OSLOMET

Astrid Bjørshol & Christina Elisabeth Bjerrum Larsen

The effects of gender balanced audit teams and partner gender on client satisfaction

Master's thesis spring 2023
Oslo Business School
Oslo Metropolitan University
MSc in economics and business administration

Abstract

This thesis examines two relationships. First, the relationship between audit partners' gender and client satisfaction. Secondly, the relationship between gender-balanced audit teams and client satisfaction. The relationships are insufficiently researched in the audit literature. Characteristics of audit partners and audit teams could possibly influence audit service quality. High levels of audit service quality is suggested to result in client satisfaction. The data was collected through an anonymous survey distributed to 179 audit firms of various sizes in Norway. The targeted respondents were audit partners and managers, and the data were analyzed using logistic regression to test the relationships. The results revealed a positive and statistically significant relationship between gender-balanced audit teams and client satisfaction. The implications of these findings underline the importance of prioritizing gender balance in audit teams to enhance client satisfaction. The contributions from this thesis could be used to motivate further research in understanding the dynamics and effects of the gender composition in audit teams and its effects on the satisfaction of clients.

Acknowledgements

This thesis is written as a final part of our master's degree in accounting and auditing at Oslo Metropolitan University. The process of developing a survey, collecting responses and analyzing literature has been educational.

We would like to thank the participants in our study. The data was collected in a hectic work period, and we appreciate the responses to our survey. To our patient supervisor, Christophe van Linden; you have given us professional and constructive guidance throughout the process. Thank you for all the support.

OSLOMET

Table of contents

1: Introduction

There is no definitive definition of audit quality, and how audit quality is best measured has no consensus. Ultimately, perceptions of audit quality depend on the users of the financial statements (DeAngelo, 1981). Audit factors contributing to audit quality have been investigated in a number of studies (Schroeder et al.,1986; Carcello et al., 1992; Behn et al., 1997). The studies found a relationship between audit quality and influence from the audit partner and team (Schroeder et al.,1986; Carcello et al., 1992). Audit service quality measures audit specific factors that are important to a client by delivering a high level of client service throughout the audit (Duff, 2004). Audit literature has suggested a relationship between the level of audit service quality and client satisfaction (Ismail et al., 2006). Research and data of audit partners and audit teams is insufficiently investigated in audit literature. Especially characteristics of audit partner gender and audit team gender composition is deficiently investigated.

Motivated by the absence of audit literature on these topics, this thesis aims to investigate two relationships: the relationship between the audit partner gender and client satisfaction, and between a gender balanced audit team and client satisfaction. In Norway women are significantly underrepresented in audit partner positions. This is surprising as Norway is one of the countries with the highest levels of gender equality. Gender of the audit partner could possibly influence factors that are related to audit quality, for example risk averseness and accuracy (Cameran et al., 2018; Hardies et al., 2016; Ittonen et al., 2013: Garcia-Blandon et al., 2019). The audit partner is responsible for ensuring high quality audits and building client relationships. The partner must possess characteristics such as competence and independence. Partner characteristics have been proposed in audit literature as factors that can influence the quality of an audit. Following audit partners' proposed influence on audit quality and considering the implied influence of gender characteristics, we propose that the gender of the audit partner influences client satisfaction.

It has been suggested that audit team members influence the quality and efficiency of the audit (Christensen et al., 2021). Given very little research on audit teams, and even less

research on the gender balance in these teams, we had to draw from research outside of the audit literature. To develop our hypothesis, we have drawn parallels from field-studies, surveys, management and psychological literature to the audit industry. Findings indicate that gender asymmetries potentially can contribute to the performance of gender balanced audit teams. Hunt et al. (2015) analyzed gender, ethnic and cultural diversity, and found that diversity increases the likelihood of better financial performance. Management literature perceive gender differences as potentially beneficial for a team (Schubert, 2006). The combined literature from mostly non-audit research indicates a possible relationship between an audit team with a gender balance and client satisfaction.

Our hypotheses were developed by integrating theoretical concepts from the study of Ismail et al. (2006). Ismail et al. (2006) proposed a relationship between audit service quality factors and client satisfaction. The study found client satisfaction is mediating between audit service quality and loyalty (Ismail et al., 2006). This thesis utilizes Duff's (2009) taxonomy to measure audit service quality factors. The selected taxonomy of Duff (2009) covers multiple aspects of audit service quality, and the taxonomy has properties considered valid and reliable in terms of measurement.

The relationship was examined using data collected through a survey. The survey consisted of questions based on audit service quality factors from audit literature. Anonymous responses were obtained from audit partners and managers from audit firms of various sizes throughout Norway. The collected data from audit firms were used to look at audit service quality from the perspective of the client. We asked our respondents to answer based on a recently performed audit engagement, where the audit firm had either been retained or not retained. These conditions were used to provide more insight on the satisfaction of clients. The objective of the thesis is to provide new research that can assist audit firms in improving client satisfaction.

The results of our analysis can provide new knowledge about the Norwegian audit market. We hope that through this thesis's findings we can add to the discussion about partner gender and gender balance in audit teams. Audit firms interested in improving client

satisfaction might find interest in the results of this thesis. We hope to encourage audit firms to consider the advantages of gender balance when composing teams for an engagement. The thesis will be structured as follows: Section 2, will review relevant literature on audit service quality linked to client satisfaction, audit partner gender and gender-balanced audit teams. Section 3 will present our hypotheses. Section 4 will describe the methodology used for the survey responses and the statistical tests. Section 5 will present and analyze the results for the statistical models. Section 6 will show sensitivity tests of the logistic regression analysis. Finally, section 7 will conclude on the results of the regression, discuss the limitations, and provide suggestions for future research.

2: Literature review

2.1 Audit quality

2.1.1 Auditing

The purpose of auditing is creating confidence in the annual financial statements through the absence of material misstatements and fulfilling the legal requirements set by the local government and financial institutions (Revisorloven, 2020, §9-1). The International Auditing and Assurance Standards Board (IAASB) describes that "*This is achieved by auditors gathering sufficient appropriate audit evidence in order to express an opinion on whether the financial statements are prepared, in all material respects, in accordance with the applicable financial reporting framework"* (IAASB, 2014, p. 36). The auditor does the assessment of whether management has reported and disclosed the information correctly, and if the good audit practices requirements have been fulfilled (Revisorloven, 2020, §9-4). The objective of an audit is to strengthen the public's confidence in the quality provided, as standard-setting organizations strive to provide uniformity of practice in all countries (IAASB, n.d.).

2.1.2 Audit quality definition

DeAngelo (1981) developed a widely used definition of audit quality. This definition suggests audit quality consists of two components: Auditors competence and auditor independence (DeAngelo, 1981). Competence links to the auditor's probability of discovering inaccurate reported data and breaches, while independence describes how the auditor should react to the discovery in an adequate manner (DeAngelo, 1981). The perceptions of audit quality are varying and depend on the users of the financial statement (DeAngelo, 1981). Defond and Zhang (2014) argue that DeAngelo's (1981) audit quality definition of auditor independence and competence undermines the client's advantages of high audit quality. They argue that the positive effects of high audit quality goes beyond detection of financial mistakes and reporting of financial quality (Defond & Zhang, 2014). Their research defines audit quality as a greater level of assurance on the financial statements and concludes that there are several ways to measure audit quality (DeFond & Zhang, 2014). DeFond and Zhang (2014) continue by adding, that there is no consensus on which method is best. Knechel et al. (2013) agrees on the low level of consensus regarding audit quality and additionally states, that the

disclosures provided by standard-setting organizations are incomplete. The study argues that developing a framework could be beneficial for the evaluation of audit quality (Knechel et al., 2013).

IAASB (2014) defines audit quality as a combination of five elements. The first element involves the inputs of the audit which are contextual and includes knowledge, ethics and value of the auditors performing the audit (IAASB, 2014). The audit process, quality control and audit process procedures, is the second element (IAASB, 2014). The third element includes outputs of information and other reports from one party to the other, for example internal financial statement practice improvements for the clients, and is determined by context (IAASB, 2014). The fourth element affects audit quality is the interactions from the stakeholders, and finally, the fifth involves laws and regulations (IAASB, 2014).

Factors that contribute to audit quality have been the focal point of several studies. Two of the studies found, that the perceived audit quality has a strong association with the audit team and partner (Schroeder et al., 1986; Carcello et al., 1992). These studies argue that audit quality has a stronger association with the audit team and partner, than audit firm controls, procedures and regulatory experience (Schroeder et al., 1986; Carcello et al., 1992). Audit quality consists of relevant components that increase the probability for consistently performed audits (IAASB, 2014). It is the *perceived* audit quality that is measured, not the actual quality observed (Knechel et al., 2013). The quality of the audit is only revealed when the audit uncovers material misstatements such as fraud (Knechel et al., 2013), and if the problem is not discovered, it cannot be reported or corrected by the auditor (DeAngelo, 1981).

2.1.3 Audit service quality factors

One model used for investigating and improving service quality is the SERVQUAL model (Parasuraman et al. (1988). This model measures the disparity between the perception of service quality and the expectations of the customer (Parasuraman et al., 1988). The model is designed to accommodate different possible concepts beyond the retail market

(Parasuraman et al., 1988). The SERVQUAL model has been applied and modified for multiple industries, and similarly Duff (2004) applied the model to audit research by identifying possible disparities between audit performance and stakeholders' expectations to investigate audit service quality. Audit service quality refers to auditors' responses to the factors that are important to a client (Duff, 2004). The quality includes value adding services for the client: meeting needs, showing empathy with problems and high levels of service (Duff, 2004). The research of Duff (2004) focuses on audit quality by examining hypotheses from available audit literature on clients' evaluation of audit quality. Doing so, Duff (2004) acknowledges that audit quality is a multidimensional concept, including both the technical and the service quality aspects to help retain quality staff and generate income. This goes beyond the definition of audit quality of DeAngelo (1981), who only defined the technical aspects of perceived quality as competence and independence. Duff's (2004) audit quality model, AUDITQUAL, is based on two dimensions, technical quality and service quality. These dimensions provide a framework to study audit service quality (Duff, 2004).

In 2009 Duff extended his study from 2004 with the help of an alternative hypothesis (Duff, 2009). The alternative hypothesis proved to be a better fit for measuring audit quality by using an exploratory factor analysis (Duff, 2009). The study resulted in Duff (2009) extending his own model from two to four dimensions. The improved dimensions to define audit quality were competence, independence, relationship and service quality (Duff, 2009). The more technical aspects of audit quality, competence, are affected by the factors of reputation, capability, and assurance (Duff, 2009). Independence has a one factor definition (Duff, 2009). Relationship includes the factors of expertise and experience, while service quality includes empathy, non-audit services and responsiveness (Duff, 2009).

2.1.4 Client satisfaction, loyalty and auditor retention decision

A number of audit studies have investigated the assumed relationship between audit service quality and satisfaction. Lowensohn et al. (2007) asked 241 local government finance directors and found that the audit service quality, auditor specialization, were positively associated with audit quality. Carcello et al. (1992) examined auditors, users and preparers

of financial reporting and what factors they perceived to be most important for audit quality and audit service quality. The most important factors were audit firm and team experience with the client, industry specialization, responsiveness to the needs of clients and compliance to audit standards (Carcello et al. (1992). Behn et al. (1997) found that the audit quality factors identified by Carcello et al. (1992) were relevant when explaining and investigating client satisfaction. Behn et al., (1997) used 12 audit quality factors found by Carcello et al. 's (1992) to investigate a proposed relationship between client satisfaction and responsiveness. The results showed a significant relationship between client satisfaction and responsiveness with the client (Behn et al., 1997). The responsiveness to the client was shown in the form of communication with the client and willingness to listen (Behn et al., 1997). Earlier experience with the client was found to be related to client satisfaction as well as satisfaction with the audit team (Behn et al., 1997).

