, 2014)

Previous experimental studies on professional judgment have mainly focused on explaining the process of decision-making or identification of the factors that affect this process. Some parts have been focusing on improving the professional judgment quality of auditors. The Public Company Accounting Oversight Board (PCAOB) has shown concerns about auditing deficiencies and impairments in auditor's professional judgments especially regarding fair value measurements (PCAOB 2011). Because of this current relevance to the auditing world this study has chosen FVMs as part of the experimental investigation.



Can professional judgment towards fair value measurements be improved somehow? One of the most important footsteps towards avoiding judgment traps and diminishing bias produced by subconscious mental shortcuts is what is termed as “*Awareness*”. By a better understanding of traps and biases, and recognizing common situations where they are likely to present themselves, we can identify potential problems and often formulate logical steps to improve our judgment.

The purpose of this study is to determine if awareness can be used as a tool to improve the professional judgment of auditors specially while evaluating authenticity of FVMs provided through two different sources i.e. independent valuation specialists and in house managers.

### **1.1 Research objective and contribution of the study:**

The main objective of this study is to contribute to the discussion in the auditing world about improving professional judgment, specifically regarding complex accounting estimates where auditors have to rely on the works of others. Auditing standards require auditors to perform procedures to obtain evidence supporting expert’s opinion. However in reality research suggests that auditors over rely on third part expert opinion especially in areas where auditors lack expertise and experience. This study looks at how this bias can be mitigated?

This study is going to perform an experimental investigation of one of the possible factors, which can help auditors improve their professional judgment in situations where there is maximum risk of overreliance and blind trust on expert’s work. By observing how awareness moderates the relationship between source credibility and professional judgment, this study can contribute to the efforts of improving judgment quality in areas that are on the top of PCAOBs concerns list.

### **1.1.1 Judgment framing:**

This study assumes a judgment setting where the auditors or judges are exposed to fair value measurements (FVMs) and are asked to assess inherent risk on a given scale from 1 to 7. Subjects will be divided into three treatment conditions: Expert, In-house and Expert with awareness. In regards to subjects in the third-party expert condition, Half of participants are made aware about what can possibly go wrong and the other half were free to make their judgments in normal manner.

### **1.1.2 Problem formulation:**

Unfortunately this study is not taking into account all the factors, which can affect the professional judgment of auditors. For the purpose of this study we have taken PCAOBs concern list as a guideline and identified professional judgment quality towards source credibility of FVMs as an area of interest.

PCAOB has identified fair value measurement (FVM) as an area with huge increase in audit deficiencies. This is related to the measurement of certain assets especially the price determination of complex financial instruments. Fair value measurements and impairment audit shortcomings are specifically significant as these two specific issues are responsible for more than half of all latest audit deficiencies (PCAOB 2011).

In order to contribute to the discussion we have focused on collecting and analyzing empirical evidence pertaining to the moderating role of awareness, in a setting where professional judgment quality towards source credibility is evaluated. For the study we have considered the inherent risk assessment as proxy for professional judgment quality. PCAOBs reports are very clear about source of FVMs i.e. 3<sup>rd</sup> party evaluation experts but we have added an additional dimension of in-house prepared FVMs as well to observe variations in both cases.

Despite the importance of this issue, there is only limited empirical evidence available relating to factors which can act as a catalyst to improve judgment quality in complex audit settings. This thesis aims on contributing to the literature by examining the impact of the awareness on mitigating judgment biases and improving professional judgment quality in settings where auditors lack expertise and experience. It will be interesting to see whether and how the relationship between source credibility and professional judgment quality differs after the introduction of a tool called awareness, which has successfully been used in other socio-psychological research studies to improve behavioral judgments.

Based on the above narrative we have arrived at the following research question

### **1.2 Research Question:**

Can awareness be used as tool to help mitigate biases related to source credibility?

### **1.3 Limitations of the study:**

Unfortunately due to the time constraint and the limited resources available it was not feasible to access practicing auditors as subjects for the study. The data have been collected from the NHH students who are studying auditing and accounting at an advanced level and have all the necessary skills and knowledge required to take part in the study. The use of students as surrogates has been supported by previous research where students and business professionals made very similar judgments in decision-making studies (Ashton and Kramer 1980).

This study is a cross sectional study and the data is collected over a time period of 7 days. Data is collected only from the students of NHH who have gone through the courses, which provide essential knowledge base and skills required for taking part in the study. So if any other researcher uses different set of subjects i.e. auditors with many years of experience and longitudinal data he or she may arrive at different results.

The study is limited to few variables i.e. source credibility, professional judgment and awareness. Hence results cannot be applied to all the situations where one of the given variables is present but others are changed. Awareness can exhibit a different role in a situation where there are many independent variables and dependent variables.

#### **1.4 Outline of the thesis:**

The rest of the thesis is organized as follows: Section two is an overview of related theories and judgment and decision making literature relevant to the study. Section three further develops the conceptual model and proposes the hypotheses for the study. Section four describes the experimental design, sample, questionnaire and pretesting of the data collection instrument.. Section five is a description of the statistical results from the data collected. Section six is the final part of the study, which includes our conclusion and a discussion about limitations, implications and suggestions for future research.

## **2. BACKGROUND & RELATED LITERATURE**

This chapter serves as a backdrop for the empirical section and a foundation for discussion and analysis throughout this thesis. This thesis is rooted in the area of judgment and decision-making, therefore we will briefly define judgment and decision-making (JDM). We will also include previous JDM research in accounting and auditing. Second, we will define and summarize heuristics and biases research, which is our topic of choice in JDM research. Third, we will define and discuss both professional judgment and source credibility.

## 2.1 What is judgment and decision-making?

### 2.1.1 Judgment and decision-making defined

The term judgment refers to “*forming an idea, opinion, or estimate about an object, an event, a state, or another type of phenomenon* (Bonner, 1999, p. 385). In the dictionary the term decision is defined as a “*choice made between alternative courses of action in a situation of uncertainty*” The two terms are interlinked, it is said that generally decisions usually follow judgments, meaning that *judgment usually refers to the process of estimating outcomes and their consequences...while decision-making involves an evaluation of these consequences which leads to a choice among the alternatives* ( (Trotman, Tan, & Ang, 2011, p. 279)

In auditing and accounting, judgment occurs in three areas.

1. Evaluation of evidence: e.g. assessing when a sufficient amount of appropriate evidence has been obtained in order to determine the fairness of management’s assertions.
2. Estimating probabilities: e.g. determining whether the probability-weighted cash flows used by a company to determine the recoverability of long-lived assets are reasonable.
3. Deciding between options: e.g. deciding between audit procedures to determine if specific audit assertions are being met.

### 2.1.2 JDM Research

Since the mid 1970’s accounting and auditing researchers have focused more and more on understanding individual and group judgments and decisions. The first study to systematically examine auditor’s judgments was Ashton in 1974. Ashton’s research examined experienced auditors judge the strength of a hypothetical client’s internal controls

in the payroll system based on six cues. Since then, thousands and thousands of JDM studies have surfaced.

The aim of JDM research is to be descriptive, prescriptive and normative. This means that JDM research in auditing; JDM research is intended to “*describe how and how well auditors make audit decisions and improving the judgments of auditors, preparers and users of accounting information*” (Trotman, Tan, & Ang, 2011, p. 279)

JDM research is often called experimental psychology, the reason for that is that the most common method of understanding auditor judgments is through the use of experiments. The main benefits of experiments are that the researcher creates the setting for the experiment, manipulates the independent variables of choice, and examines the effect on dependent variable while controlling the effect of any confounding variables. Experimental design has an advantage that it can study the conditions, which either don't exist or exist in an insufficient volume or magnitude. Experimental design allows strong interferences to be made and studied (Trotman, Tan et al. 2011). Research about JDM can then be defined as research that focuses on factors of judgment and decisions as either dependent or independent variables.

