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# Do auditor and CFO gender matter to earnings quality? Evidence from Sweden

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## Abstract

**Purpose** – This study aims to examine the association between auditor and chief financial officer (CFO) gender and earnings quality, utilising data from Sweden. This study also aims to examine whether interactions between auditor and CFO, which may affect a firm's earnings quality, are associated with their gender. These aims are inspired by the notion that gender differences will be overruled by the rewards and socialisation into the occupational roles as suggested by the structural approach to gender.

**Design/methodology/approach** – This study uses a multivariate regression model to test its hypotheses. The sample consists of 976 firm-year observations covering the period 2008 to 2013.

**Findings** – The results show that gender of the auditor and CFO is not associated with earnings quality, and the interactions between auditors and CFOs, which may affect earnings quality, are not associated with their gender. Consequently, the results give tentative support for the structural approach in gender studies in the accounting and auditing field.

**Research limitations/implications** – This study indicates that future research in gender studies should consider the structural approach based on the argument of gender similarities. This approach contends that work-related behaviour of women will more resemble men, and this is caused by the socialisation process into the occupational role and the structure where they work (e.g. organisational and professional culture, work conditions, a compensation scheme, national culture, etc.) instead of gender.

**Originality/value** – This study contributes to the understanding whether gender – auditor and CFO gender – is associated with firms' earnings quality and standing whether the interactions between auditor and CFO are associated with their gender, something that, to the best of the authors' knowledge, has not been tested previously. It also re-introduces the structural approach within the gender research in the accounting and auditing field.

**Keywords** Gender differences, Earnings quality, Auditor gender, CFO gender, Gender similarities

**Paper type** Research paper

## Introduction

This study is motivated by the competing theories about the effects of gender differences in workplaces and the inconclusive evidence of the associations between auditor and chief financial

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officer (CFO) gender and earnings quality. The question of whether the gender of auditors or CFOs is associated with earnings quality is an intriguing issue in the literature. However, only a few empirical studies have addressed the issue and the findings remain inconclusive. Moreover, while earnings quality should be seen as a joint product of auditors and their clients, prior studies have examined the association of auditor and CFO gender on earnings quality separately (Gul *et al.*, 2013; Woodland and Reynolds, 2003; Knechel *et al.*, 2013).

This study has three purposes. First, it investigates whether auditor gender is associated with a client's earnings quality. Second, it investigates whether CFO gender is associated with a firm's earnings quality. Finally, it investigates whether interactions between auditors and CFOs that may be affecting earnings quality are associated with their gender. Utilising data from Sweden, this study contributes to the literature on whether auditor and CFO gender are associated with firms' earnings quality in an environment characterised by its gender equality. Attempts to increase the understanding of gender consequences in the accounting and auditing field are important because a significant number of women currently work in the field compared to a number of years ago (Collins, 1993; Hayes and Hollman, 1996; Iyer *et al.*, 2005; Khalifa, 2013). For instance, the percentage of women members in accounting bodies in the UK has risen from 28 per cent in 2004 to 35 per cent in 2015 (Financial Reporting Council, 2010 and 2015).

Besides that, understanding relevant factors that affect or are associated with earnings quality is crucial. The quality of earnings refers to the degree to which a reported earnings number conveys relevant, credible and reliable information about a firm's financial performance reality (Krishnan and Parsons, 2008; Dechow *et al.*, 2010; Penman, 2003). The quality of earnings is lower when a firm deliberately chooses aggressive accounting practices such as prematurely recognising revenues or delaying to recognise expenses. Besides that, earnings will have lower quality when a company manipulates the earnings number by decreasing or increasing discretionary expenses such as research and development and advertising expenses (Bernstein and Siegel, 1979).

High earnings quality is essential not only for current but also for potential shareholders. It influences their confidence when making investment decisions and helps them to evaluate a firm's current performance and predict its future performance accurately (IAASB, 2014). Lower earnings quality will mislead shareholders to evaluate the firm's performance. The quality of earnings cannot be separated from auditors because auditors, through audits, are believed to help enhance the credibility and reliability of earnings.