Prior research has connected auditors' responsiveness to client's needs to the possibility of retaining the client (Carcello et al., 1992). The study of Pandit (1999) drew on the audit service quality factors from Carcello et al. (1992) and selected five of the factors for further study to investigate auditor retention. Pandit (1999) suggested that the perceived involvement of managers and partners, and responsiveness to the client's needs, could have a positive effect on retention. One of Pandit's (1999) findings was that the auditors' expertise of the client's industry was not a decisive factor on client decisions of retaining or not retaining their auditor.

Ismail et al. (2006) used the five dimensions of Parasuraman's et al. 's (1988) SERVQUAL model to understand the discrepancy between the quality of audit services delivered, client satisfaction and loyalty. The study found that client satisfaction was crucial for developing loyalty (Ismail et al., 2006). Client satisfaction is perceived to be mediating between audit service quality and loyalty, and companies should strive to satisfy customers as it builds strong client relationships (Ismail et al., 2006). The most important dimensions found by Ismail et al. (2006) were the audit firm's assurance, and reliability, meaning the ability to

perform in an accurate and timely manner. Apart from the study of Ismail et al. (2006) there is very little research on the client satisfaction and loyalty (Butcher et al., 2013).
Using the evidence from Ismail et al. (2006), Butcher et al. (2013) hypothesized a positive and significant relationship between perceived audit service quality and auditor retention. Butcher et al. (2013) utilized the taxonomy model from Duff (2009) to measure the importance of audit service quality factors and found two higher dimensions positively associated with auditor retention; the expertise of auditors and the responsiveness to client needs.

2.2 Partner characteristics and diversity related to partners

2.2.1 The audit partner and management of the team

The audit partner is responsible for the audit, and the audit firm must choose a person who is competent, independent, and able to ensure high quality by audits using relevant resources and personnel (Revisorloven, 2020, §9-3). The characteristics of the audit partner can have a significant impact on the audit processes and the quality of the audit (Contessotto et al., 2019). Contessotto et al. (2019) concluded that for an auditor to identify and respond to risks, they must be adapted to a specific client. If this demand is met it will be possible to achieve a high-quality audit (Contessotto et al., 2019).

The responsibility of the partners is to review the overall audit work, being involved in significant audit decisions and determining the final opinion (Cameran et al., 2018). Audit partners' responsibility for the final decision-making and building client relationships, often results in delegating the planning and execution of the audit to managers (Contessotto et al., 2019). Managers supervise and execute the audit by providing a second level of oversight in the audit process, through reviewing and completing the engagement, and providing feedback to associates (Sanders et al., 2009). If a manager is familiar with a client and has earlier experience on the engagement, it can affect the audit in the form of high proficiency (Contessotto et al., 2019). The partner has the overall responsibility for the risk response and audit quality of a client (Revisorloven, 2020, §9-3), meaning that the manager's role is to assist and reduce the partner’s workload.

2.2.2 Female audit partners

Women are underrepresented among audit partners (Garcia-Blandon et al., 2019). In Norway, women represent 19,3% of all audit partners in the five largest audit companies in 2023 (De største revisjonsselskapene, 2023). This percentage is significantly lower than for the audit firm average, where women are represented by 47% of the employees the same year (De største revisjonsselskapene, 2023). Gender research in accounting and auditing is an area that has not reached its full potential. A large part of the research focuses on ethical differences, management decisions or performance evaluations between the genders (Hardies & Khalifa, 2018). The low number of women among audit partners can be considered unfortunate since much behavioral economic literature suggests that women have comparative advantages that could be beneficial for the audit profession (Garcia-Blandon et al., 2019). The comparative advantages will be discussed in the next paragraphs.

2.2.3 Female partners: Risk-aversion

Dwyer et al. (2002) studied investors in mutual funds to find if gender was related to risk taking. They found evidence supporting the theory of men taking more risk than women in their investment portfolios, however this effect was reduced when knowledge of financial statements were included as a control mechanism (Dwyer et al., 2002). Schubert (2006) tried to find optimal strategies to manage risks. The research suggests that there are comparative advantages of women's management of risks and that companies should be interested in women for this type of position (Schubert, 2006). Risk analysis and risk management are often integrated in a company, and it could be profitable to combine teams of mixed gender for the optimal risk control (Schubert, 2006). Parallels could be drawn to the audit profession where audit partners have comprehensive understanding and knowledge regarding financial statements. The study of Hardies et al. (2016) suggested that female auditors are more likely to issue going concern opinions due to having higher reporting accuracy and being independent in their decisions. The effect was stronger for high-risk and important clients, showing that female auditors are more risk averse, and have higher audit quality (Hardies et al., 2016).

2.2.4 Female partners: Accuracy of the financial statements

Assertions are used by auditors to identify and assess the risk of material misstatements in the financial statement, for disclosures, classes of transactions and account balances (IAASB, 2019). The two categories of assertions are the accuracy of amounts related to classes of transactions, meaning if the events have been recorded and measured appropriately, and the accuracy of equity, assets and liabilities, relating to whether they are appropriately recorded, measured and included (IAASB, 2019).

When a team increases the proportion of female auditors in leading positions, such as managers or partners, it can affect audit quality in a positive direction (Cameran et al., 2018). A Finnish study by Ittonen et al. (2013) investigated how the quality of financial reporting is affected by female auditors. The study suggests that differences in gender may affect the audit process; female engagement partners have less abnormal accruals, and having a female audit engagement partner may improve accruals quality (Ittonen et al., 2013). Ittonen et al. (2013) suggest that one the reasons why female partners show extra competence may be due to the extra effort female auditors have to show to become partners. The study of Garcia-Blandon et al. (2019) extends the study of Ittonen et al. (2013) and investigates the financial reporting of Spanish-listed companies to see whether female audit partners have a positive effect on financial reporting quality. Garcia-Blandon et al. (2019) confirms the hypothesis and reinforces the findings from Ittonen et al. (2013). The study from Garcia-Blandon et al. (2019) concludes that female auditors could have a positive effect on audit quality. These effects are visible from the first year after they take over a client from a male employee (Garcie-Blandon et al., 2019). Additionally, Cameran et al. (2018) finds that an increasing percentage of female partners and managers in a team reduces the amount of abnormal accruals.

There are many factors that influence audit quality and some of these factors are under-researched. The literature on audit partners and their characteristics could suggest that female audit partners have a positive effect on audit quality. These effects might be related

to higher accuracy, which is a risk area in the financial statement. It is important to remember that even if the partner has the overall responsibility, the partner is not the only factor affecting audit quality.

2.3 Audit teams

2.3.1 Why would audit team characteristics matter?

Audit service quality is influenced by the audit team's characteristics (Cameran et al., 2018). These characteristics could be a common educational background for leading positions or the structure of the audit team (Cameran et al., 2018). The influence audit teams have on audit service quality could change over the length of the engagement if work assigned to team members is diversified (Cameran et al., 2018). Diversity in the form of experience, education, gender and ethnicity are beneficial for a team (Huang, 2018). This type of diversity could improve the team's performance by creating safe environments which could encourage new perspectives (Huang, 2018). A better performing team may produce higher audit quality for tasks that are complex or outside the normal scope of the audit firm (Huang, 2018). The research on audit team characteristics is very sparse and it is a new area in the exploration of research on forces that affect the client's perceived quality and audit quality of the financial statements.

2.3.2 Composition of audit teams

The audit firm is responsible for ensuring that the partner has staff available with the required capabilities and competence to perform an audit (Revisorloven, 2020, §9-3). How the team is structured affects audit quality, and to find the best composition is vital to keeping the quality high over time (Cameran et al., 2018). Rich et al. (1997) studied the review process and methods of working in different positions of teams. The results showed that partners rely heavily on their knowledge of the client and the audit team, the managers have strong technical insights, while the seniors secure and control the evidence collected (Rich et al., 1997). The continuity of the members in an audit team could result in a more efficient and profitable performance and a higher audit quality (Christensen et. al, 2021). The findings indicate that the profitability is controlled by the partner, while the quality and

efficiency of the audit is decided by the remaining team members' contribution (Christensen et al., 2021).

A well-functioning audit team is important for the perceived audit quality (Carcello et al., 1992; Schroeder et al., 1986). The client's satisfaction with the team could come from several factors. Exploratory research by Behn et al. (1999) shows that in a selection of the thousand largest companies in the US, the client's satisfaction with a large audit firm and audit fees was dependent on the differentiation of the services provided. This suggests that the individual team members are important for the client's experience of satisfaction with the audit team (Behn et al., 1999). The literature could be an indicator for the structure between the audit team and audit quality. The client's experience of the audit could be reliant on their satisfaction with the audit. The quality of the work produced has tendencies to depend on performance and the composition of the team.

2.3.3 Gender differences

Management and psychological research suggest that gender may have influences on determining risk preferences. Psychological literature finds evidence suggesting women tend to be more risk averse and, when making decisions, less likely to take overconfident assumptions (Byrnes et al., 1999; Dwyer et al., 2002). Schubert (2006) studied risk management in teams of senior managers and found that even though the stereotype of women being risk averse has been disproven, the tendency is still observable in some situations. Women are better at risk management and men have tendencies to be better at risk analysis (Schubert, 2006). The best results could be achieved by creating a team using a mix of both genders (Schubert, 2006).

The extent of overconfidence shows tendencies to differ between the genders in terms of financial investments (Barber & Odean 2001). The study analyzed common stock investments over a five-year period and found that men tend to be more overconfident in general, and that this behavior might affect their decisions when trading (Barber & Odean, 2001). The study of Niederle and Vesterlund (2007), draws parallels to competitive work

environments where women normally are under-represented to investigate gender differences. The participants were asked to solve two tasks; the first was in a noncompetitive environment, the second were presented as a competition (Niederle and Vesterlund 2007). They find that both genders exhibit overconfidence, but men do it to a greater extent (Niederle and Vesterlund 2007). Men tend to be more competitive than women and often show more belief in their success, while women show tendencies to withdraw from competitive environments due to doubts in their own positive results (Niederle and Vesterlund 2007).

Watson & McNaughton (2007) examined gender differences on personal investment plans and found gender significant when determining risk-preferences. Due to risk aversion, women often took overly conservative investment choices (Watson & McNaughton, 2007). Chung & Monroe (2001) asked their auditors to evaluate an inventory case containing a material misstatement to investigate accuracy on auditor decision. The study showed that in less complex tasks male auditors were more accurate than female auditors, and when the complexity increased, the female auditors were the most accurate (Chung & Monroe, 2001).

O'Donnell & Johnson (2001) provides evidence for the variation in information processing between the genders and extends the literature from Chung & Monroe (2001). Male auditors are faster in information processing in less complex tasks, but when the complexity is higher, women are more effective in solving the assignment presented O'Donnell & Johnson (2001). The differences between the genders in the form of risk aversion, risk taking, and information processing could be beneficial to consider when selecting the best candidates for a team. The optimal solution will be team members that compliments each other and uses characteristics as a strength for the team.