But why is judgment and decision-making in auditing so important and why should we bother to studying it? Well there are both practical and theoretical reasons for studying JDM. From a practical perspective financial statement audits have a very critical role for our economy and important decisions depend on the results of such audits. Accounting at its core is about the judgment and decision-making (JDM) of individuals such as investors, managers, and auditors.

### 2.1.2 Heuristics and Biases Research

During the late 1970's Amos Tversky and Daniel Kahneman developed a theory that reformed JDM research, as a summarization this theory states that in general *"people rely on a limited number of heuristic principles which reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations"* (Tversky & Kahneman, 1974, p. 1124).

As we've referenced before the purpose of JDM research is to understand puzzling human judgment and behavior. Kahneman and Tveraky's research has sparked a flame in the world of psychology, since the 1970's more and more researchers have adapted and applied Kahneman and Tveraky's theory. The popularity hasn't stopped with just psychology the writer McKean states that *"Kahneman and Tveraky's research has resulted in a theory that provides a systematic explanation for some of the most puzzling aspects of human behavior, and spearheaded the growth of a new discipline of science devoted to the behavioral aspects of decision making.. Kahneman and Tveraky's work has begun to attract the attention of a wider audience such as doctors, lawyers, businessmen, and politicians, who see applications for it in choosing therapies, devising legal arguments and corporate strategies, even conducting foreign affairs."* (McKean, 1985, p. 23)

As a result of this growing popularity, behavioral auditing researchers have developed an interest in cognitive heuristics and biases.

Ashton (1983, p.34) concluded that, "the research on heuristics and biases in audit decision-making has been somewhat limited and the results have been mixed".

### 2.3.3 The Heuristic-Systematic model

The Heuristic-Systematic model was developed in 1980 by a social psychologist named Shelly Chaiken. The model attempts to explain how individuals receive and process persuasive messages.

Based on Chaiken's model, there are two ways of processing a message, a heuristic approach and a systematic approach. "*Heuristic processing involves the use of judgmental rules known as knowledge structures that are learned and stored in memory*" (Chen, Duckworth, & Chaiken, 1990). For example, people might have learned that messages from experts are more valid, than those with less expertise. Or that people might agree more with long and detailed arguments.

According to a systematic view, individuals exerts more cognitive efforts when processing information, they evaluate the true merits of the information provided. "*Judgment formed on the basis of a systematic processing involves a relatively in-depth treatment of judgment-relevant information*" (Chen, Duckworth, & Chaiken, 1990).

Both heuristic and systematic processing can co-occur. Chaiken and Maheswaran (1994) conducted a study, which showed that "*source credibility affects the decision makers' perception of the persuasion of the information through its impact on the importance of systematic processing*" (Chaiken & Maheswaran, 1994). This means that heuristics can effect systematic processing.

This study adapts the Heuristic-Systematic model to understand the underlying influences of professional judgment in order to effectively identify how to improve the quality of professional judgment of auditors.

## **2.2 Professional judgment defined**

Professional judgment is a requirement in so many fields, like the government, the legal system or medicine. Basically any work environment where professionals need to make important daily decisions.

According to the *International Standard on Auditing 200* (ISA 200), professional judgment is defined as "*the application of relevant training, knowledge and experience, within the*



*context provided by auditing, accounting and ethical standards, in making informed decisions about the courses of action that are appropriate in the circumstances of the audit engagement”.*

As an accounting and auditing student, you often find your instructor referring to professional judgment as answers to auditing questions. In fact many auditing task require decisions based on professional judgment and seeing that auditors are held liable for their decisions, it is therefore important to understand the mechanics of good judgment.

Some believe that good judgment is a gift, either you have it or you don't. Others believe that good judgment is a skill that can be learned and improved with knowledge and practice. Previous studies indicate that *“additional knowledge about common threats, together with tools and processes for making good judgments, can improve the professional judgment abilities of both new and seasoned professionals”* (Eilifsen, Messier, Glover, & Prawitt, 2014).

So based on previous studies, there seems to be hope for accountant and auditors to develop/improve good professional judgment. Therefore KPMG has developed a monograph that will help understand the underlying causes of good judgment in order to improve the professional judgment of auditors. The monograph is titled *Elevating Professional Judgment in Auditing and Accounting: The KPMG Professional Judgment Framework*. The contents of this monograph sparked the initial idea for this thesis.

### **2.2.2 The KPMG Professional Judgment Framework**

The monograph includes KPMG's professional judgment framework. This framework was developed to help auditors navigate through complex and uncertain tasks.

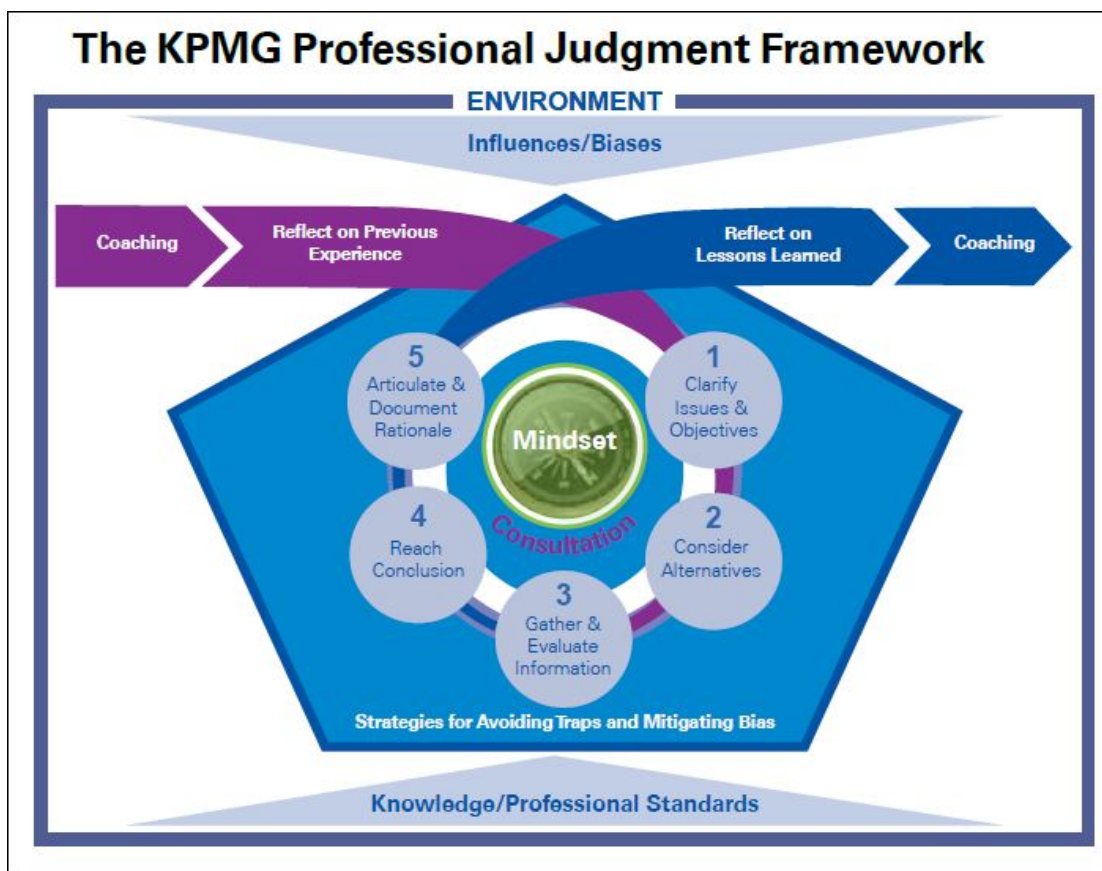


Figure 1. of KPMG’s professional judgment framework. Adapted from “*Elevating Professional Judgment in Auditing and Accounting: The KPMG Professional Judgment Framework*” by (Chevalier, Glover , Herrman, Prawitt, & Ranzilla, 2013)

The figure above depicts components that are fundamental to quality judgment, such as consultation, knowledge and professional standards, influences and biases, reflection, coaching and at the core of this framework is auditor’s “mindset”. This means that auditors should approach matters objectively and independently, with a questioning mind, in other words auditors must apply professional skepticism. Professional skepticism is an important component of professional judgment.