The issue of the potential impacts of auditor and CFO gender on earnings quality arises from literature documenting the association between high audit quality and earnings quality, the existence of gender-based differences (e.g. conservatism, ethical sensitivity and risk-taking attitude) and the glass-ceiling phenomenon. Gender may affect how individuals behave differently in particular situations. Moreover, investigating auditor gender is in line with the shift of the unit of analysis in auditing research from the audit firms to the individual auditor level (DeFond and Francis, 2005; Chen *et al.*, 2010; Gul *et al.*, 2013; Karjalainen *et al.*, 2013; Hardies *et al.*, 2016). This can be understood by acknowledging that auditing is a systematic process in which its quality depends on the professional judgments made by the auditor themselves (Knechel *et al.*, 2013, IAASB, 2014). Additionally, Cahan and Sun (2015) suggest that auditors' personal characteristics, including gender, may be a proxy for efforts that will be exercised in the audit process.

This study contributes to the literature by providing evidence about whether auditor and CFO gender are associated with earnings quality and whether the interactions between auditors and CFOs that may affect earnings quality are associated with their gender. This study can improve understanding of the drivers – particularly gender – that is associated

with earnings quality. This study refines findings from previous studies (Ittonen *et al.*, 2013, Gavius *et al.*, 2012) by using a longer data period and data from a country that is well known for its gender equality. Moreover, including CFO gender in the analysis and examining the joint product hypothesis makes this study more comprehensive.

In addition, the study raises the issue of the application of different theoretical approaches in different contexts. The results show that the gender of the auditors and CFOs are not associated with earnings quality. Moreover, the interactions between auditors and CFOs that may affect earnings quality are also not associated with their gender. Our conclusion is that this might be due to contextual factors as well as the organisational/professional position of our sample. The results may provide tentative support for the structural approach in the accounting and auditing field where gender differences will be overruled once women and men enter the profession or occupation. These results may also open opportunities for future research, especially in the accounting and auditing field, to consider the structural approach by emphasising gender similarities instead of differences.

#### *Institutional background*

Auditing services and auditors are governed in Sweden by the Auditor Act (Revisorslag, 2001, p. 883). The act stipulates a two-tier system of auditor qualification; however, both tiers have the same rights to provide audit services regardless of client size. Recently, the number of women joining the auditing profession increased slightly, with the proportion of female auditors out of the total auditors in Sweden rising from 28 per cent in 1999 to 34 per cent in 2017. If we look closely at the statistics, among the auditors below 40, this trend is even reinforced, as 57 per cent of the auditors in this age group are women (The Swedish Supervisory Board of Public Accountants, 2017).

The audit market in Sweden is mainly dominated by the Big Four audit firms: PwC, Ernst & Young, KPMG and Deloitte. The Big Four controls approximately 40 per cent of the audit market and employs 56 per cent of the authorised auditors and 29 per cent of the approved auditors (Amir *et al.*, 2014). In 2010, they earned revenues of roughly €1.12bn – this was 83 per cent of the revenues earned by the other ten largest audit firms in Sweden for both audit and non-audit services. In terms of revenues, Grant Thornton and BDO can be ranked as the fifth and sixth largest audit firms in the country.

Sweden is often ranked near the top in international measurements of gender equality. It ranked first in the European Institute for Gender Equality survey in 2005, 2010 and 2012. Similar results were published by the World Economic Forum in 2014 and UNDP in 2013. Based on Hofstede's cultural dimensions, Sweden is classified as a feminine society and indeed the most feminine society compared to other Nordic countries. However, some studies find that the glass ceiling, to some degree, still exists (Bihagen and Ohls, 2006; Albert *et al.*, 2015). Furthermore, Sweden is also considered as having a low litigation risk environment for audits (Choi *et al.*, 2008).

The rest of this paper proceeds as follow. In the next section, it discusses theories that are widely used as a ground theory in gender studies, and, based on the theories, the hypotheses will be developed. In the subsequent section, it presents the sample and research design that are used. Lastly, this paper presents and discusses the findings.