2.3.4 Teams and gender balance in teams

Investigating diversity in teams is important as auditing has become increasingly more complex and team based (Huang, 2022). Despite this fact, few experiments and field studies have been conducted to research gender balance effects in teams. The study of Huang

(2022) finds that general diversity in audit teams can improve the rate of client misstatements. Furthermore, when audit engagements are more complex and situational, there is a positive relationship between diverse teams and the benefits for handling complex and non-routine tasks (Huang, 2022).

Hunt et al. (2015) analyzed diversity and financial performance in 366 listed companies. They linked the findings to gender diversity as well as ethnic and cultural diversity (Hunt et al., 2015). Their findings suggest that gender diversity in companies increases the likelihood of financial performance above national industry median (Hunt et al., 2015). Based on data from 2014, they find that firms in the top quartile for gender diversity were 15% more likely to experience above median profit (Hunt et al., 2015). The same conclusion was confirmed by Hunt et al. (2018) with expanded data in a later study. Using data from more than 1000 companies, they found a 21% likelihood of outperforming when the companies' gender diversity was in the top quartile (Hunt et al., 2018). Studies on business performance, such as Herring (2009), analyzed data from more than 500 US for-profit businesses and found that gender and race diversity in organizations can be linked with increased sales revenue and higher profits.

The study of Shoreibal et al. (2019) anchors on frameworks from cognitive resource diversity theory and investigates the influence of gender diversity in sales teams. Shoreibal et al. (2019) proposes that teams where both genders are presented has potential to improve their performance compared to homogeneous male teams. When women are present in a team it is suggested that the team's turnover is reduced (Shoreibal et al., 2019). The effects could also lead to increased feminine perceived behaviors in the form of shared leadership and general benefits of heterogeneity (Shoreibal et al., 2019).

The research from Santos and Neumeyer (2022) studied entrepreneurial teams. They found that increasing the number of women in a team could enhance the team's ability to adapt their working methods. This adaptation would be in the form of making better use of and reflecting over the available resources in a team (Santos & Neumeyer, 2022). Women

showed tendencies to be more rational and this was an effect of their ability to adapt to and reflect over their methods and goals (Santos & Neumeyer, 2022). Women actively contributed to the team by enabling the team's access to resources and benefits (Santos & Neumeyer, 2022).

Gender balance in teams is mostly studied through general diversity in psychological and management research. Few researchers have tried investigating the effects of gender composition in audit teams. The study of Huang, (2022) investigated how audit office teams with a higher general team diversity would influence audit work. Her work found that audit office teams with a higher level of general diversity were likely to perform better and that diverse audit teams affected client misstatement rates in a negative way (Huang, 2022). The effects of heterogeneity and gender differences in teams could be relevant in the audit profession as well. Most audits are team based and how the team is assembled could have an effect on work delivered to the client.

3: Hypotheses

The literature in the previous section describing audit service quality draws parallels to client satisfaction. Research on audit partner gender and teams are presented to provide an insight on how the audit partner and the gender composition of teams could be utilized to enhance audit service quality. Auditing gives assurance of the quality of the financial statements to the public (IAASB, n.d.). The perception of this quality depends on the users (DeAngelo, 1981). The studies of Schroeder et al. (1986) and Carcello et al. (1992) found that the audit partner and audit team could influence perceived audit quality. Audit service quality factors can be used to explain and investigate client satisfaction (Behn et al., 1997). One of the factors that affects the satisfaction of the client could be loyalty (Ismail et al., 2006). Butcher et al. (2013) showed that the client's retention could also be investigated through audit service quality factors.

The literature review presents previous research on audit partners and suggests having a female audit engagement partner could improve audit service quality factors.
A partner's role in the audit is the overall decision-making and to sign the audit opinion (Cameran et al., 2018). Women represent about one fifth of the Norwegian audit partners, despite an equal distribution in the rest of the company on average (De største revisjonsselskapene, 2023). Female audit partners are suggested to have a positive effect on financial reporting quality due to less abnormal accruals (Ittonen et al., 2013; Cameran et al., 2018; Garcia-Blandon et al., 2019), less risk taking (Hardies et al., 2016), and that the differences between the genders could have advantages (Garcia-Blandon et al., 2019; Schubert, 2006). Consequently, based on the available literature, a female partner could have an effect on the client's satisfaction measured by the audit service quality factors. We state the following hypothesis:

H1: There is a relationship between audit teams with a female partner and client satisfaction.

The literature on audit teams is very scarce. It is a new area in audit literature and underrepresented in research. Audit literature has shown gender-based differences in

partners, but rarely any studies on characteristics of teams in the form of gender composition. The little literature that is available is related to diversity as a whole, not gender specifically. Cameran et al. (2018) argue that finding the best composition of the audit team can result in high audit quality. The gender composition of the audit team might have the potential to influence the quality of an audit and could be an element to achieve higher audit service quality. In a gender balanced team there is an aimed equal representation of men and women. Therefore, in this hypothesis, we use the term gender balanced audit teams to describe a balanced team. This team is excluding the partner. We have arrived at the following hypothesis:

H2: There is a relationship between audit teams with a gender balance and client satisfaction.

The presented literature opens for the fact that the gender of the audit partner and the gender balance of the audit team might be related to client satisfaction. This study has proposed two non-directional hypotheses, since the research literature this thesis is based on is generally underdeveloped. It is still not specified whether this relationship is inherently positive or negative, or how strong the relationship might be. This causes us to not include a direction in the hypotheses.

4: Method

4.1 Survey design

To test the two hypotheses, a survey was sent to potential respondents. We used an online survey provider to reach a larger audience, provide anonymity and gain accurate results. The survey was designed to ensure that all respondents remained anonymous, and that no identifying data was collected. Recipients were informed of the anonymous nature of the survey and a trusted online survey provider, Nettskjema, was used to collect the responses. Respondents could withdraw their consent at any point by closing their browser, and the answers provided up until that point were deleted by the survey provider. To address any questions or concerns, respondents were provided with our phone numbers and email addresses.

The surveys were designed using the same conditions as Butcher et al. (2013). The group differentiations for his study were clients that had chosen to 'retain' or 'not retain' their auditor. The companies that received the first survey were asked to choose an audit where 'the client must be one that has chosen to retain your employer as their auditor.' The conditions for this survey are shortened to 'retain' in the statistical analysis. The respondents of the second survey were asked to choose an audit where 'the client must be one that has appointed a new audit firm.' This is shortened to 'non-retain' in the statistical analysis and is a client that is not retained by the audit firm.

Prior to administering the survey, it was expected that the response rate for the retained client would be higher than for the client that had chosen not to retain and had appointed a different audit firm. To ensure responses to both group differentiations, we determined that if we allowed auditors to choose their own conditions, it could result in the respondents choosing clients they had a good relationship with and who were more likely to be retained. The audit companies that were chosen to potentially respond were divided into two groups, where each group received one of two different surveys. The companies were first sorted by name and an online random generator was then used to assign one of the two surveys.

The respondents were asked to consider a recent audit of a limited company performed by an audit team of a minimum of three people, with an issued and signed audit opinion. The conditions were specific in order to assess the team's composition and the partner's gender in comparison with the quality of the audit. They were asked to recall a recent event to minimize memory bias. Memory bias is the possibility that the information is either remembered too positively or too negative, or that it is remembered incorrectly. The survey only informed respondents that it was investigating audit quality and teams to prevent any potential bias in their responses. The questions they received were the same for both surveys, the only difference between them was the two group differentiations.

Before sending the actual survey, a pilot survey was shared with an audit firm to identify and solve any potential misunderstandings. The validity of the data collected through the pilot survey were assessed and any potential problems were solved. Seeing the fact that the survey was anonymous and the number of companies that received it were large, the non-response bias will be reduced, but it cannot be completely removed. The Norwegian Centre for Research Data's (NSD) requirement for an anonymous survey that was fulfilled (Sikt - Kunnskapssektorens tjenesteleverandør, n.d.). The survey did not gather IP addresses or identifying information from the respondents, and there was no choice given to fill in email addresses or names while answering the survey questions and followed the regulations set (Oslo Metropolitan University, 2022).

4.2 Variable identification

The questions were based on audit literature and they were modified to fit the hypothesis of this thesis, which is relative to a specific team and a specific audit. Two questions from the original 48 questions used in the work of Butcher et al. (2013) were removed due to relevance. The first question, if the audit partner was a CA/CPA was removed as the equivalent in Norway is the approved title state authorized auditor. Considering that the title is protected and must be obtained in order to be an audit partner (Revisorloven, 2020, §9-3), the question was unnecessary. The second question removed was if the audit firm participates in a peer review process, and if the latest was clean. The outcome of this type of

process is most likely only known by a partner, not a manager. After the two questions were removed, there were 46 remaining audit quality questions (Appendix A, column 2).

The questions were presented in a random order to minimize the risk of bias from previous questions answered, and to make the results as accurate as possible. The questions were presented in the same randomized order as (Butcher et al., 2013), shown in Appendix A. Using the adjusted AUDITQUAL method (Duff, 2009), the remaining questions were divided using the same four higher categories - competence, independence, relationship and service qualities (Appendix B, panel A, column 1). The four higher categories were split into seven lower categories (Duff, 2009) in column 2. The distribution of the higher and lower categories are as follows: i. Competence (reputation, capability and assurance). ii. Independence (independence). iii. Relationship (expertise and experience). iv. Service qualities (responsiveness). How the questions are distributed in the lower categories are shown in column 3 and the specific questions are divided in Appendix B, panel B.
The respondents answered the questions using a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree), which is consistent with the approach taken by (Butcher et al., 2013). Two additional questions were added to gather information about the gender composition of the team. The first question inquired about the gender of the audit team partner, with the options being 'man' or 'woman.' The second question inquired about the percentage of men in the audit team, excluding the partner. This question had a fixed range from 0% to 100%.

4.3 Sample selection and survey administration

To examine whether gender and audit quality has an influence on client satisfaction the survey was administered to 179 audit companies in Norway. The companies were selected by choosing all departments of the Big 5 (BDO, Deloitte, EY, PWC and KPMG) and a selection of non-Big 5 companies in, and in the vicinity of the largest cities in Norway. Google Maps was used to find companies listed by city and their contact information. An email containing a short description and a link to the survey was sent to a relevant contact person. After the first email, the respondents were contacted once by phone in the following days to

encourage them to respond. In the cases where the companies did not have a contact email, the initial contact was by phone and the survey was sent after acquiring an email address. For companies that did not have any employees with contact information, an email or phone call was made to the receptionist.

The respondents needed to be able to answer on behalf of the team that performed the audit. Based on this predisposition, the answers for the survey needed to come from someone with management responsibility. The common work description for this type of position in the audit profession is manager, director, or partner. To exclude answers from respondents outside the scope, such as associate or senior, the survey included a question asking the respondents for their current position in the company. The partners were in most cases the contact person for the company, and the survey was dependent on them sharing it within their office to get managers to respond. The survey was administered over several weeks to be able to follow up on potential respondents. After one month, all potential respondents that were contacted received a reminder by email.