Surrounding the mindset, there is a five-step judgment process. These steps will help prevent judgment traps caused by self-interest or by unknowingly applying mental shortcuts.

The most important step in avoiding judgment traps and reducing bias caused by subconscious mental shortcuts. This term is called “awareness.” Meaning by “*better*

*understanding traps and biases, and recognizing common situations where they are likely to present themselves, we can identify potential problems and often formulate logical steps to improve our judgment”* (Chevalier, Glover , Herrman, Prawitt, & Ranzilla, 2013, p. 33)

Awareness enables auditors to evaluate the true merits and also helps to avoid judgment traps. Of course, this takes practice and experience. But when auditors are armed with awareness and understanding of these traps and biases, they can improve the quality of their professional judgments.

### **2.2.3 Judgment framing**

This concept relates to the early steps in the judgment process. The definition of framing follows: *“Frames are mental structures that we use, usually subconsciously, to simplify, organize, and guide our understanding of a situation”* (Chevalier, Glover , Herrman, Prawitt, & Ranzilla, 2013). One cognitive research that we believe support this concept is the heuristic systematic model of information processing.

## **2.3 Source credibility**

### **2.3.1 Source credibility in psychology**

Source credibility is a *” term commonly used to imply a communicator's positive characteristics that affect the receiver's acceptance of a message”* (Ohanion, 1990). The source credibility theory is an established theory that was first studied by Carl I. Hovland and Walter Weiss in the early 1950’s. The theory states that individuals are more likely to be persuaded if the communicator is perceived as an expert, trustworthy or credible. In a sense this means that *“the effectiveness of the communication is dependent on the attitude of the audience towards the communicator”* (Hovland & Weiss, 1951).

In 1961 Helbert Kelman built on Howland and Weiss’ theory and proposed a theoretical framework that could explain what characteristics would affect the receiver's acceptance of a message. (Kelman, 1961) narrowed it down to three characteristics.

- **Internalization:** Which occurs when the individual accepts a message that is congruent with his/her own value system. Meaning if the individual finds the communicator trustworthy or an expert, he/she may be more persuaded to accept the message.
- **Identification:** Individuals may adopt the behaviors/attitudes of others because they wish to establish/maintain a relationship with a desired group of people/ individuals. A common example is attractive sources compared to unattractive sources
- **Compliance:** Occurs when individuals accept a message in hopes of self gain, this could include some type of reward. Compliance also occurs if the individual accepts a message in fear of a specific punishment.

As a result of Kelman's framework, each of the three characteristics have been researched in later years. However there is limited research on compliance, since both reward and punishment must be studied. Researchers have had a hard time establishing mundane/realistic rewards and punishments.

In 1978 Sternthal, Phillips, and Dholakia researched if a communicator's characteristic could affect the persuasiveness of a message. Specifically they studied source credibility, where they indicated that statements from an expert source had an effect on the acceptance/rejection of a message.

Joshua L. Wiener and John C. Mowen conducted a 2 x 3 between subjects factorial experiment in 1986. They used source expertise and trustworthiness as manipulators. Wiener and Mowen concluded that the experiment should show that source's message is affected by trustworthy and/or expert sources. They also found that the level of expertise of the source strongly influenced the participants' perceptions

### 2.3.2 Source credibility in auditing (ISA 620)

*“The essence of a financial audit is to search for and evaluation of evidence regarding the accuracy of management’s assertions”* (AICPA 1980; Goodwin 1999; AICPA 2006a).

Sources for such evidences can be credible third parties such as lawyers, valuation experts and internal auditors. It is very common for external auditors to use the works of others, and in most cases this allows for the external auditor to reduce their planned auditing hours.

By using the work of others the external auditor must keep in mind that he/she is solely responsible for the audit opinion expressed. This means that the auditor must be mindful of what he/she deems as appropriate audit evidence. The ISA (International Standard on Auditing) 620 deals with *“the auditor’s responsibilities relating to the work of an individual or organization in a field of expertise other than accounting or auditing and when that work is used to assist the auditor in obtaining sufficient appropriate audit evidence”* (ISA 620).

The standard explains that it is the auditor’s job to determine whether there is a need to use the work of an expert. If the auditor determines to use the work of others, then the auditor must have an appropriate understanding of that field of expertise. Meaning that the auditor must be able to evaluate the adequacy of that work.

In ISA 620 there are three main factors to determine the adequacy of an experts work. First there is **competence**, which *“relates to the nature and level of expertise of the auditor’s expert”*. Secondly there is **capability**, which relates to *“the ability of the auditor’s expert to exercise that competence in the circumstances of the engagement. Factors that influence capability may include... the availability of time and resources”*. **Objectivity** relates to the possible *“effects that bias, conflict of interest, or the influence of others may have on the professional or business judgment of the auditor’s expert”*.

Also the auditor should not overlie on the work of an expert and it is suggested that auditors should perform procedures to obtain evidence to support the expert's work. However in practice there's some evidence that show that auditors tend to overly on expert opinions. Especially when the work is conducted in an area that the auditor lacks in expertise.

### **2.3.3 Reliance of experts in auditing:**

In 2009 Jennifer Blaskovich and Natalia Mintchik, investigated how external auditors perceive the involvement of external consultants. This study explained that since the Sarbanes-Oxley Act of 2002, firms stated to use internal control consultant (IC consultant), to help with compliance of accounting regulation and to guard against unexpected surprises during the external audit. (Blaskovich & Mintchik, 2009)

Blaskovich and Mintchik hypothesis that the presence of such consultants would lead to higher reliance on internal controls and lower budgeted audit hours. However they manipulated management's credibility and therefore also stated that auditor's reliance on internal control would be affect by the varying levels of management's credibility.

Blaskovich and Mintchik's experiment showed that *"the involvement of the IC consultant significantly impacts auditors' planning decisions. Specifically, when a low credibility client engaged an IC consultant, the auditors assessed a higher reliance on internal controls and budgeted fewer audit hours, relative to the no consultant situation"* (Blaskovich & Mintchik, 2009).

### **2.3.4 Fair value measurement**

Recently the use of valuation specialist has been the area of investigation for the Public Company Accounting Oversight Board (PCAOB). Especially pertaining to fair value measurements. Auditors must have a good understanding of the accounting and auditing frameworks associated with FMVs, however it is common for auditors to use a valuation

expert. It is not expected that all auditors are experts in the area of valuation, particularly since the valuation of FVMs can be complex and judgment-based.

IFRS 13 established a framework for measuring fair value. According to IFRS 13 fair value is defined as “*the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date*”. However because orderly transaction between market participants may or may not be observable at measurement date, IFRS 13 provides a hierarchy with three levels that are used to distinguish the types of inputs used to value different types of assets and liabilities at their appropriate fair values.

- I. Level 1 inputs are quoted prices in active markets for identical assets or liabilities that the entity can access at the measurement date.*
- II. Level 2 inputs are inputs other than quoted market prices 1 that are observable for the asset or liability, either directly or indirectly. Level 2 inputs include: quoted prices for similar assets or liabilities in active markets or quoted prices for identical or similar assets/liabilities in markets that are not active*
- III. Level 3 inputs are unobservable inputs for the asset or liability. Unobservable inputs are used to measure fair value to the extent that relevant observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at the measurement date. An entity develops unobservable inputs using the best information available in the circumstances, which might include the entity's own data, taking into account all information about market participant assumptions that is reasonably available*

### **2.3.5 PCAOB investigation**

PCAOB (Public company accounting oversight board) is an organization established by Congress to examine the audits of public companies to make sure that interests of investors are protected along with the public interest in the preparation of audit reports in an accurate and independent manner.