#### **Theoretical background and hypotheses development**

There are two competing approaches regarding gender differences: the gender differences approach and the structural approach. Both approaches are described below.

### *Gender differences approach*

Studies on gender differences are quite popular in social sciences. The aim of these studies is often to determine whether gender actually matters – specifically, whether the different genders – man and woman – lead to gendered behaviours or whether men and women respond to particular situations differently.

Studies investigating gender differences commonly ground their argument on the gender socialisation theory. This theory asserts that each gender brings different values and traits and that these may produce gendered decisions, judgments and behaviours (Betz *et al.*, 1989). This theory can be traced back to Freud's theory of psychoanalysis and the social learning theory. Freud's theory contends that gender is biologically determined and that different courses of personality development for women and men begin in early childhood. Boys, it is stated, therefore identify themselves with their father and, because of this, become masculine and develop a masculine gender-related identity and masculine behaviour expectations (Brannon, 1999). The process of personality development between men and women progresses differently and accordingly produces unequal results.

Meanwhile, the social learning theory argues that gendered behaviours are tied to gender roles caused by social factors. This theory views gender, including gendered characteristics and behaviours, are learned instead of biologically determined as Freud's theory contended. Behaviours are learned through the mechanisms of reinforcement and punishment and through cognitive processes, namely, observations. Observations provide children with models and examples of gender-stereotyping behaviours, including consequences of those behaviours (Brannon, 1999). The findings in this approach show that gender – men and women – lead to gendered characteristics and behaviour.

### *Gendered characteristics*

The gender socialisation theory implies that gender differences exist where men and women have different characteristics, and these will lead to behaviour. Some gender-related characteristics that have been identified in the literature are moral development, moral sensitivity and risk-taking tendencies, among others. Moral development is defined as the transformations that occur in an individual's structure of moral judgment (Kohlberg and Hersh, 1977). This structure has six stages, whereby the lowest is an egocentric stage and the highest is the moral principles stage, where individuals behave according to their consciousness about moral or ethical issues. Studies have found that women on average have higher moral development than men (White, 1999; Bernardi *et al.*, 1997).

An individual's moral sensitivity is his or her ability to identify the existence of a dilemma or moral issue, followed by the interpretation of that situation and the possible actions taken and the impacts of each action on the related parties (Morton *et al.*, 2007). A meta-analysis by You *et al.* (2011) shows that women generally have higher moral sensitivity than men, regardless of their level of education, the instrument used and the format of the study. In line with this, Ameen *et al.* (1996) find that female accounting students are less tolerant, less cynical and less often involved in academic dishonesty than male accounting students.

Risk-taking tendency is individuals' tendency to take risks in certain situations. An individual who has a high risk-taking tendency is seen as a risk seeker with a high tolerance for opportunism (Srinidhi *et al.*, 2011). Powell and Ansic (1997) contend that risk tendency is a gendered general trait; they find that female students are less risk-seeking than male students regardless of contextual factors. Subsequent studies in the same line suggest a similar result to the prior ones (Robinson *et al.*, 2000; Barber and Odean, 2001; Dwyer *et al.*, 2002; Eckel and Grossman, 2002). While those studies seem to find consistent findings, however, it is worth noting that others find different ones. For instance, Harisson *et al.* (2007)

conducted a field experiment in Denmark. They find that risk-taking attitudes cannot be attributed to gender but to age and education. Based on the Hofstede cultural dimension, Denmark is classified as a feminine country like Sweden. Moreover, [Booth and Nolen \(2012\)](#) contend that risk preferences are not gender traits, but they reflect social learning that is how individuals try to conform to gender-stereotypes. They find girls who attend a single-sex school have the similar risk preferences to boys. However, girls who attend a coed school have different risk preferences to boys. These two studies imply that the environment and culture, where individuals live and socialise, are crucial in determining their risk preferences. Lastly, [Rad et al., 2014](#) using Swedish loan officers (LOs) find that female LOs are more risk averse only when they evaluate the first-time loan borrowers. Meanwhile, for the non-first-time loan borrowers, the risk-taking preference between female and male LOs is indifferent. This may indicate that the risk-taking preference is not a general trait but context dependent.