The collection period started in the beginning of March 2023, and ended in the middle of April 2023. The period when the data was collected is the busiest part of the audit season. Filing of the Norwegian tax return is open from mid-February until May 31st (Skatteetaten, n.d.). As auditors often work extensive hours of overtime during this period, it was anticipated that obtaining enough respondents for the survey would be challenging. To compensate for this potential problem, a larger number of companies were contacted than would have been necessary if the survey had been sent during the fall. The spring season required time consuming personal contact and follow up with all companies by phone which led to the collection period being one and a half months.

4.4 Response rate

A randomly selected survey was sent to 179 audit firms and 108 people responded. Out of the total respondents, three were from the reminder sent to all firms that did not explicitly inform us that they had answered the survey. However, six of the 108 respondents held

positions in their company as associate or senior and were therefore excluded from the analysis. This resulted in a total of 102 relevant respondents. The survey was designed to be anonymous, meaning that the specific firms and employers of the respondents are unknown and the only information available was the total number of respondents. Some firms were unable to participate in the survey. This could either be due to a lack of sufficient employees to form a team of three, or because they had received the survey with a condition that was not relevant to their company. This condition could be that the respondent had not recently lost a client to a different audit firm.

4.5 Method of analysis

The combined responses for both surveys were used in the statistical tests. The responses to the 46 questions were considered independent variables measured on an ordinal scale and were divided into the seven lower categories (Appendix B, panel A, column 2). Prior to conducting any statistics, a few variables were reversed to ensure accurate interpretation of the results. Three questions were phrased in a negative manner rather than a positive one, and thus required reverse coding. The variables that were reversed were questions 10, 28 and 33 (Appendix A): if the audit firm has a high turnover rate, if they have decentralized offices and the time use of audit procedures was the primary criterion for selection.

Cronbach's alpha was applied to each of the seven categories separately to measure internal consistency reliability. This assesses the internal consistency in a category, how well the independent variables are related to each other and measure the same construct. The variables were all in the same direction following the reverse coding and the unstandardized approach was used. This method does not optimize the direction of the variables and they are kept as is. A high Cronbach's alpha shows that they most likely measure the same thing consistently, a low alpha suggests that they may measure a different construct (Taber, 2018).

To verify the structure of the seven categories, they were applied to a confirmatory factor analysis, also known as CFA. This analysis is used to find out whether the variables in a

category are correlated with each other, and not with a different variable or concept. A confirmatory principal component factor analysis (PCF) was used to assess the structure of the model. This is a structural equation model that assumes there are no unique factors, and one common aspect is present for all variables in a category. Each category was orthogonally rotated with Kaiser Varimax rotation to force the factor loadings of each variable to be uncorrelated. This method maximizes the variance of the factor loadings, improves the interpretation, and simplifies the identification of underlying dimensions in the data (Hair et al., 2009). The factor loadings were cut off at 0.55 following our sample size, keeping only the variables that are strongly related to the categories (Hair et al., 2009). The categories were defined as factors where a variable with a higher loading is given a higher weight above the cut off limit. The type of scoring method that achieves this is the Bartlett chi squared test. This test allows the variables to only correlate with their own factor, not to other factors (DiStefano et al., 2009). This makes the estimates unbiased when using orthogonal rotation (DiStefano et al., 2009). The rotated factors were applied in an unpaired t-test using binary coded 'retain' as a defining dependent variable. The objective was to test the individual hypothesis for the seven factors by retention of the audit firm and if the means between the two survey conditions of 'retain' (coded 1) and 'non-retain' (coded 0) are equal.

Correlation between the categories was measured using Spearman's Rho method for rank-order correlation. This method of correlation measures the relationships strength and direction between two ranked, ordinal type variables. The variables used in this test were the dependent variable 'retain', the two test variables; if the team has a gender balance ('balanced team'), and if the team has a female partner ('partner female'), and the seven rotated factors. The correlation was measured on a scale from -1 to 1, where a high value is a strong correlation and a strong relationship between the variables (Acock, 2014). A positive correlation suggests that if one variable changes, the corresponding variable will change by the same value and the same direction (Acock, 2014). A negative correlation results in the variables moving in opposite directions by the same value (Acock, 2014). The statistical significance of the correlations were a control factor as well. The last test before

the regression was calculated was a VIF analysis that controlled for multicollinearity issues in the factors.

4.6 Model specification

The logistic regression allows for a model to understand the variation in the responses collected. A logistic regression with non-robust standard errors was used as the statistical method of analysis. In this type of method, missing responses for the questions are automatically removed. This method was used to keep the reliability of the results, control for any problems with the survey and keep the regression consistent. It resulted in the removal of the affected respondents and a reduction in the number used in the analysis from 102 to 96. The regression equation models the relationship between the dependent variable 'retain', the two test variables for the gender of the team members, and the seven independent variables in the form of rotated factors. The gender of the team members is defined in the model as two binary test variables: 'partner female' and 'balanced team'.

'Retain' was the dependent variable and was coded with a binary outcome. The survey with the condition of retaining the client was coded as 1. The second survey where the client was not retained was coded as 0. The first test variable 'partner female' was generated by making the dichotomous variable of gender into a binary variable. In this variable a female partner was coded as 1 and a male partner as 0. The second test variable 'balanced team' was generated as a binary variable by defining a percentage of men in a team between 33% and 66%, excluding the partner. This interval was coded as 1 and the interval outside in both directions was coded as 0. If a team has a male percentage of 33% this will translate to the team consisting of one man, two women and a partner of an unknown gender.

The remaining independent variables are the rotated factors from the seven categories (Appendix B, panel A, column 2); reputation, capability, assurance, independence, expertise, experience and responsiveness. These factors consist of the ordinal responses from the two surveys with 46 questions. The coefficient of the independent variables is defined by β. This is the change in the dependent variable 'retain' with each change in the independent or test

variables. The error term, e, represents the unexplained variation in the dependent variable that is not accounted for by the other variables in the equation. The seven factors, the two test variables and the dependent variable were used in a logistic regression explaining if the audit client retained or not retained their auditor:

$$Retention = \beta_0 + \beta_1 Partner\ female + \beta_2 Balanced\ team + \beta_3 Reputation + \beta_4 Capability + \beta_5 Assurance + \beta_6 Independence + \beta_7 Expertise + \beta_8 Experience + \beta_9 Responsiveness + e$$

5: Results

A test scale of all the items in each of the seven categories from Appendix B (panel A, column 2) using Cronbach's alpha is shown in Table 1. The seven lower categories are shown in the first column, while the second column lists the average interitem covariance. This is the mean covariance between each pair of variables and how strongly they are related to each other. A low mean is interpreted as a weak covariance, and they may be measuring a different construct than suggested. In the third column, the number for the test scale alpha measures the internal consistency and the reliability coefficient of the category. An alpha of between 0.6 and 0.7 is often seen as acceptable as a rule of thumb but there is no 'set' agreement among researchers (Taber, 2018). The general consensus is that an internal consistency of 0.7 or larger is desirable (Taber, 2018).

The lower category 'reputation' had a very low test scale alpha (Table 1, column 3) and two questions were removed after analyzing the individual alpha for each question. The two questions removed were question 28 and 34 (Appendix A). The first question asked if the firm has centralized or decentralized offices, and the second whether the audit firm rarely was found negligent in lawsuits. The adjusted category for 'reputation' has two remaining questions moving forward. The categories 'expertise' and 'responsiveness' had an alpha of 0.7399 and 0.7351 (Table 1, column 3). An alpha above the desirable number of 0.7 could mean that the categories are reliable and consistent in measuring what they are intended to measure. 'Capability' at 0.6930 (column 3) could be reliable even if it is slightly below the limit as it is not a strict rule. The rest of the lower categories have an alpha ranging from 0.5101 to 0.5936 meaning that they have a lower internal consistency than what is generally considered acceptable. This could indicate that the variables are measuring a different construct or that there are issues with the formulation of the questions. The low internal consistency could also be due to relevance for the Norwegian audit profession.

Table 1
Results of Cronbach's alpha with an average interitem covariance and test scale α for the unrotated categories

Lower categories[a]	Average interitem covariance[b]	Test scale α [c]
Reputation*	0.1554	0.2099
Reputation**	0.4577	0.5936
Capability	0.3751	0.6930[d]
Assurance	0.3072	0.5101
Independence	0.3838	0.5527
Expertise	0.6055	0.7399[e]
Experience	0.8359	0.5854
Responsiveness	0.5682	0.7351[e]

a = The questions from Figure 2, column 3 (Duff, 2009) divided into the lower category groups

b = The correlations of all pairs of items

c = The Cronbach's alpha for the test scale

d = Lower categories with an acceptable test scale α

e = Lower categories with a desirable test scale α

* = Test scale of question 28, 29, 34 and 40

** = Test scale of question 29 and 40. Question 28 and 34 are removed for having an low individual test scale α

The seven lower categories from Duff (2009) in Appendix B (panel A, column 2) were used in a PCF analysis. The factors were rotated using the Kaiser Varimax orthogonal method and applied to an independent sample t-test, as seen in Table 2. This type of test is used to compare the difference between two population means and to see if the responses differ. Column 1 lists the lower categories, and the factor score mean value divided by the binary coded variable used for the two populations (1 = 'retain', 0 = 'non-retain') is found in column 2. The t-statistic for all categories is shown in column 3 following the regular 2-tailed significance in column 4 and the Bonferroni 2-tailed significance in column 5. None of the categories has a significant impact on the two groups of respondents in Table 2, column 4. The p-value is higher than the 2-tailed significance level of $p < 0.05$, indicating that there are no significantly different responses for the two different surveys with the conditions 'retain'

and 'non-retain', and that none of the mean values in column 2 is significant. The two-tailed Bonferroni correction in column 5 is performed using a regular 2-tailed significance to control for the chances of a false-positive. The Bonferroni p-value is higher than the significance level of 0.007, indicating the same as the interpretation of the t-test p-value, that there are no significant differences between the responses from the two surveys.

Even if the two populations are not statistically significant, there are differences between the seven groups. To examine the relationship between them, when controlled for other factors, could render better results and help with the understanding of the nature of the relationship. A regression analysis can explain the relationship between a dependent variable and one or more independent variables, controlled for other test variables that can affect the relationship.

Table 2

Results of t-tests with mean differences, t-statistics and significance

Factor scores[a]	**Factor score mean value [b]** 'Retain' (coded 1) n = 58	'Non-retain' (coded 0) n = 44	**t-statistic[c]**	**Significance (2-tailed)[d]**	**Significance (2-tailed) Bonferroni[e]**
Reputation	0.0862	-0.1136	0.9991	0.3202	0.0457
Capability	0.0382	-0.0503	0.4361	0.6637	0.0948
Assurance	0.0237	-0.3121	0.2705	0.7874	0.1125
Independence	-0.0071	0.0093	-0.0812	0.9355	0.1336
Expertise	-0.0291	0.0383	-0.3350	0.7384	0.1055
Experience	-0.0076	0.0099	-0.0851	0.9324	0.1332
Responsiveness	0.0932	-0.1208	1.0626	0.2906	0.0415

a = The questions from Figure 2, column 3 divided into categories (Duff, 2009)

b = The categories were merged into separate factors using a confirmatory PCF analysis. The factors were rotated using orthogonal Kaiser Varimax, loading cut off at 0.55. The factor score value is divided by the two surveys, if the client has retained or not retained their auditor

c = The ratio of the difference between the mean[b] and the difference between the standard error of 'retain' and 'non-retain'

d = Two-tailed p-value calculated from the t-statistic[c], the two-tailed significance value $p < 0.05$

e = Two-tailed Bonferroni correction p-value calculated from the p-value of the 7 lower categories (d) divided by the significance level ($p < 0.05$), making the two-tailed significance value for Bonferroni $p < 0.007$

Table 3 presents the Spearman's rank-order correlations, which reveal the strength of the relationships between the variables included in the model. Correlations of at least 0.50 could be interpreted as a strong correlation and a value of at least 0.30 could be considered as moderate correlation between the variables (Acock, 2014). All of the seven factors' correlations are statistically significant (column 5-11) and the scores are moderate or strong for all combinations, except for one. The exception for the categories is the correlation between 'experience' and 'reputation'. The correlation is positive but weak at 0.2090 (column 5), . To summarize, if the response in one of the categories increases, the response in the correlating category will increase with the same amount. The correlation will move in a positive direction and be statistically significant. 'Expertise' has a strong, positive correlation between all factors, except for the moderate correlation with 'experience' at 0.4500 (column 9). This indicates that a higher expertise level in a team is associated with a strong to moderate mutual influence on the other factors.