The PCAOB keeps an oversight on public accounting firms in light of Sarbanes-Oxley Act of 2002. The inspections are tailor made to detect deficiencies in audit engagements and to identify the shortcomings as either weakness or defect in the system of quality control put in place by the firm. The PCAOB carries out annual inspections for over 100 issuers of audit reports and Big 4 are among the firms that get inspected annually.

#### ***Audit Deficiency Trends***

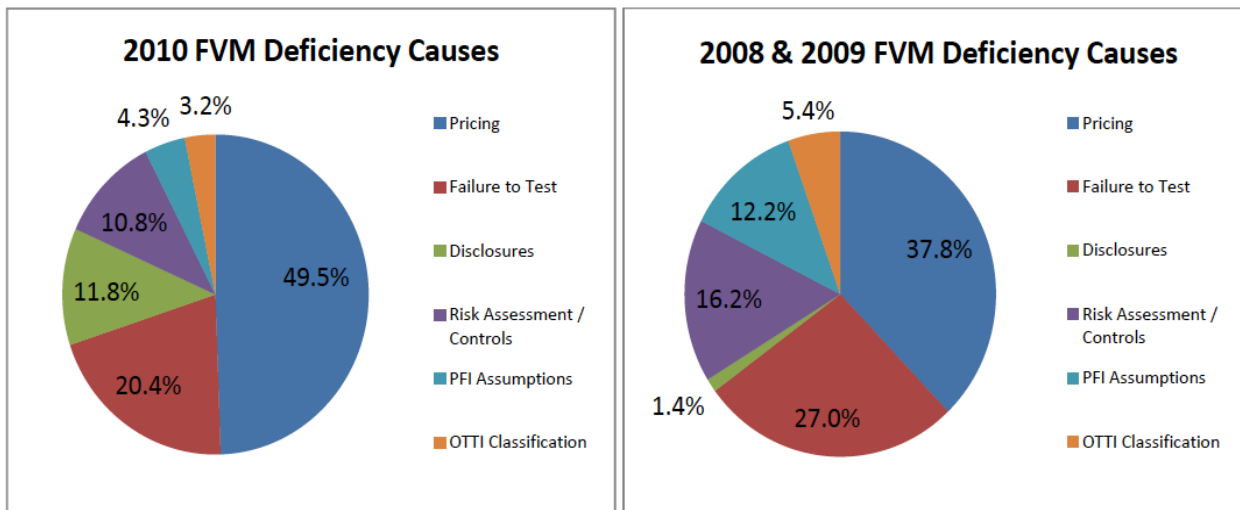
The PCAOBs reports from 2008 through 2012 indicate different trends. The ratio of deficient audit engagements has increased manifolds since 2009. In current scenario almost one out of three audits carries significant level of deficiencies. In 2012 yearly inspections, PCAOB identified deficiencies in 42.5% of audits along with other related engagements; in 2009 this percentage was 16.0% of the audits inspected.

PCAOB has identified fair value impairment (FVM) as an area with huge increase in audit deficiencies related to the measurement of certain assets specially the price determination of complex financial instruments.

The above-mentioned increase in audit deficiencies follows the pattern of a general increase in overall audit deficiencies, and can be a consequence of uncertainty generated by economic slump. Fair value measurements and impairment audit shortcomings are specifically significant as these two specific issues explain for more than half of all latest audit deficiencies.



Auditing the assessments and estimates fundamental to FVM and impairments requires amplified professional skepticism because these judgmental areas are vulnerable to bias from the management, special in time of economic challenges.



**Third party evaluations specific concern:**

The PCAOB reports have identified that FVM audit deficiencies mainly originated from insufficient examination of asset prices provided by outside or 3<sup>rd</sup> party pricing services, and pointed out a number of deficiencies about auditors’ over reliance on evidence collected from the specialists. It includes failure to understand the methods, the models used by the experts, and the assumptions underlying the valuation.

One of such complex FVMs are particularly level 3 FMVs with high degree of subjectivity in nature. PCAOBs recent criticism was about public accounting firms for their failure to ensure proper procedures, relying on insufficient evidence, and inappropriate confidence on the specialists for FVMs. In 2012 the PCAOB took it even more seriously and decided to include the FVMs to the list of priorities of PCAOB.

### 2.3.6 Research findings of FVMs in auditing:

After the release of PCAOB's inspection report, more researchers have conducted studies investigating auditors' judgments about accounting estimates. Brian Bratten, Lisa Milici Gaynor, Linda McDaniel, Norma R. Montague and Gregory E. Sierra conducted the most recent review of those studies in 2013.

Bratten, Gaynor, McDaniel, Montague, and Sierra (Bratten et al 2013) used Bonner's theoretical framework and organized their review into three categories, environmental, personal and task. In the environmental section of this review they discussed the use of external valuation specialists. Auditors do use pricing services, but a review of surveys conducted showed that auditors do not believe that the use of pricing services can cause... Bratten et al also indicated that there is a lack of empirical research, that studies the effect of using pricing services on audit quality or perceived audit quality is lacking.

Steven M. Glover, Mark H. Taylor and Yi-Jing Wu (2014) conducted a survey to gather data that the possible causes of the *FVM expectation gap* (a concept describing the differences in what auditors and regulators consider "enough" evidence to support audits of FVMs) Glover, Taylor and Wu surveyed 32 audit partners from five audit firms that were annually inspected by the PCAOB. All 32 participants had experience with planning, supervising and executing FVM audits.

Results of the survey showed 60 percent of participants *suggested that the current requirement to provide a high level of assurance that a point estimate is fairly stated within auditor materiality be reconsidered because providing such assurance on point estimates is unrealistic and potentially misleading given the level of subjectivity, complexity and uncertainty. Nearly all participants (93 percent) supported the idea of revising auditing standards to provide additional clarity and guidance around estimates characterized by extreme measurement uncertainty* (Glover, Taylor, & Wu, 2014, p. 4)

Emily E. Griffith, Jacqueline S. Hammersley and Kathryn Kadous interviewed 24 auditors that all have sustainable experiences with complex accounting estimates. The main objective of this survey was to understand the process of auditing complex accounting estimate. The study also provided an understanding to the problems associated with this task, and also the underlying reason for those problems.

Griffith, Hammersley and Kadous (2012) found out that an “overwhelming” amount of auditors would test the management’s valuation process for complex estimates rather than using an approach that relies less on management’s assertion. Griffith, Hammersley and Kadous concluded that based on this observation this indicates “*an overreliance on management assertions, and such overreliance is corroborated by our analysis of PCAOB inspection reports. That is, auditors sometimes fail to adequately test assumptions and data underlying the estimation model, fail to consider controls over management’s process and the data, and fail to fully understand the model*” (Griffith, Hammersley & Kadous , 2012)

There is a lack of empirical studies conducted as a result of PCAOB’s investigation. However we have found the results of one particular working paper interesting. In 2014 Liburd, Mason and Shelton examined the effect of third-party specialists and internal control effectiveness on auditors’ assessment of risk related to auditing FVMs.