#### *Structural approach*

While the gender differences approach is quite popular in gender studies, some studies have based their arguments on the structural approach ([Lacy et al., 1983](#); [Betz et al., 1989](#); [Dawson, 1992](#); [Robin and Babin, 1997](#)). This approach acknowledges that gender differences exist because of early socialisation and role requirements; however, they can be overruled once women and men start entering and acting in professional or occupational roles ([Feldberg and Glenn, 1979](#)). This approach does not dismiss gender differences but contends that women and men in a given profession or occupation may be socialised into an occupational role to such degree that they will tend to behave and respond similarly. In other words, when a profession or occupation is held constant, it can be observed that women and men will have similar behaviours ([Betz et al., 1989](#)) and that this might be caused by the fact that women have adapted masculine occupational values in the professional environment ([Flynn et al., 2015](#)). It is likely that the influence of the occupational roles on behaviour is even larger in professions given the importance of professional norms and socialisation into the profession found in the literature on profession ([Evetts, 2003](#); [Friedson, 2001](#)). Therefore, decisions and behaviours would not be determined by gender but by other factors.

Some studies have found evidence indicating that the notion of the structural approach may be valid. For instance, a study by [Lacy et al. \(1983\)](#) find that women and men have almost identical job attributes preferences with job meaningfulness as their most important one. The study also finds that work commitment between men and women is indifferent. [Robin and Babin \(1997\)](#) find that there are few differences between men and women regarding business ethical decisions in a sample of professionals. Other studies have also revealed inconclusive findings of women having higher ethical or moral principles than men ([Ford and Richardson, 1994](#); [Loe et al., 2000](#); and [O'Fallon and Butterfield, 2005](#)). Furthermore, a meta-analysis by [Franke et al. \(1997\)](#) find that gender differences observed in student samples decline once work experience of the samples increases. This implies that once an individual enters an occupation or profession, their behaviours in the work environment may not be closely related to their gender. Similar to this, [Valentine and Rittenburg \(2007\)](#) find that there are no significant differences between male and female business executives within the same occupation in terms of their ethical judgement. [Rad et al. \(2014\)](#), using a Swedish sample, find that there is no significant difference in risk aversion between female and male LOs in the majority of their hypothetical cases.

#### *Gender and earnings quality*

Earnings quality is a fundamental feature of audited financial statements and has long been used by investors and shareholders to evaluate and predict a firm's current and

future performance. Some studies have investigated the impact of gender, specifically concerning auditors and CFOs, on earnings quality. Auditors, as a party assessing the fairness of financial statements, and CFOs, who have the responsibility for overseeing the financial reporting process, are seen as having significant roles in affecting the quality of earnings. Potential associations between auditor and CFO gender and earnings quality could, therefore, be rationalised in at least two ways. First, in general, women are perceived as being more conservative, less risk tolerant and having higher moral sensitivity than men (White, 1999; Powell and Ansic, 1997; You *et al.*, 2011). Therefore, female auditors may limit clients' use of aggressive accounting practices and earnings management. Similarly, female CFOs would not select aggressive accounting practices and disengage from manipulating earnings (Gavious *et al.*, 2012; Ittonen *et al.*, 2013; Barua *et al.*, 2010). Second, the glass-ceiling phenomenon – an unseen barrier keeping women from rising to top positions – may encourage women to demonstrate higher skills and put in extra effort than men to have a chance of reaching leading positions in firms. For instance, in the financial analyst profession, Kumar (2010) finds that female analysts should have superior forecasting abilities to allow them to compete with male analysts. Moreover, according to the gender and leadership survey by Pew Research (2015), women have to put more effort than men if they want to reach the highest levels in business or politics. Therefore, in the context of accounting and auditing, higher skills and extra efforts by female auditors and CFOs may have implications for earnings quality (Ittonen *et al.*, 2013). This may suggest that firms with female CFO or firms audited by female auditors are positively associated with earnings quality than those with male CFO or male auditors.