The statistical significance in the remaining variables using Spearman's Rho correlation is varying. If only the statistically significant correlations are analyzed, the dependent variable and test variables in column 2-4 have a weak and positive correlation to some of the variables. All the negative correlations were weak and not statistically significant. There are no problems with very high correlations between the variables. Since most of the correlations for the test and dependent variables are weak it could be possible that there are other factors that affect them than the independent variables.

Table 3
Spearman Rho's correlation

Variables	Retention[a]	Balanced team[b]	Partner female[b]	Reputation[c]	Capability [c]	Assurance [c]	Indepen-dence [c]	Expertise [c]	Experience [c]	Respons-iveness [c]
Retention[a]	1.0000*									
Balanced team[b]	0.2336* 0.0220**	1.0000								
Partner female[b]	0.1568 0.1270	0.0461 0.6559	1.0000							
Reputation [c]	-0.0138 0.8936	0.2669 0.0086	0.2846 0.0050	1.0000						
Capability [c]	0.0079 0.9388	0.2043 0.0459	0.1506 0.1429	0.5974 0.0000	1.0000					
Assurance [c]	-0.0457 0.6582	0.1834 0.0736	0.1682 0.1013	0.4946 0.0000	0.5574 0.0000	1.0000				
Independence [c]	-0.1172 0.2555	0.0892 0.3874	0.1657 0.1067	0.4256 0.0000	0.5579 0.0000	0.5882 0.0000	1.0000			
Expertise [c]	-0.0571 0.5804	0.2980 0.0032	0.1129 0.2733	0.6189 0.0000	0.6308 0.0000	0.6119 0.0000	0.5630 0.0000	1.0000		
Experience [c]	-0.0202 0.8454	0.1500 0.1446	0.1578 0.1246	0.2090 0.0410	0.3504 0.0005	0.3105 0.0000	0.3575 0.0000	0.4500 0.0000	1.0000	
Responsiv-eness[c]	0.0336 0.7449	0.1827 0.0749	0.1237 0.2298	0.5792 0.0000	0.4799 0.0000	0.4844 0.0000	0.4437 0.0000	0.5824 0.0000	0.3507 0.0005	1.0000

a = Dependent variable, coded binary where 1 = 'retain' and 0 = 'non-retain'
b = Test variables, coded binary where 'balanced team': 1 = a male percentage of 33%-66%, 0 = a male percentage from 0%-32% or 67%-100%. 'Partner female': 1 = partner female, 0 = partner male
c = Independent variables, the categories from Figure 2, column 2 were used in a PCF analysis and rotated using orthogonal Kaiser Varimax, loading cut off at 0.55
* = The Spearman Rho's correlation between the variables. The first number in the table squares is the correlation throughout the whole table. If only one number is present, it is the correlation
** = The statistical significance where $p < 0.05$. The second number in the table squares is the statistical significance throughout the whole table.

VIF, or Variance Inflation Factor, was applied to the same groups of variables as the correlation in Table 3 to control for multicollinearity. Multicollinearity occurs when two or more variables are highly correlated with each other in a regression model. With a high VIF it becomes difficult to determine the effect each individual independent variable and test variables has on the dependent variable, and this in turn affects the coefficients which could become unstable and difficult to interpret. The VIF for the regression was low, with 'capability' and 'expertise' having the highest result at 2.21 and 2.37. There were no multicollinearity problems and a regression can be calculated safely.

The next step was to apply the variables in a logistic regression to test our hypothesis. The result of the analysis is found in Table 4. The independent and test variables are listed in column 1. The test variables 'partner female' and 'balanced team' were coded as a binary variable and the seven factors are rotated factors from the PCF analysis. The constant is the dependent variable 'retain'. The coefficient in column 2 indicates the direction and strength of the relationship between the variables and the dependent variable. The Wald-statistics (column 3) for all seven independent variables are non-significant as they are not significantly different from zero. These numbers combined suggest that there are no significant influences for the variables in the model. None of the seven lower categories are statistically significant in column 4 with a $p < 0.05$. The results vary between a 2-tailed significance for 'expertise' at 0.109 and 'assurance' at 0.896 (column 4).

The first hypothesis for 'partner female', is not statistically significant at $p < 0.05$ with a p-value of 0.158, and Wald statistics of 1.41 (column 3). The first hypothesis is rejected. There is not a relationship between client satisfaction and the team having a female partner. The second hypothesis, 'balanced teams', has a Wald statistic of 2.45, and this is the only variable that is statistically significant. The 2-tailed significance at $p < 0.05$ for 'balanced team' is 0.014. This supports the second hypothesis, that there is a relationship between balanced teams and client satisfaction. From the regression this relationship could be concluded to be significant and positive.

The chi-square test calculates the overall significance of the logistic regression. This is the probability of rejecting the null hypothesis, that there is no relationship between the dependent and the independent variable. The chi-square is Prob > chi2 at 0.2118 (Table 4) and are not statistically significant on a 5% or 10% level. This suggests that the model does not describe the dependent variable. The measure of how well the model fits the data is found in the Pseudo McFadden R^2 of the regression, which is 0.0911. This is interpreted as 9.11% of the variation of client satisfaction is explained by the information from the survey.

Table 4:
Results of regression analysis

Test variables[a]	**Coefficient**[c]	**Wald Statistic**[d] **(z-value)**	**2-tailed significance**[e]
Partner female	0.9543	1.41	0.158
Balanced teams	1.2087	2.45	0.014*
Independent variables [b]	**Coefficient** [c]	**Wald Statistic** [d] **(z-value)**	**2-tailed significance**[e]
Reputation	0.2675	0.97	0.334
Capability	0.0561	0.18	0.861
Assurance	0.0393	0.13	0.896
Independence	-0.1828	-0.59	0.553
Expertise	-0.5400	-1.60	0.109
Experience	-0.0620	-0.25	0.802
Responsiveness	0.2395	0.83	0.408
Constant	0.6588	-1.71	0.088*
Sample size	96		
LR chi2(9)	12.03		
Prob > chi2	0.2118		
Pseudo R^2	0.0911		

a = Test variables, coded as binary variables, where: 'partner female' (1 = the team has a female partner, 0 = the team has a male partner) and 'gender balanced team' (1 = male percentage of the team is between 33% and 66%, 0 = male percentage of the team is <33% and >66%)

b = Independent variables, derived from the confirmatory factor analysis from figure 3 using principal factor analysis. The factors are rotated using the Kaiser Varimax orthogonal method. The constant is the binary dependent variable 'retention' where 'retain' is coded 1 and 'non-retain' is coded 0

c = The effect of the variable on retention if all other variables are held constant

d = The coefficient divided by the standard error of each variable

e = The statistical significance the potential impact on the client's intention to retain or not retain their auditor

* = The statistical significance where $p < 0.05$ (2-tailed)

** = The statistical significance where $p < 0.10$ (2-tailed)

6: Sensitivity analysis

6.1 Model specifications

Sensitivity analysis was performed as alternative logistic regressions to see if it is possible to find a better fitting model. All the statistical tests use the original regression from the model specification as a base. 'Partner female' is a dichotomous test variable that is binary coded. The scale of this variable is either 'male' or 'female'. If a male partner was used in the regression, the statistical analysis will be the same, with one exception. The test variable describing male partner will have a negative direction compared to the positive direction for a female partner. This results in this variable being stable through all tests. The seven independent variables have been tested with Spearman Rho's correlation and VIF after they were rotated into factors. They are kept in the regression due to the results of these statistical tests. The first sensitivity analysis made assumptions regarding the missing values from the survey by using robust standard errors. The next two models were made using different test variables than gender balanced teams; first a team of 33% or more men, followed by a team of 33% or more women.

6.2 Sensitivity analysis – robust

$$Retention_{robust} = \beta_0 + \beta_1 Partner\ female + \beta_2 Balanced\ team + \beta_3 Reputation + \beta_4 Capability + \beta_5 Assurance + \beta_6 Independence + \beta_7 Expertise + \beta_8 Experience + \beta_9 Responsiveness + e$$

The survey has ordinal data. This can challenge the assumption of equal variance in the original logistic regression. When using robust standard errors, the model adjusts for this potential problem. The robust regression showed the same Pseudo McFadden R^2 as the original regression. The likelihood ratio test (LR chi2) was 10.75 and lower than the original model in Table 4, the statistical significance of the likelihood ratio test statistic (Prob > chi2) was 0.2930 and higher than the original regression (Table 4). Both results indicate that the model is a worse fit when using robust standard errors. The first hypothesis, a female partner, was marginally improved from 0.158 (Table 4, column 4) to 0.149 in sensitivity

analysis using robust standard errors. The results were not statistically significant using $p < 0.05$, 2-tailed significance. Hypothesis two where the team had a gender balance were not improved and showed reduced significance from 0.014 (Column 4) to 0.016 in the new regression. The original regression is a better fit than the sensitivity test with robust standard errors.

6.3 Sensitivity analysis - Team composition alternative A

$$Retention = \beta_0 + \beta_1 Partner\ female + \beta_2 Team\ composition\ A + \beta_3 Reputation + \beta_4 Capability + \beta_5 Assurance + \beta_6 Independence + \beta_7 Expertise + \beta_8 Experience + \beta_9 Responsiveness + e$$

The regression was fitted using a team consisting of 33% or more men. The test variable was named 'team composition A.' This variable was coded 1 for a team of 33% or more men and coded 0 for 32% or less men. Hypothesis one where the partner is female, has a statistical 2-tailed significance $p < 0.05$ of 0.209. This is a reduction in significance from 0.158 (Table 4, column 4) in the original regression. A team with a male percentage of 33% or more has a 2-tailed significance of 0.289. This is not an improvement compared to the test variable 'balanced team' that was statistically significant at 0.014 (Table 4, column 4). The Pseudo McFadden R^2 were lower than the original regression of 0.0911 (Table 4), landing on 0.0550. LR chi2 was reduced from 12.03 (Table 4) to 7.1. Prob > chi2 was very high at 0.6263, where the original regression had a prob > chi2 of 0.2118 (Table 4). The test variable 'team composition A' is a worse fit for the model than 'balanced team'.