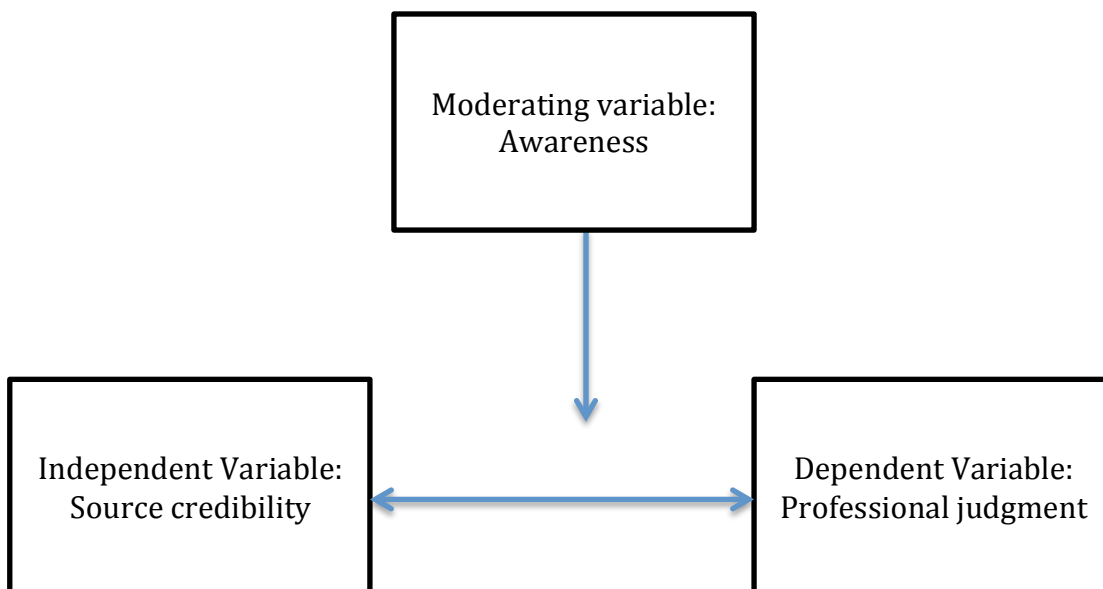
### **3.1 Conceptual model and hypothesis**

#### **3.2 Conceptual model**

Based on Bratten et all 2013 there is a need for empirical research that studies the use of third-party valuation specialists and factors that affect auditors’ risk assessments around FVMs. This study examines the effect of awareness on auditors risk assessments.

Prior research shows an overreliance on external valuation specialist, especially complex accounting estimates where the auditor is lacking in expertise. As stated in the KPMG framework, there are different components that make up professional judgment, one of those components is the biases and influences that affect an auditors professional judgment.

Liburd, Mason and Shelton found that source credibility (heuristic processing) affected auditors risk assessment of complex FVMs. Following the HSM theory, this study examines if awareness can affect the direction and/or strength of the relation between source credibility and professional judgment.



### 3. 2 Hypothesis

This study aims to test the interaction effect of awareness on source credibility and professional judgment. The following 2 hypotheses predict the outcome of this study.

|                        | <b>Awareness ON</b> | <b>Awareness OFF</b> |
|------------------------|---------------------|----------------------|
| Third-party specialist | Treatment 1= H1     | Treatment 2= H2      |
| In house manager       | N/A                 | Treatment 3= H1      |

**H1: If third-party valuation specialists provide fair value measurements and participants are aware of PCAOB concerns, then they will assess a higher inherent risk, than those without the PCAOB's concerns list.**

**H0: Awareness has no effect on inherent risk when third-party specialist provides fair value measurements.**

**H2: If a third-party valuation specialist provides fair value measurements then participants will assess a lower inherent risk, than those provided by in-house managers.**

**H0: Source cues will not have an effect on inherent risk**

We believe that if individuals are provided with an understanding of the increase FVM deficiencies, this will cause them to be more skeptics and question the credibility of the third-part provider. By engage in a greater extent of systematic processing, participants will evaluate the true merits of the information provided and will assess a higher inherent risk, then those without the PCAOB's concerns list.

A hypothesis for in-house manager with PCAOB concern list is not provided, because this thesis aims to study the use of awareness as a tool to mitigate the biases of source credibility.

In summary inherent risk is predicted to be highest in treatment<sup>3</sup> and treatment 1 will have the lowest inherent risk. Awareness is used in H2 in order to reduce the gap between treatment 1 and 2.

## **4. Methodology:**

### **4.1 Research approach:**

The focus of this master thesis is judgment and decision-making (JDM) in auditing. Judgment and decision making research is taken up to understand judgments and decisions of individuals and groups. Those who make these judgments include auditors, preparers of financial statements, and users like investors, analysts, bankers who make judgments and decisions regarding investments and lending. JDM research includes evaluating the quality of judgments made by the above-mentioned actors, explaining the process of decision-making, identification of the factors that affect this process, and improving the judgment quality of auditors, users and preparers of financial statements (Trotman, Tan et al. 2011).

The purpose of this study is to determine if awareness can be used as a tool to improve the professional judgment of auditors specially while evaluating authenticity of FVMs provided through two different sources i.e. independent valuation specialists and in house managers. Our research design uses the experimental method and quantitative data is collected to support our theory and hypotheses.

#### **4.1.1 Experimental design of the study:**

This study is going to perform a factorial experimental to investigation if awareness can help auditors improve their professional judgment in situations where there is maximum risk of overreliance and blind trust on expert's work.

A factorial design suits best in our study because we want to study how source cues and awareness can affect professional judgment. A factorial design will help us study both main effects and interaction effects.

Our experiment allocated subjects randomly to a 2 (source: third-party/in-house) x 2 (Awareness: Off/On) between subjects factorial design. However since we are interested in predicting the use of awareness to mitigate biases related to source credibility, we have omitted to use awareness on in-house management condition. Instead we use the in-house condition to observe variations between source cues.

Therefore we have reduced it to three treatment conditions:

- Third-party specialist with awareness
- Third-party specialist without awareness
- In-house management without awareness

## **4.2 Data type and research tool:**

We used primary data for this study. We used questionnaire for collecting the data, which provided us with better control over sample structure and suitability of the data collected. We choose to use questionnaires because of economical cost and greater/easier access to subjects in minimum possible time.

### **4.2.1 Time horizon:**

Considering the limited resources and time available at disposal our study is a cross-sectional study. We collected the data through questionnaires over a time period of a week.

### **4.2.2 Sample:**

Our experiment is based on the data collected from eligible participants who had the ability and necessary skills to answer the questionnaire. In such situation a non-probability sampling was more practical than probability sampling. So we chose convenience-sampling technique to access the subjects who are familiar to the task in questionnaire.

We have chosen students of NHH who are studying auditing and accounting at an advanced level. All of them have taken an intensive course in auditing in 1<sup>st</sup> semester at masters level, they have necessary skills to take part in the research and have performed similar tasks as part of their auditing course MRR 411. Due to time constraint and other practical reasons like access to the practicing auditors it was not possible to engage auditors with many years of professional experience.

The use of students as subjects is very common in accounting research and other behavioral sciences. Past results of research in accounting decision-making provides evidence that students as surrogates and business professionals made very similar judgments and shared common reasoning for their decisions. (Ashton and Kramer 1980) argues that students are an acceptable choice for decision-making research in accounting.

#### **4.2.3 Questionnaire:**

Our study is a cross sectional study, so it is very important that the questionnaire we use for collecting the data answers all the questions important for our study. Our questionnaire is adopted from the study of (BROWN LIBURD 2014) . However we added some modifications that were necessary to make it suitable for our research. We removed all internal control information that was provided in the original case, since information about internal controls is not necessary for assessment of inherent risk. We also altered the description of in-house management expertise, previous description showed too much similarity to third-party specialist.

We created and conducted the questionnaire through a well-known research instrument called Qualtrics because Qualtrics makes it easy for the subjects to respond online and helps us to collect and transfer the data to statistical analysis software efficiently. Qualtrics helped us distributing the questionnaires randomly and subjects were exposed to one of the three experimental conditions.