While the rationale of the association between gender and earnings quality may be conceivable, only a handful of studies have addressed this association, and their findings remain inconclusive. For instance, Cahan and Sun (2015) argue that auditors' personal characteristics, including gender, may be factors that affect earnings quality. However, they do not find that auditor gender is associated with clients' discretionary accruals – a proxy commonly used as a measure of earnings quality or audit quality. This finding is consistent with Gul *et al.* (2013) who find that auditor gender is not associated with earnings quality. Meanwhile, Niskanen *et al.* (2011), using a sample of private Finnish firms, find a negative association between female auditors and earnings quality (proxied with earnings management). Their findings can be interpreted as female auditors produce lower earnings quality. On the other hand, Ittonen *et al.* (2013) reveal that female audit engagement partners in Finland and Sweden are associated with higher earnings quality than male partners (proxied with abnormal accruals). Additionally, Chin and Chi (2008), based on data from Taiwan, find that female auditors produce higher earnings quality than their male counterparts.

The findings of the impact of CFO gender on earnings quality are inconclusive. Barua *et al.* (2010) show that firms with female CFOs experience higher earnings quality than firms with male CFOs. As aforementioned, when a firm chooses aggressive accounting practices or manipulates its reported earnings number, then the quality of earnings will lower. Therefore, the findings of Barua *et al.* (2010) might be interpreted, as female CFOs will be unlikely to use aggressive accounting practices or engage in less earnings manipulation than male CFOs. This is in line with evidence found by Gavious *et al.* (2012), Srinidhi *et al.* (2011) and Liu *et al.*, (2016). Meanwhile, some studies provide limited or no evidence that CFO gender is associated with earnings quality (Ge *et al.*, 2011; Arun *et al.*, 2015), indicating CFO gender is irrelevant to earnings quality. One study even finds a negative association between female CFOs and earnings quality (El-Mahdy, 2015).

*Auditor and chief financial officer interactions*

Interactions between auditors and CFOs clearly take place at almost every stage of the audit process. Beattie *et al.* (2000) document the interactions between audit engagement partners and CFOs, reflect on the forms of the discussions and negotiations and argue that both auditors and CFOs affect the outcome of the audit process (i.e. earnings quality). However, they provide no predictions about whether the gender of the auditor or CFO has an impact on such interactions. In the Swedish context, Hellman (2011) finds that the majority of CFOs interact with the auditor to affect the audit, and CFOs believe that they have a congruent interest with the auditor to scrutinise the works of employers. To the best of our knowledge, only Gold *et al.* (2009) investigate the impact of client gender and auditor gender on auditors' final proposed adjusting journal entry (AJE) using an experimental setting. The results reveal that female auditors are more likely to be persuaded by a male CFO to accept his proposed AJE than male auditors. However, it should be noted that CFO gender is a manipulated variable, and the experimental case is framed in which the CFOs (both female and male) try to get an outcome that is in their favour.

*Hypotheses development*

Findings from studies investigating the association between auditor and CFO gender and earnings quality provide unclear and inconclusive evidence. The gender differences approach argues that there are unique characteristics belonging to women and men. These specific female characteristics and the glass-ceiling phenomenon encouraging women to put in extra effort than men will positively affect earnings quality. However, the structural approach contends that gender differences will be overruled once an individual enters a profession or occupation. Therefore, it is predicted that women will behave like men as the result of the socialisation process into the profession or occupation. This suggests that the gender of auditors and CFOs is not associated with earnings quality. Based on these competing approaches, the hypotheses developed in this study are stated in the null forms as follows:

- H1. Auditor gender is not associated with a client's earnings quality.
- H2. CFO gender is not associated with a firm's earnings quality.