6.4 Sensitivity analysis - Team composition alternative B

$$Retention = \beta_0 + \beta_1 Partner\ female + \beta_2 Team\ composition\ B + \beta_3 Reputation + \beta_4 Capability + \beta_5 Assurance + \beta_6 Independence + \beta_7 Expertise + \beta_8 Experience + \beta_9 Responsiveness + e$$

The regression was fitted using a team consisting of 33% or more women. The test variable was named 'team composition B.' This variable was coded 1 for a team of 33% or more

women and coded 0 for 32% or less women. The Pseudo McFadden R^2 were 0.0752, a worse fit than the original regression at 0.0911 (Table 4). LR chi2 (9.92) and Prob > chi2 (0.3567) had better results than the regression using 'team composition A'. In this alternative sensitivity analysis 'female partner' has improved from the original regression, 0.158 in Table 4 (column 4), to 0.121. The results are still not statistically significant using 2-tailed significance of $p < 0.05$. The test variable 'team composition B' results in $p < 0.046$, which is not an improvement from the original regression where $p < 0.014$ (Table 4, column 4) using 'balanced team.' The test variable 'team composition B' is a worse fit for the model than 'balanced team'.

6.5 Sensitivity analysis summary

The sensitivity analysis tests uncertainty in our regression and controls for definition variations and missing data. As the sensitivity analysis shows, our initial regression gained the best results. In the original regression the test variable is a team with a gender balance between 33% and 66% men and normal standard errors. This could support the fit of the original regression and the robustness of our findings. The original regression gained the highest Pseudo McFadden R^2 at 0.0911 (Table 4, column 2), the lowest prob > chi2 at 0.2118, and the highest statistical 2-tailed significance at $p < 0.05$ for two test variables at 0.158 and 0.014 (column 2).

7: Conclusion, Limitations and Future research

7.1 Conclusion

Motivated by the absence of audit literature covering the topics, this thesis seeks to examine two relationships. The first is the relationship between the audit partner gender and client satisfaction. The second, the relationship between a gender-balanced audit team and client satisfaction. To investigate the two hypothesized relationships we conducted a survey, where audit firms were asked about a recently performed audit where the client was either retained or not retained. The survey was directed to managers, directors and partners employed in audit firms of different sizes in Norway.

The theoretical basis for our thesis was the research of Ismail et al. (2006), Duff (2009) and Butcher et al. (2013). Ismail et al. (2006) investigated the association between audit service quality factors, client satisfaction and loyalty. The multidimensional model of Duff (2009) was used to measure audit service quality factors in a reliable and valid manner. Both studies have been used by Butcher et al. (2013) to investigate audit service quality. Butcher et al. (2013) associated loyalty with auditor retention and found a relationship between audit service quality factors and auditor retention. We have used the same statistical methods and the same questions as Butcher et al. (2013) as a starting point for our thesis to investigate client satisfaction through a survey of 46 audit service quality questions.

As mentioned, characteristics such as gender and gender composition is insufficiently researched for both as audit partner and audit teams. The literature review presents research findings on audit partners and teams to establish foundation for our hypotheses. A logistical statistical regression was used to test this relationship. The model testing the first hypothesis showed no relationship between partner gender and client satisfaction. The results were not statistically significant, and the hypothesis was rejected. The statistical test shows that there is no relationship between client satisfaction and the team having a female partner. The statistical model that tested the second hypothesis supports the assumption of a relationship between a gender balanced audit team and client satisfaction. The results of the regression showed a relationship that was statistically significant and positive. We can

conclude that there is a positive relationship between a gender balanced audit team and client satisfaction.

We conducted a sensitivity test in the hope of a better fit of the model and more statistically significant results than the original regression. The three additional calculations showed no improvement in the results, either by statistical significance or by a higher explanation value, Pseudo McFadden R^2.

The main finding of this thesis is a positive and significant relationship between gender balanced audit teams and client satisfaction. Audit firms that promote equal gender balance in teams could utilize the differences in gender characteristics for the team's benefit. These benefits could be suggested to affect the audit service quality of an audit, which might influence client satisfaction in a positive direction. The findings of this thesis suggests that audit firms should take into consideration gender balance when composing teams for audit engagements.

7.2 Limitations and future research

There are several limitations to this study and differences from the original research of Butcher et al. (2013) that we extended. Firstly, there may be measurement errors in our data and therefore our conclusion. The data was collected by asking audit partners and managers and differs from Butcher et al. (2013) that questioned the clients directly. The respondents' answers are dependent on their memory which could result in memory bias. Butcher et al. (2013) questioned 201 finance professionals, Duff (2009) received 415 responses from auditors, auditees, and investors, while Lowensohn et al. (2007) received 241 responses from finance directors. Our sample is smaller than these studies due to the method of data collection directly from the audit firm. A smaller sample of the population could give an alternative representation than a larger sample. The statistical power of the regression could be lower and therefore reduced precision. These limitations could result in false positives where the statistical analysis is significant when they in reality are not. The results could also

be false negatives. This is where the statistical results show that they are not significant, but they are in fact statistically significant.

The study is conducted in Norway, which is one of the leading countries in gender equality. The demography in other countries could therefore have very different results compared to the Norwegian audit market. Another limitation of the research conducted is that our data is only based on feedback from auditors with management responsibility in auditing firms of different sizes. This study does not further investigate the client's reasons for retaining or not retaining the auditor from a client's point of view. The cost of changing to a different audit firm could be expensive. Since the cost is potentially high, it could result in the audit firm being retained despite the client not being satisfied with the audit service delivered. The satisfaction of other stakeholders is not taken into account.
A gender balanced audit team can still be homogeneous due to similar experience, personality type or background. Some negative side aspects of gender balanced teams could be differences in communication forms or that a team member is included solely to balance the team.

The existing research on audit partners, but particularly audit teams and gender balanced teams, is a limitation for our study. The literature foundation of the hypotheses are scarce or non-existent. Further studies on the client's decision making process could be insightful in understanding client satisfaction. Future studies of client satisfaction could also be extended to include responses from the full range of audit team members to gain further insights on team dynamics and client relationships. Furthermore, it would be interesting to see similar studies on gender, client satisfaction and audit service quality with larger datasets and including data from other stakeholders of the audit process. For future research we encourage more academic studies on the effects of gender in audit teams and the partner's gender. This topic could be used in similar studies in other countries to find differences or similarities. It could also be interesting to extend the research by controlling for more characteristics in audit teams. We hope to see more academic research on the effects of gender composition in auditing teams and the client's satisfaction.

References

Acock, A.C. (2014). *A Gentle Introduction to Stata* (4th ed.). Stata Press, College Station. (Original work published 2005)

Aldhizer, G. R., Miller, J. R. & Moraglio, J. F. (1995). Common attributes of quality audits. *Journal of Accountancy, 179*(1), 61–68. https://bibsys-almaprimo.hosted.exlibrisgroup.com/primo-explore/fulldisplay?

Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *The Quarterly Journal of Economics, 116*(1), 261-292. https://doi.org/10.1162/003355301556400

Behn, B. K., Carcello, J. V., Hermanson, D. R., & Hermanson, R. H. (1997). The determinants of audit client satisfaction among clients of Big 6 firms. *Accounting Horizons, 11*(1), 7-24. https://www.proquest.com/openview/244125f1e617ed8167ef49a6f8420649/1?pq-origsite=gscholar&cbl=3330

Behn, B. K., Carcello, J. V., Hermanson, D. R., & Hermanson, R. H. (1999). Client Satisfaction and Big 6 Audit Fees. *Contemporary Accounting Research, 16*(4), 587-608. https://doi.org/10.1111/j.1911-3846.1999.tb00597.x

Butcher, K., Harrison, G., & Ross, P. (2013). Perceptions of audit service quality and auditor retention. *International Journal of Auditing, 17*(1), 54-74. https://doi.org/10.1111/j.1099-1123.2012.00457.x

Byrnes, J. P., Miller, D. C., & Schafer, W. D. (1999). Gender differences in risk taking: A meta analysis. *Psychological Bulletin, 125*(3), 367-383. https://doi.org/10.1037/0033-2909.125.3.367

Cameran, M., Ditillo, A., & Pettinicchio, A. (2018). Audit team attributes matter: How diversity affects audit quality. *The European Accounting Review, 27*(4), 595-621. https://doi.org/10.1080/09638180.2017.1307131

Carcello, J. V., Hermanson, R. H., & McGrath, N. T. (1992). Audit quality attributes - The perceptions of audit partners, preparers, and financial statement users. *Auditing: A Journal of Practice and Theory, 11*(1), 1-15. https://doi.org/10.17576/ajag-2018-10-03

Chen, C. J. P., Shome, A., & Su, X. (2001). How is audit quality perceived by big 5 and local auditors in China? A preliminary investigation. *International Journal of Auditing, 5*(2), 157-175. https://doi.org/10.1111/j.1099-1123.2001.00332.x

Christensen, B. E., Newton, N. J., & Wilkins, M. S. (2021). How do team workloads and team staffing affect the audit? Archival evidence from U.S. audits. *Accounting, Organizations and Society, 92*(4), 1-20. https://doi.org/10.1016/j.aos.2021.101225

Chung, J., & Monroe, G. S. (2001). A research note on the effects of gender and task complexity on an audit judgment. *Behavioral Research in Accounting, 13*(1), 111-125. https://doi.org/10.2308/bria.2001.13.1.111

Coleman, L. B. (2015). *Advanced quality auditing: An auditor's review of risk management, lean improvement, and data analysis* (1th ed.). ASQ Quality Press.

Contessotto, C., Knechel, W. R., & Moroney R. A. (2019). The association between audit manager and auditor-in-charge experience, effort, and risk responsiveness. *Auditing: A Journal of Practice and Theory, 38*(3), 121-147. https://doi.org/10.2308/ajpt-52308

De største revisjonsselskapene: Stadig flere kvinner i ledende stillinger. (2023). *Revisjon og Regnskap, 93*(2), 18. https://www.revregn.no/journal/2023/2/m-618/Stadig_flere_kvinner_i_ledende_stillinger

DeAngelo, L. E. (1981). Auditor size and audit quality. *Journal of Accounting and Economics, 3*(3), 183-199. https://doi.org/10.1016/0165-4101(81)90002-1

DeFond, M., & Zhang, J. (2014). A review of archival auditing research. *Journal of Accounting and Economics, 58*(2-3), 275-326. http://dx.doi.org/10.1016/j.jacceco.2014.09.002

DiStefano, C., Zhu, M., & Mîndrilã, D. (2009). Understanding and using factor scores: Considerations for the applied researcher. *Practical Assessment, Research & Evaluation, 14*(20), 1-12. https://doi.org/10.7275/da8t-4g52

Duff, A. (2004). *AUDITQUAL: Dimensions of audit quality.* The Institute of Chartered Accountants of Scotland. https://www.researchgate.net/publication/263995388_AUDITQUAL_Dimensions_of_audit_quality

Duff, A. (2009). Measuring audit quality in an era of change: An empirical investigation of UK audit market stakeholders in 2002 and 2005. *Managerial Auditing Journal, 24*(5), 400-422. https://doi.org/10.1108/02686900910956784

Dwyer, P. D., Gilkeson, J. H., & List, J. A. (2002). Gender differences in revealed risk taking: Evidence from mutual fund investors. *Economics Letters, 76*(2), 151-158. https://doi.org/10.1016/S0165-1765(02)00045-9