#### *4.2.3.1 Questionnaire Design:*

Our questionnaire consists of a total of 3 to 4 questions and all of them are closed ended questions. We selected closed ended questions because they are simple to interpret and responses are easier to use in a data analysis. The two main questions are rating questions using the traditional Likert Scale. We have used a seven-value scale for assessment of inherent risk and source credibility. The two dichotomous questions were used for manipulation checks with only two answers True/False. The questionnaire is presented in the appendix.

#### *4.2.3.2 Questionnaire description:*

The questionnaire starts with the description of the task, which is followed by the description of the company and its assets, which are the focus of our study. The subjects are informed that this study is part of our Master thesis. In the introduction of the questionnaire subjects are encouraged to answer and it is told that it will not more than 5-7 minutes and requested to answer to the best of their capabilities.

Our questionnaire can be divided in to 3 main parts; it starts with the description of the task, facts about the company, source of evaluations and the questions section. One out of three types of questionnaires have an extra part related to awareness manipulation. All the respondents are randomly assigned one of the three treatments.

There are three questionnaires used in the experiment according to the experimental research design applied:

#### Questionnaire 1:

Questionnaire 1 is the experiment condition where subjects are exposed to 3rd party prepared FVMs and awareness treatment is on as well. The questionnaire begins with a short

paragraph about the PCAOBs concern about the FVMs preparations and Auditors pattern of professional judgment.

#### Questionnaire 2:

Questionnaire 2 is the experiment condition where the subjects are exposed to 3<sup>rd</sup> part prepared FVMs but awareness treatment is off here so there is no information about PCAOBs concerns.

#### Questionnaire 3:

Questionnaire 3 represents the experimental condition where subjects are provided with in-house prepared FVMs and no awareness treatment is applied, which means subjects are not informed about PCAOBs concerns about FVM preparation.

### **4.2.4 Pre test and post experimental questions**

The questionnaire and post experimental survey was pre-tested on six participants. Two participants were used in each treatment condition. The post experimental survey is presented in appendix 3.

## **4.3 Explanation of Variables**

### **4.3.1 Independent variables:**

In our experimental study there are two independent variables, which are operationalized as two independent factors in the experimental factorial design. These two factors are source credibility and awareness; source credibility has two levels and awareness as one level.

Source credibility is the critical independent variable here and its role is discussed in the theoretical framework in the light of previous literature. In the early phase of our study we were taking awareness just as an independent variable but in the later phase of the study our

interest developed in how awareness plays a role of moderating the relationship between source credibility and professional judgment. Since then our study focused on studying the interaction effect of awareness in the experimental design.

According to (Baron 1986) moderator is in general terms a variable which can be either qualitative or quantitative and it affects the direction and strength of the causal relationship between independent and dependent variables. So this experimental design can help us finding out if awareness can improve auditor's judgment when there are fair chances of existence of bias towards source credibility.

#### **4.3.2 Dependent variable:**

We are using auditor's professional judgment as dependent variable in our study and evidence of using professional judgment as dependent variable in recent studies is the research done by (Siddhartha Sankar Saha 2015) on studying the effects of engagement issues on professional judgment. The dependent variable is operationalized through the inherent risk assessment process where auditors perform an assessment of inherent risk

## **5. Statement of results**

### **5.1 Manipulation checks**

In order to determine if participants realized the source condition of the experiment, we asked participants the following statement:

- Expert cue: *True or false, in developing fair value measurement and disclosures, Paladin Capital Group uses the services of an independent third-party valuation firm.*
- In-house management cue: *True or false, in developing fair value measurement and disclosures, Paladin Capital Group uses the services of a manager from within the firm.*

All participants correctly identified the source cue presented to them. In addition participants were asked to also rate the credibility of those performing the valuation for FVMs. Graphs 1,2 and 3 show the results of those ratings.

Providing participants with a summary of PCAOB’s findings operationalized awareness. We asked participants if this summary had an effect on participants inherent risk assessment. All 12 participants agreed that the summary had an effect on their assessment.

## 5.2 Results

### *Descriptive statistics:*

|                        | <b>Awareness ON</b> | <b>Awareness OFF</b> |
|------------------------|---------------------|----------------------|
| Third-party specialist | 3.75<br>(0.621)     | 2<br>(0.774)         |
| In house manager       | N/A                 | 4.93<br>(0.730)      |

Note: Participants’ assessment of inherent risk and was measured on a scale of 1 – 7 where 1=low risk; 4 = moderate risk; and 7 = high risk. Standard deviations are in parenthesis.

Mean comparisons are generally consistent with our expectations.

To investigate whether either of the two independent variables or their interaction are statistically significant, we preformed ANOVAs using participants’ assessments of inherent risks. This is shown in the “Tests of Between-Subjects Effects” in table 3.

The main effect of source cue on inherent risk was significant such that FVMs provided by third part received a lower rate of risk than the ratings of those provided by management, (F (1,34) = 104.564, p < .0001). Also the main effect of awareness manipulation was significant (F (1,34) = 34.787, p < .0001).

### *Testing of hypothesis:*

To test the two hypotheses, we used a two-tailed correlation test. Table 4 and 5 show the results of those test. To summarize there is a significant relationship between “expert” and “expert with awareness “because our p-value is less then 0.05. Therefore we can reject the null hypothesis for H1.

There is also a significant relationship between the two different source cues, “expert and in-house”. P test is at 0.006 and is less then 0.05. Therefore we can reject the null hypothesis for H2. All tested hypothesis were supported at the 0.01 level.

|                        | <b>Awareness ON</b> | <b>Awareness OFF</b> |
|------------------------|---------------------|----------------------|
| Third-party specialist | H1<br>Supported     | H2<br>Supported      |
| In house manager       | N/A                 | H2<br>Supported      |

## **6. Conclusion**

### **6.1 Answers to research question**

**RQ1: Can awareness be used as tool to help mitigate biases related to source credibility?**

The aim of this study was to see if professional judgment towards fair value measurements could be improved somehow. Our theory suggested that participants would perceive third

party specialist as more credible than in-house management and that this would be caused by subconscious mental shortcuts.

We hypothesized that if participants were informed of the consequences that lead to judgment traps and bias, participants would try to diminish the effect produced by subconscious mental shortcuts.

Using a 2 x 2 experimental design, we asked 37 auditing students to make an inherent risk assessment involving FVMs. Results showed that auditors' assessment of inherent risk was lower for when the client uses a third-party valuation specialist. Inherent risk was highest when the client used in-house management. We used awareness as a moderator and found out that participants were significantly affected by the PCAOB concerns list.

## **6.2 Contribution to research**

Bratten et al. 2013 indicated that there is a lack of empirical research that studies the effect of using external pricing services on audit quality or perceived audit quality.

This study hopes to contribute to this discussion. Therefore we have focused on collecting and analyzing empirical evidence pertaining to the moderating role of awareness, in a setting where professional judgment quality towards source credibility is evaluated.

## **6.3 Contribution to audit practice**

This study has implications for the auditing profession, the PCAOB inspection reports have for a number of years cited that a number of deficiencies related to auditing FVMs for the large audit firms. PCAOB stated that they state that a number of the deficiencies cited are due to overreliance of external valuation firms. By observing how awareness moderates the relationship between source credibility and professional judgment, this study can contribute to the efforts of improving judgment quality in areas that are on the top of PCAOB's concerns list.

#### **6.4 Suggestions for future research**

As like all studies, this research has its limitations. However these limitations can represent opportunities for future research.

First our study is limited to few variables i.e. source credibility, professional judgment and awareness. Future research can investigate other factors that can improve judgment quality in the areas that are on the top of PCAOBs concerns list. One of the areas that PCAOB is concern with is gathering sufficient evidence, they state that auditors are not obtaining sufficient evidence to support audits of FVMs. Therefore it could be interesting to investigate the relationship between planning risk assessments and audit effort.