In addition to the two hypotheses above, this study also develops the third hypothesis with regard to the interactions between auditor and CFO. Because literature provides no clear prediction whether the genders of auditor and CFO have a role in the interactions affecting earnings quality, the third hypothesis is stated in null form as follows:

- H3. Interactions between auditor and CFO gender that may affect a firm's earnings quality is not associated with the auditor and CFO gender.

**Sample and research design***Sample*

The study used listed firms in the Nasdaq Stockholm Stock Exchange, excluding financial and utilities firms, as its sample. The sample covers the fiscal period from 2008 to 2013 and only includes firms that have been listed for at least one year. Sweden is also chosen because disclosing the name of the auditor engagement partner or the auditor in charge has been a legal requirement for many years, and the auditor in charge has to sign the audit report. Therefore, individual engagement auditor data are available for a considerable period.

This study started by selecting financial data for the sample from the Orbis database from 2007 to 2014. To calculate this study's proxies of earnings quality, some financial data in 2007 and 2014 were included. Annual reports of the listed firms were downloaded from firm websites, and the auditors and CFOs' names were hand-collected from those reports.



These names were used to identify the gender of the auditors and CFOs involved. Some financial data were missing from Orbis, particularly in 2014, which was hand collected from the annual reports directly. This study obtained a final sample of 976 firm-year observations. Table I presents a breakdown of the sample by industry (NACE 2).

### Research design

*Proxies of earnings quality.* To get a complete picture, three proxies of earnings quality are used. The first one is abnormal accruals (AbAcc) defined as the extent to which current accruals are associated with previous, current and subsequent year cash flow (Dechow and Dichev, 2002). This proxy has been used extensively in the literature (Gul *et al.*, 2013; Gunny and Zhang, 2013; Wang and Zhou, 2012; Asthana and Boone, 2012; Dao *et al.*, 2012; Ittonen *et al.*, 2013; Francis *et al.*, 2013; Hossain, 2013; Choi *et al.*, 2010; Johnson *et al.*, 2002; Manry *et al.*, 2008; Wang and Zhou, 2012). The absolute value of abnormal accruals ( $|AbAcc|$ ) is used because management can use either income increasing or income decreasing abnormal accruals to manage the firm's earnings, depending on particular situations. Both income decreasing and increasing manipulations impair earnings quality, and the magnitude of abnormal accruals can reflect both ways.

Abnormal accruals are measured using a modified version of Dechow and Dichev (2002), McNichols (2002) and named working capital accruals [equation (1)]. This study follows procedures as in Baxter and Cotter (2009) and Gul *et al.* (2013) to calculate the abnormal accruals. To reduce the possibility of heteroscedasticity, all variables are scaled by the average of total assets in year  $t$ . Dummy industry variables were based on the industry division level for manufacturing firms and industry section level for other firms:

$$\begin{aligned} \Delta WC_t = & \varphi_0 + \varphi_1 OCF_{t-1} + \varphi_2 OCF_t + \varphi_3 OCF_{t+1} + \varphi_4 \Delta Sales_t \\ & + \varphi_5 PPE_t + Year\ Fixed\ Effects + Industry\ Fixed\ Effects + \varepsilon \end{aligned} \quad (1)$$

where:

$\Delta WC_t$  = the change of working capital accruals in year  $t$  (operating net income plus depreciation, amortisation and financial expenses, minus operating cash flows);

OCF = operating cash flows;

Industrial classification codes	Codes	No.	(%)
Manufacturing	10-33	480	49
Construction	41-43	24	2
Wholesale and retail trade; repair of motor vehicles and motorcycles	45-47	87	9
Transportation and storage	49-53	12	1
Accommodation and food service activities	55-56	11	1
Information and communication	58-63	172	18
Real estate activities	68	78	8
Professional, scientific and technical activities	69-75	50	5
Administrative and support service activities	77-82	29	3
Public administration and defence; compulsory social security	84	6	1
Human health and social work activities	86-88	15	2
Arts, entertainment and recreation	90-93	12	1
		976	100

**Table I.**  
Sample by industries

$\Delta Sales_t$  = the sales growth from  $t-1$  and  $t$ ; and  
 PPE = the gross property, plant and equipment.