Garcia-Blandon, J., Argilés-Bosch, J. M., & Ravenda, D. (2019). Is there a gender effect on the quality of audit services? *Journal of Business Research, 96*(1), 238-249. https://doi.org/10.1016/j.jbusres.2018.11.024

Hair, J. F., Black, W. C., & Babin, R. E. (2009). *Multivariate Data Analysis* (7th ed.). Pearson. (Original work published 1979)

Hardies, K., & Khalifa, R., (2018). Gender is not 'a dummy variable': A discussion of current gender research in accounting. *Qualitative Research in Accounting & Management, 15(*3), 385-407. https://doi.org/10.1108/QRAM-08-2017-0083

Hardies, K., Breesch, D., & Branson, J. (2016). Do (fe)male auditors impair audit quality? Evidence from going-concern opinions. *The European Accounting Review, 25*(1), 7-34. https://doi.org/10.1080/09638180.2014.921445

Herring, C. (2009). Does diversity pay? Race, gender, and the business case for diversity. *American Sociological Review, 74*(2), 208–224. https://doi.org/10.1177/000312240907400203

Huang, Y. J. (2022). The Association between audit office team diversity and audit quality. *Accounting Horizons, 36*(2), 95-121. https://doi.org/10.2308/horizons-2020-047

Hunt, V., Dixon-Fyle, S., Prince, S., & Yee, L. (2018). *Delivering through diversity.* McKinsey & Company. https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/delivering-through-diversity#/

Hunt, V., Layton, D., & Prince, S. (2015). *Why diversity matters.* McKinsey & Company. https://www.mckinsey.com/~/media/mckinsey/business%20functions/people%20and%20organizational%20performance/our%20insights/why%20diversity%20matters/why%20diversity%20matters.pdf

Ismail, I., Haron, H., Ibrahim, D. N., & Isa, S. M. (2006). Service quality, client satisfaction and loyalty towards audit firms: Perceptions of Malaysian public listed companies. *Managerial Auditing Journal, 21*(7), 738-756. https://doi.org/10.1108/02686900610680521

Ittonen, K., Vähämaa, E., & Vähämaa, S. (2013). Female auditors and accruals quality. *Accounting Horizons, 27*(2), 205-228. https://doi.org/10.2308/acch-50400

Knechel, R. W., Krishnan, G. V., Pevzner, M., Shefchik, L. B., & Velury, U. K. (2013). Audit quality: Insights from the academic literature. *Auditing: A Journal of Practice and Theory, 32*(1), 385-421. https://doi.org/10.2308/ajpt-50350

Lowensohn, S., Johnson, L. E., Elder, R. J., & Davies, S. P. (2007). Auditor specialization, perceived audit quality, and audit fees in the local government audit market. *Journal of Accounting and Public Policy, 26*(6), 705-732. https://doi.org/10.1016/j.jaccpubpol.2007.10.004

Niederle, M., & Vesterlund, L. (2007). Do women shy away from competition? Do men compete too much? *The Quarterly Journal of Economics, 122*(3), 1067-1101. https://doi.org/10.1162/qjec.122.3.1067

O'Donnell, E., & Johnson, E. N. (2001). The effects of auditor gender and task complexity on information processing efficiency. *International Journal of Auditing, 5*(2), 91-105. https://doi.org/10.1111/j.1099-1123.2001.00328.x

Oslo Metropolitan University. (2022). *Anonyme, anonymiserte eller avidentifiserte data*. Retrieved May 9, 2023, from https://ansatt.oslomet.no/anonyme-anonymiserte-eller-avidentifiserte-data

Pandit, G. M. (1999). Clients' perceptions of their incumbent auditors and their loyalty to the audit firms: An empirical study. *The Mid-Atlantic Journal of Business, 35*(4), 171-188. https://scholarlyworks.adelphi.edu/esploro/outputs/journalArticle/Clients-Perceptions-of-Their-Incumbent-Auditors-and-Their-Loyalty-to-the-Audit-Firms-An-Empirical-Study/991004223232006266

Parasuraman, A., Zeithaml, V. A., & Berry, L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing, 64*(1), 12-40.

https://www.researchgate.net/publication/225083802_SERVQUAL_A_multiple-_Item_Scale_for_measuring_consumer_perceptions_of_service_quality

Rennie, M. D., Kopp, L. S., & Lemon, W. M. (2010). Exploring trust and the auditor-client relationship: Factors influencing the auditor's trust of a client representative. *Auditing: A Journal of Practice & Theory 29*(1), 279–293. https://doi.org/10.2308/aud.2010.29.1.279

Revisorloven (2020). *Lov om revisjon og revisorer* (LOV-2020-11-20-128). Lovdata. https://lovdata.no/dokument/LTI/lov/2020-11-20-128

Rich, J. S., Solomon, I., & Trotman, K. T. (1997). The audit review process: A characterization from the persuasion perspective. *Accounting, Organizations and Society, 22*(5), 481-505. https://doi.org/10.1016/S0361-3682(97)80165-1

Sanders, C. B., Steward, M. D., & Bridges, S. (2009). Facilitating knowledge transfer during SOX-mandated audit partner rotation. *Business Horizons, 52*(6), 573-582. https://doi.org/10.1016/j.bushor.2009.07.004

Santos, S.C., & Neumeyer, X. (2022). Culture and gender in entrepreneurial teams: The effect on team processes and outcomes. *Small Business Economics, 58*(2), 1035-1050. https://doi.org/10.1007/s11187-020-00432-x

Schroeder, M. S., Solomon, I., & Vickrey, D. (1986). Audit quality: The perceptions of audit-committee chairpersons and audit partners. *Auditing: A Journal of Practice and Theory, 5*(2), 86-94.

Schubert, R. (2006). Analyzing and managing risks - on the importance of gender differences in risk attitudes. *Managerial Finance, 32*(9), 706-715. https://doi.org/10.1108/03074350610681925

Shoreibah, R. A., Marshall, G. W., & Gassenheimer, J. B. (2019). Toward a framework for mixed-gender selling teams and the impact of increased female presence on team performance: Thought development and propositions. *Industrial Marketing Management 77*(1), 4-12. https://doi.org/10.1016/j.indmarman.2017.07.016

Sikt - Kunnskapssektorens tjenesteleverandør (n.d.). *Forskningsdata.* Retrieved May 12, 2023, from https://sikt.no/tjenester/personverntjenester-forskning

Skatteetaten. (n.d.). *Skattemelding for næringsdrivende.* Skatteetaten. Retrieved April 27, 2023, from https://www.skatteetaten.no/bedrift-og-organisasjon/skatt/skattemelding-naringsdrivende/selskap/as/

Sucher, P., Moizer, P., & Zarova M. (1998). Factors affecting the assessment of the quality of a company's auditors: The case of the Czech Republic. *International Journal of Auditing 2*(1), 7-20. https://doi.org/10.1111/1099-1123.00027

Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education, 48*(6), 1273–1296. https://doi.org/10.1007/s11165-016-9602-2

The International Auditing and Assurance Standards Board, IAASB. (2014). *A framework for audit quality: Key elements that create an environment for audit quality.* https://www.ifac.org/system/files/publications/files/A-Framework-for-Audit-Quality-Key-Elements-that-Create-an-Environment-for-Audit-Quality-2.pdf

The International Auditing and Assurance Standards Board, IAASB. (2019). *International Standard on Auditing 315 (Revised 2019)*. https://www.ifac.org/_flysystem/azure-private/publications/files/ISA-315-Full-Standard-and-Conforming-Amendments-2019-.pdf

The International Auditing and Assurance Standards Board, IAASB. (n.d.) *About IAASB.* The International Auditing and Assurance Standards Board. Retrieved May 8, 2023, from https://www.iaasb.org/about-iaasb

Watson, J., & McNaughton, M. (2007). Gender differences in risk aversion and expected retirement benefits. *Financial Analysts Journal, 63*(4), 52-62. https://doi.org/10.2469/faj.v63.n4.4749

Appendix A

Audit service quality questions

Survey question number[a]	Description of audit service quality questions to audit teams[b]	Description of audit service quality questions[c] *from Butcher et al. (2013)*	Literature reference[d]
1	The audit firm has been performing the audit for at least 2–3 year	The audit firm has been performing the audit for at least 2–3 year	Carcello et al. (1992), Chen et al. (2001)
2	The audit firm is considered to be a specialist in auditing the industry of the client	The audit firm is considered to be a specialist in local government audit	Carcello et al. (1992), Chen et al. (2001), Pandit (1999)
3	The audit engagement partner has been on the audit for at least 2–3 years	The audit engagement partner has been on the audit for at least 2–3 years	Carcello et al. (1992)
4	The partner assigned to the audit engagement is very knowledgeable about the industry	The partner assigned to the audit engagement is very knowledgeable about the industry	Behn et al. (1999), Carcello et al. (1992), Chen et al. (2001), Pandit (1999)
5	The audit firm actively encourages staff members to take courses and attend seminars in fields where the firm has major clients	The audit firm actively encourages staff members to take courses and attend seminars in fields where the firm has major clients	Carcello et al. (1992), Schroeder et al. (1986)
6	The audit firm that is conducting the audit provides no consulting services for the client	The audit firm that is conducting the audit provides no consulting services for the client	Carcello et al. (1992), Chen et al. (2001)
7	The audit team was skillful in devising acceptable accounting treatments that generate the result that the client wants	The audit firm is skillful in devising acceptable accounting treatments for transactions that generate results that council management wants	Carcello et al. (1992), Chen et al. (2001), Pandit (1999)
8	The audit firm has a policy on the maximum number of hours per day and per week that its staff can work	The audit firm has a policy on the maximum number of hours per day and per week that its staff can work	Carcello et al. (1992), Chen et al. (2001)
9	The audit firm develops stringent time budgets for each audit area and expects the team to meet them	The audit firm develops stringent time budgets for each audit area and expects its people to meet them	Carcello et al. (1992), Chen et al. (2001), Pandit (1999)
10	The audit firm has a high audit staff turnover rate	The audit firm has a high audit staff turnover rate	Chen et al. (2001)
11	The audit team conducted a thorough study with the client's internal controls	The audit firm conducts a thorough study of the client's system of internal control	Carcello et al. (1992), Chen et al. (2001), Pandit (1999)
12	The audit team makes extensive use of big data analytical techniques	The audit firm makes extensive use of computers in conducting the audit	Carcello et al. (1992), Chen et al. (2001), Pandit (1999)
13	The audit team's attitude is one of a skeptic, not one of a client advocate	The audit firm's attitude is one of a sceptic, not one of a client advocat	Behn et al. (1999), Carcello et al. (1992), Chen et al. (2001), Pandit (1999)