Also due to the time constraint and the limited resources available, it was not feasible to access practicing auditors as subjects for the study. Future research can see the effect of using practicing auditors.

## References

- Ashton, R. H. and S. S. Kramer (1980). "Students As Surrogates in Behavioral Accounting Research: Some Evidence." *Journal of Accounting Research* 18(1): 1-15.
- Baron, R. M. k. D. A. (1986). "The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations." *Journal of Personality and Social Psychology* Volume 51(6).
- Blaskovich, J., & Mintchik, N. (2009, September). Party Of Three? A Source Credibility Perspective On The Use Of Consultants For Internal Control Assessments. *The Journal of Applied Business Research* , 51-68.
- Bonner, S. E. (1999). Judgment and Decision-Making Research in Accouting. *Accounting Horizons* , 13 (4), 385-398.
- BROWN L. S. A. M., SANDRA WALLER SHELTON (2014). "The Effect of Reliance on Third-Party Specialists under Varying Levels of Internal Control Effectiveness on the Audit of Fair Value Measurements." Rutgers , The State University of New Jersey.
- Chaiken, S., & Maheswaran, D. (1994). euristic processing can bias systematic processing: Effects of source credibility, argument ambiguity, and task importance on attitude judgment. *Journal of Personality and Social Psychology* , 66 (3), 460-473.
- Chen, S., Duckworth, K., & Chaiken, S. (1990). Motivated Heuristic and Systematic Processing. *Psychological inquiry* , 10 (1), 44-49.
- Chevalier, R., Glover , S., Herrman, G., Prawitt, D., & Ranzilla, S. (2013). The KPMG Professional Judgment Framework. *Elevating Professional Judgment in Auditing and Accounting: The KPMG Professional Judgment Framework* , 1-55.



Dholakia, R. and B. Sternthal (1977), Highly Credible Sources: Persuasive Facilitators or Persuasive Liabilities?" *Journal of Consumer Research*, 3, 223-232.

Eilifsen, A., Messier, J. W., Glover, S. M., & Prawitt, D. F. (2014). *Auditing & Assurance services Third International Edition*. Berkshire, United Kingdom: McGraw-Hill.

Glover, S. M., Taylor, M. H., & Wu, Y.-J. (2014). Closing the Gap between Auditor Performance and Regulators' Expectations when Auditing Fair Value Measurements: Evidence from Practicing Audit Partners. 1-46.

Griffith, E. E., J. S. Hammersley, K. Kadous, and D. Young. 2012. Auditing Complex Estimates: Understanding the Process Used and Problems Encountered, The University of Georgia, Emory University, 1-47

Hovland, C. I., & Weiss, W. (1951). The Influence of Source Credibility on Communication Effectiveness. *Oxford journals* , 635-650.

Kelman, H. C. (1961). PROCESSES OF OPINION CHANGE. *Oxford journal* .

Kerlinger, F. N. (1973). "Foundations of Behavioral Research." Holt, Rinehart and Winston, Inc. 3rd Edition.

McKean, K. (1985). Decisions, decisions, decisions. *Discover* , 22-31.

Mowen, J. C., & Wiener, J. L. (1986). Source Credibility: on the Independent Effects of Trust and Expertise", in NA - Advances in Consumer Research Volume 13, eds. Richard J. Lutz, Provo, UT : Association for Consumer Research, Pages: 306-310

Ohanion, R. (1990). Construction and Validation of a scale to Measure Celebrity Endorsers' Perceived Expertise , Trustworthiness, and Attractiveness. *Journal of Advertising* .

Siddhartha Sankar Saha, M. N. R. (2015). "Impact of Audit Engagement Issues on Statutory Auditors' Professional Judgment: An Empirical Analysis." Siddhartha Sankar Saha, Mitrendu Narayan Roy Volume 6.

Trotman, K. T. (2001). "Design Issues in Audit JDM Experiments." *International Journal of Auditing* 5(3): 181-192.

Trotman, K. T., Tan, H. C., & Ang, N. (2011, March). Fifty-year overview of judgment and decision-making research in accounting. *Accounting and Finance* , 278-360.

Tversky, A., & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases. *Science* , 185, 1124-1131.

## Appendix 1: Introduction

### Introduction

This study attempts to collect information about differences in individual perception of source credibility

### Procedures

You will be shown a paragraph about a hypothetical company named Paladin Capital Group.

Imagine that you are a part of an auditing team that is conducting preliminary engagement activities for accepting Paladin Capital Group as a client, during this process your audit team has determined the fair value measurements (FVMs) to be an area of concern for the current year's audit engagement, because there is no market for the exact evaluation of certain securities held in the portfolio so it needs to be examined carefully. Paladin Capital Group experienced a significant decrease in the volume of FVMs in recent evaluations. You will in the next slide be shown information concerning the company's FVMs

Afterwards you are asked to complete a short questionnaire about the information provided. The questionnaire consists of a few questions and will take approximately 5 minutes or less.

### Confidentiality

All data obtained from participants will be kept confidential and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than the primary investigator will have access to them. The data collected will be stored for one week and then deleted by the primary investigator.

I have read, understood, and printed a copy of, the above consent form and desire of my own free will to participate in this study.

Yes

No

Thank you very much for participating in this research study.

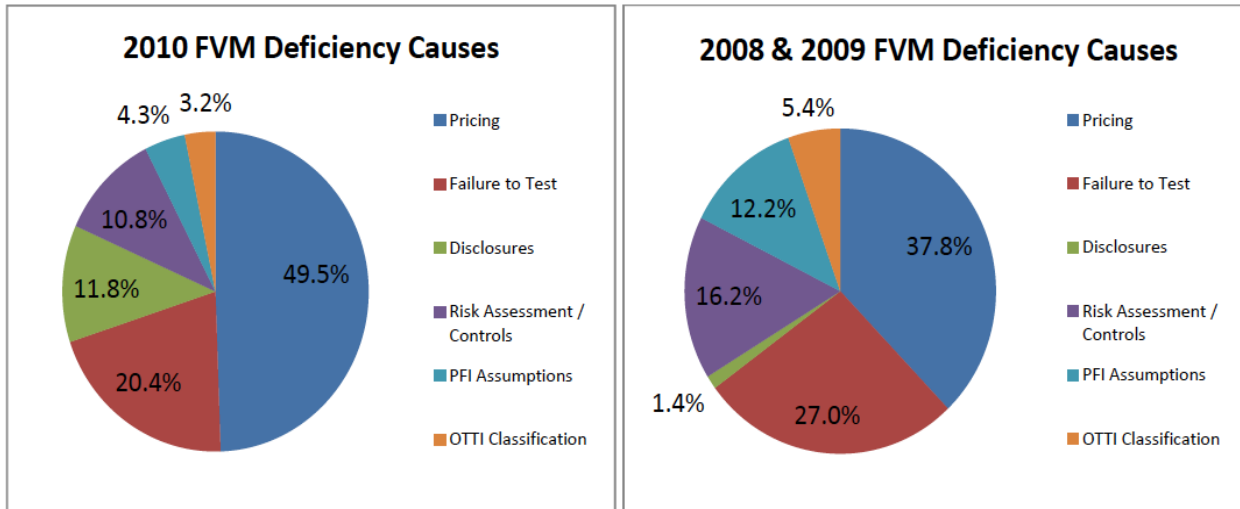
## Appendix 2: Example of cases

### Example for Expert\* Awareness

**Before reviewing the company's information, here is a summarization of an inspection report conducted by the Public Company Accounting Oversight Board**

*According to the Public Company Accounting Oversight Board (PCAOB) there is a dramatic increase in the number of fair value impairment (FVM) audit deficiencies relating to impairment testing and the measurement of certain assets, particularly the pricing of financial instruments.*

*The increase in audit deficiencies related to FVM and impairment are consistent with a general increase in all audit deficiencies, and is a likely result of uncertainty created by the economic downturn. FVM and impairment audit deficiencies are particularly significant because these two particular issues account for over half of all recent audit deficiencies. Auditing the estimates and assumptions underlying FVM and impairments requires heightened professional skepticism as these judgmental areas are susceptible to management bias, particularly in difficult economic times*



*The PCAOB reports indicated that most FVM audit deficiencies were caused by inadequate testing of asset prices provided by outside pricing services, and identified a number of deficiencies related to the auditors' reliance on evidence from the specialists, including failure to understand the methods, the models, and the assumptions used by valuation specialists.*

**The task:**

You are a part of an auditing team that is conducting preliminary engagement activities for accepting Paladin Capital Group as a client, during this process your audit team has determined the fair value measurements (FVMs) to be an area of concern for the current year's audit engagement, because there is no market for the exact evaluation of certain securities held in the portfolio so it needs to be examined carefully. Paladin Capital Group experienced a significant decrease in the volume of FVMs in recent evaluations.

While keeping in mind the preliminary engagement activities & techniques discussed in MRR 411 (revisjon) , please asses the risk associated with this client after considering the source of FVMs (fair value measurements).

**The company:**

Paladin Capital Group is a multinational corporation with a multi-stage private equity division that invests in growing companies. Over last two decades the company has extended itself to multiple business lines and is now operating in a variety of industries throughout the world. Company is highly profitable and has a financial segment that manages an investment portfolio of \$ 500 million used to fund operations as needed.

The portfolio represents approximately 15 % of the consolidated total assets, and for the past years it has consisted of equity securities, investment grade bonds and alternative investments. Alternative investments consist primarily of collateralized debt obligation (A structured financial product that pools together cash flow generating assets and repackages this asset-pool in to discrete tranches that can be sold to investors) securities.

**The source:**

For securities with an inactive market and where significant inputs are unobservable, Paladin Capital Group retains the services of a third-party valuation specialist named Primus Valuations. This specialist has extensive expertise in FVMs with complex Level 2 and 3 securities. Primus Valuations has a strong standing in the industry; and has worked with Paladin Capital Group for over 10 years. Additionally, the director at Primus Valuations was a former VP of Finance at Paladin Capital Group and as a result, the specialist is knowledgeable about the company's business. Further, senior management at Paladin Capital Group believes that it is necessary to review evidence used to support the specialist's FVMs and relevant assumptions, and challenges the assumptions and inputs when considered necessary. Accordingly, the company's manager that is responsible for FVMs and disclosure communicates with the specialist on a regular basis has a sufficient understanding of the valuation models, assumptions, and inputs used by Primus Valuations to determine the FVM.

**On a scale from 1 to 7, where 1 represents low risk, 4 represents moderate risk, and 7 represents high risk. Given your assessment of inherent risk related to fair value measurement and disclosure.**

**Did the summarization of the inspection report conducted by the Public Company Accounting Oversight Board (PCAOB) affect your assessment of inherent risk?**

- Yes
- No

**In developing fair value measurement and disclosures, Paladin Capital Group uses the services of an independent third-party valuation firm.**

- True
- False

**How would you rate the credibility of the third-party valuation firm that Paladin Capital Group used?**

- Very Bad
- Bad
- Poor
- Neither Good nor Bad
- Fair
- Good
- Very Good

## Appendix 3: Post experimental survey

**What is your age?**

**What is your gender?**

- Male
- Female

**This survey was conducted in English. This made the survey \_\_\_\_\_ to understand ( fill in the blank spot)**

- Very Difficult
- Difficult
- Somewhat Difficult
- Neutral
- Somewhat Easy
- Easy
- Very Easy

**How would you rate your knowledge of FVMs?**

- Very Bad
- Bad
- Poor
- Neither Good nor Bad
- Fair
- Good
- Very Good

**How much relevant auditing work experience do you have?**

- None
- 1-2 years
- 3 or more years

**Overall, how do you rate the effort needed to understand and complete the materials?**

- Very Difficult
- Difficult
- Somewhat Difficult



- Neutral
- Somewhat Easy
- Easy
- Very Easy

**Have you ever seen any of these materials prior to completing them today?**

- Yes
- No

**Did you discuss the materials or your answers with other participants?**

- Yes
- No

**Thank you once again for participating in this research study.**

## Tables

Table 1:

### Descriptive Statistics

Dependent Variable: Inherent\_risk

| Source  | Awareness | Mean   | Std. Deviation | N  |
|---------|-----------|--------|----------------|----|
| expert  | off       | 2.0000 | .77460         | 11 |
|         | on        | 3.7500 | .62158         | 12 |
|         | Total     | 2.9130 | 1.12464        | 23 |
| inhouse | off       | 4.9286 | .73005         | 14 |
|         | Total     | 4.9286 | .73005         | 14 |
| Total   | off       | 3.6400 | 1.65529        | 25 |
|         | on        | 3.7500 | .62158         | 12 |
|         | Total     | 3.6757 | 1.39551        | 37 |

Table 2:

### Levene's Test of Equality of Error Variances<sup>a</sup>

Dependent Variable: Inherent\_risk

| F    | df1 | df2 | Sig. |
|------|-----|-----|------|
| .031 | 2   | 34  | .970 |

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Source + Awareness + Source \* Awareness

**Table 3:**

**Tests of Between-Subjects Effects**

Dependent Variable: Inherent\_risk

| Source             | Type III Sum of Squares | df | Mean Square | F        | Sig. | Partial Eta Squared | Noncent. Parameter |
|--------------------|-------------------------|----|-------------|----------|------|---------------------|--------------------|
| Corrected Model    | 52.930 <sup>a</sup>     | 2  | 26.465      | 52.379   | .000 | .755                | 104.759            |
| Intercept          | 527.777                 | 1  | 527.777     | 1044.582 | .000 | .968                | 1044.582           |
| Source             | 52.831                  | 1  | 52.831      | 104.564  | .000 | .755                | 104.564            |
| Awareness          | 17.576                  | 1  | 17.576      | 34.787   | .000 | .506                | 34.787             |
| Source * Awareness | .000                    | 0  | .           | .        | .    | .000                | .000               |
| Error              | 17.179                  | 34 | .505        |          |      |                     |                    |
| Total              | 570.000                 | 37 |             |          |      |                     |                    |
| Corrected Total    | 70.108                  | 36 |             |          |      |                     |                    |

**Tests of Between-Subjects Effects**

Dependent Variable: Inherent\_risk

| Source             | Observed Power <sup>b</sup> |
|--------------------|-----------------------------|
| Corrected Model    | 1.000                       |
| Intercept          | 1.000                       |
| Source             | 1.000                       |
| Awareness          | 1.000                       |
| Source * Awareness | .                           |
| Error              |                             |

**Table 4****Correlations**

|         |                     | INHOUSE | EXPERT  |
|---------|---------------------|---------|---------|
| INHOUSE | Pearson Correlation | 1       | -.768** |
|         | Sig. (2-tailed)     |         | .006    |
|         | N                   | 14      | 11      |
| EXPERT  | Pearson Correlation | -.768** | 1       |
|         | Sig. (2-tailed)     | .006    |         |
|         | N                   | 11      | 11      |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Table 5:****Correlations**

|                  |                     | EXPERT  | EXPERT_AWARENESS |
|------------------|---------------------|---------|------------------|
| EXPERT           | Pearson Correlation | 1       | -.768**          |
|                  | Sig. (2-tailed)     |         | .006             |
|                  | N                   | 11      | 11               |
| EXPERT_AWARENESS | Pearson Correlation | -.768** | 1                |
|                  | Sig. (2-tailed)     | .006    |                  |
|                  | N                   | 11      | 12               |

\*\* . Correlation is significant at the 0.01 level (2-tailed).