14	The audit team is agreeable to completing the audit by a date the client has set	The audit firm is agreeable to completing the audit by a date the client has set	Carcello et al. (1992), Pandit (1999), Schroeder et al. (1986)
15	The audit team is knowledgeable about accounting and auditing standards:	The auditors assigned to the engagement are very knowledgeable about accounting and auditing standards	Behn et al. (1999), Carcello et al. (1992), Pandit (1999)
16	The Audit team exercised due care making sure to obtain reasonable assurance during the audit	The audit team members as a group always exercised due care throughout the engagement	Behn et al. (1999)
17	The audit team assigned to the engagement have very high ethical standards	The audit staff assigned to the engagement have very high ethical standards	Behn et al. (1999), Carcello et al. (1992), Chen et al. (2001), Pandit (1999),
18	There is frequent communication between the audit team and the clients accountant	There is frequent communication between the audit team and the council's audit committee	Carcello et al. (1992), Behn et al. (1999), Schroeder et al. (1986)
19	The audit team conducts other audits in the same industry as the client	The audit firm conducting the audit has other local council audit clients	Aldhizer et al. (1995), Carcello et al. (1992), Chen et al. (2001) Pandit (1999)
20	Audit team members are rotated off the audit periodically	Audit team members are rotated off the audit periodically	Carcello et al. (1992), Chen et al. (2001), Schroeder et al. (1986)
21	There is frequent communication between the audit team and client's management	There is frequent communication between the audit team and council management	Carcello et al. (1992), Chen et al. (2001), Pandit (1999), Schroeder et al. (1986)
22	The audit team keeps the clients management informed during the year about accounting and financial reporting developments that affect the client	The audit firm keeps council management informed during the year about accounting and financial reporting developments that affect the council	Carcello et al. (1992), Chen et al. (2001)
23	The audit engagement partner and manager make frequent visits to the client during the conduct of the audit	The audit engagement partner and manager make frequent visits to the council during the conduct of the audit	Carcello et al. (1992), Pandit (1999)
24	The percentage that the audit fee represents to the total audit fee revenue of the audit firm is not material	The percentage that the council audit fee represents to the total audit fee revenue of the audit firm is not material	Carcello et al. (1992), Chen et al. (2001), Schroeder et al. (1986)
25	In the audit team; The personnel on the engagement below manager level is a State Authorized Auditor	The personnel on the engagement below manager level have passed the professional bodies' exams	Carcello et al. (1992), Chen et al. (2001)

26	Before accepting the client, the audit firm conducted a pre-engagement investigation and went through risk control procedures including the conduct of a background search on senior management of the client	Before accepting a new client, the CPA firm conducts a pre-engagement investigation and goes through risk control procedures including the conduct of a background search on senior management of the prospective client	Carcello et al. (1992), Chen et al. (2001)
27	The audit firm reports internal control deficiencies and the auditors' recommendations on internal control are useful	The audit firm reports internal control deficiencies and the auditors' recommendations on internal control are useful	Carcello et al. (1992)
28	The audit firm tends to have decentralized offices rather than centralized offices	The audit firm tends to have decentralized offices rather than centralized offices	Carcello et al. (1992)
29	The overall reputation of the audit firm is positive	The overall reputation of the audit firm is positive	Carcello et al. (1992), Chen et al. (2001), Schroeder et al. (1986)
30	The work performed by inexperienced members of the audit team is supervised by the audit team manager	The work performed by inexperienced members of the audit team is supervised by the audit team manager	Contessotto et al. (2019)
31	The audit team never engaged in actions that compromised their independence, either in fact or appearance	In all your dealings with the audit firm and individual audit team members, the audit firm and audit team members never engaged in any actions that would compromise its/their independence, either in fact or in appearance	Behn et al. (1999)
32	The audit firm has strict guidelines on the procedures that must be completed before signing the audit report	The audit firm has strict guidelines on the procedures that must be completed before signing the audit report	Chen et al. (2001), Schroeder et al. (1986)
33	The cost to the audit firm of different audit procedures in terms of time expended was the major criterion as to whether a procedure was used.	The cost to the audit firm of different audit procedures in terms of time expended **is** the major criterion as to whether a procedure **is** used.	Carcello et al. (1992), Chen et al. (2001), Pandit (1999)
34	The audit firm has rarely been found negligent in lawsuits brought against it (alleging inadequate audit performance)	The audit firm has rarely been found negligent in lawsuits brought against it (alleging inadequate audit performance)	Carcello et al. (1992), Chen et al. (2001), Schroeder et al. (1986)
35	The audit team members as a group have an adequate understanding of the clients operations	The audit team members as a group have an adequate understanding of the operations of the council	Aldhizer et al. (1995), Chen et al. (2001), Sucher et al. (1998)
36	The audit team conducted the audit fieldwork in an appropriate manner	The audit team members conducted the audit fieldwork in an appropriate manner	Behn et al. (1999)

37	The audit team made extensive use of statistical techniques in conducting the audit	The audit firm makes extensive use of statistical techniques in conducting the audit	Carcello et al. (1992), Chen et al. (2001), Pandit (1999)
38	The audit report and work papers received a second partner review	The audit report and work papers receive a second partner review	Aldhizer et al. (1995)
39	The team members adds value to the audit firm in terms of generating useful ideas for improvement	The auditor adds value to the entity in terms of generating useful ideas for improvement	Sucher et al. (1998)
40	The audit team adds value to the client in terms of generating useful ideas for improvement	The auditor adds value to the entity in terms of generating useful ideas for improvement	Sucher et al. (1998)
41	The audit manager has been on the audit for at least 2–3 years	The audit manager has been on the audit for at least 2–3 years	Carcello et al. (1992), Chen et al. (2001)
42	The audit senior has been on the audit for at least 2-3 year.	The audit supervisor has been on the audit for at least 2–3 years	Carcello et al. (1992), Chen et al. (2001)
43	The audit manager and senior assigned to the engagement are very knowledgeable about the industry	The audit manager and supervisor assigned to the engagement are very knowledgeable about the industry	Behn et al. (1999), Carcello et al. (1992), Pandit (1999)
44	The audit team is mindful of how busy the clients key finance staff are and contact these individuals only to the extent necessary	The auditors are mindful of how busy the council's key finance staff are and contact these individuals only to the extent necessary	Carcello et al. (1992), Chen et al. (2001), Pandit (1999)
45	The auditor team relies on the work of the client's internal auditor or accountant	The external auditors co-operate with the internal auditors	Rennie et al. (2010))
46	The number of hours spent by the audit team to complete the audit (from the beginning of fieldwork to the audit report date) is commensurate with a quality audit.	The number of hours spent by the audit team to complete the audit (from the beginning of fieldwork to the audit report date) is commensurate with a quality audit.	Aldhizer et al. (1995)

a = The order the questions were presented in the survey to the respondents
b = Audit quality questions fitted to the respondents in audit firms and audit teams with basis in the questions in c
c = Audit quality questions from Butcher et al. (2013)'s perception of audit service quality
d = References to the questions in c

Appendix B
Audit service quality model

Panel A: Categories and associated question numbers

Higher category name[a]	**Lower category name**[b]	**Question number in survey**[c]
Competence (i)	Reputation (i)	28*, 29, 34*, 40
	Capability (ii)	9, 11, 12, 16, 25, 27, 33, 35, 36, 37, 46
	Assurance (iii)	5, 8, 10, 20, 26, 30, 32, 38
Independence (ii)	Independence (iv)	6, 7, 13, 17, 24, 31
Relationship (iii)	Expertise (v)	2, 4, 15, 19, 43
	Experience (vi)	1, 3, 41, 42
Service qualities (iv)	Responsiveness (vii)	14, 18, 21, 22, 23, 39, 44, 45

a = Higher-order factors from Duff (2009) adjusted AUDITQUAL model
b = Dimensions from Duff (2009) adjusted AUDITQUAL mode
c = Questions from Figure 1, column 2, divided by lower category
* = Two questions were removed after the confirmatory Cronbach's alpha analysis of the lower category 'Reputation' due to low correlation with the other variables (Table 1)

Appendix B Audit service quality model	
Panel B: Categories and questions per category[a]	
Question numbers	**Descriptions of questions in the lower category 'reputation'**
28*	The audit firm tends to have decentralized offices rather than centralized offices
29	The overall reputation of the audit firm is positive
34*	The audit firm has rarely been found negligent in lawsuits brought against it (alleging inadequate audit performance)
40	The audit team adds value to the client in terms of generating useful ideas for improvement
Question numbers	**Descriptions of questions in the lower category 'capability'**
9	The audit firm develops stringent time budgets for each audit area and expects the team to meet them
11	The audit team conducted a thorough study with the client's internal controls
12	The audit team makes extensive use of big data analytical techniques
16	The audit team exercised due care making sure to obtain reasonable assurance during the audit
25	In the audit team; The personnel on the engagement below manager level is a State Authorized Auditor
27	The audit firm reports internal control deficiencies and the auditors' recommendations on internal control are useful
33	The cost to the audit firm of different audit procedures in terms of time expended was the major criterion as to whether a procedure was used.
35	The audit team members as a group have an adequate understanding of the clients operations
36	The audit team conducted the audit fieldwork in an appropriate manner
37	The audit team made extensive use of statistical techniques in conducting the audit
46	The number of hours spent by the audit team to complete the audit (from the beginning of fieldwork to the audit report date) is commensurate with a quality audit.
Question numbers	**Descriptions of questions in the lower category 'assurance'**
5	The audit firm actively encourages staff members to take courses and attend seminars in fields where the firm has major clients

8	The audit firm has a policy on the maximum number of hours per day and per week that its staff can work
10	The audit firm has a high audit staff turnover rate
20	Audit team members are rotated off the audit periodically
26	Before accepting the client, the audit firm conducted a pre-engagement investigation and went through risk control procedures including the conduct of a background search on senior management of the client
30	The work performed by inexperienced members of the audit team is supervised by the audit team manager
32	The audit firm has strict guidelines on the procedures that must be completed before signing the audit report
38	The audit report and work papers received a second partner review
Question numbers	**Descriptions of questions in the lower category 'independence'**
6	The audit firm that is conducting the audit provides no consulting services for the client
7	The audit team was skillful in devising acceptable accounting treatments that generate the result that the client wants
13	The audit team's attitude is one of a skeptic, not one of a client advocate
17	The audit team assigned to the engagement have very high ethical standards
24	The percentage that the audit fee represents to the total audit fee revenue of the audit firm is not material
31	The audit team never engaged in actions that compromised their independence, either in fact or appearance:
Question numbers	**Descriptions of questions in the lower category 'expertise'**
2	The audit firm is considered to be a specialist in auditing the industry of the client
4	The partner assigned to the audit engagement is very knowledgeable about the industry
15	The audit team is knowledgeable about accounting and auditing standards:
19	The audit team conducts other audits in the same industry as the client
43	The audit manager and senior assigned to the engagement are very knowledgeable about the industry
Question numbers	**Descriptions of questions in the lower category 'experience'**
1	The audit firm has been performing the audit for at least 2–3 year
3	The audit engagement partner has been on the audit for at least 2–3 years

41	The audit manager has been on the audit for at least 2–3 years
42	The audit senior has been on the audit for at least 2-3 year.
Question numbers	**Descriptions of questions in the lower category 'responsiveness'**
14	The audit team is agreeable to completing the audit by a date the client has set
18	There is frequent communication between the audit team and the clients accountant
21	There is frequent communication between the audit team and client's management
22	The audit team keeps the clients management informed during the year about accounting and financial reporting developments that affect the client
23	The audit engagement partner and manager make frequent visits to the client during the conduct of the audit
39	The team members adds value to the audit firm in terms of generating useful ideas for improvement
44	The audit team is mindful of how busy the clients key finance staff are and contact these individuals only to the extent necessary
45	The auditor team relies on the work of the client's internal auditor or accountant
a = Questions from Figure 1, column 2, divided by lower category * = Two questions were removed after the confirmatory Cronbach's alpha analysis of the lower category 'Reputation' due to low correlation with the other variables (Table 1)	