The abnormal accruals are the residuals of equation (1). The higher the absolute abnormal accruals indicated, the lower the quality of the earnings.

The second and third proxies of earnings quality are “meet or beat” earnings benchmarks (Blay *et al.*, 2014; Eshleman and Guo, 2014; Francis *et al.*, 2013; Gul *et al.*, 2013; Asthana and Boone, 2012; Wang and Zhou, 2012; Francis and Yu, 2009; Lim and Tan, 2008; Carey and Simnett, 2006). Prior studies reveal that managers believe that meeting or beating earnings benchmarks is very important to gain favourable terms or transactions from stakeholders (Graham *et al.*, 2005; Burgstahler and Eames, 2006; Menon and Williams, 2004; Holland and Ramsay, 2003; Bartov *et al.*, 2002; Burgstahler and Dichev, 1997). This study adopts Francis and Yu’s (2009) proxies of “meeting or beating” earnings:

- Reporting small positive profit (SmallProfit) is as net income in year  $t$  divided by total assets in year  $t-1$ . A firm will be classified as reporting small positive profit and is coded as 1 when its net income deflated by lagged total assets is between 0 and 5 per cent, 0 otherwise.
- Reporting small positive profit increases (SmallIncrease) is as net income in year  $t$  subtracted by net income in year  $t-1$  and divided by total assets in year  $t-1$ . A firm will be classified as reporting small positive profit increases and is coded as 1 when the change in its net income deflated by lagged total assets is between 0 and 1.3 per cent.

Firms who report small positive profit or small positive profit increases are indicated as reporting lower earnings quality.

### Model

Ordinary least squares (OLS) regression and logistic regression analysis are utilised to test the hypotheses. The dependent variable in this study is the absolute value of discretionary accruals ( $|AbAcc|$ ), small positive profit (SmallProfit) and small positive profit increases (SmallIncrease). The study interest variables are auditor gender (AuditorGender), CFO Gender (CFOGender), and the interaction between the two (AuditorGender  $\times$  CFOGender). Following the prior literature, several auditor-specific and firm-specific variables that may affect earnings quality are added as control variables. The variables used in the model are defined in Table II, and the full model used to test the hypotheses is as follows:

$$\begin{aligned}
 |AbAcc|, SmallProfit, SmallIncrease = & \beta_0 + \beta_1 AuditorGender + \beta_2 CFOGender \\
 & + \beta_3 AuditorGender * CFOGender + \beta_4 AudAge \\
 & + \beta_5 IndSpec + \beta_6 Big4 + \beta_9 Influence \\
 & + \beta_{10} Size + \beta_{11} OCF + \beta_{12} Leverage \\
 & + \beta_{13} CompAge + \beta_{14} SalesGrowth \\
 & + \beta_{15} PPEGrowth + \beta_{16} Loss + \beta_{17} MB \\
 & + \beta_{18} LagLoss + Year Fixed Effects \\
 & + Industry Fixed Effects + \epsilon
 \end{aligned} \quad (2)$$

Variable	Definition
<i>Dependent variables</i>	
AbAcc	A firm's absolute value of abnormal accruals
SmallProfit	An indicator variable of small profit, 1 if the firm's net income divided by total assets $t-1$ is between 0 and 5%, 0 otherwise
SmallIncrease	An indicator variable of small increase, 1 if the change of the firm's net income divided by total assets $t-1$ is between 0 and 1.3%, 0 otherwise
<i>Interest variable</i>	
AuditorGender	An indicator variable of auditor gender, 1 if the lead auditor is female, 0 otherwise
CFOGender	An indicator variable of CFO gender, 1 if the CFO gender is female, 0 otherwise
AuditorGender $\times$ CFOGender	An indicator variable of interaction term between auditor gender and CFO gender
<i>Control variables:</i>	
IndSpec	An indicator variable of auditor industry specialisation for each auditor in year $t$ , 1 if an auditor is the first of the second market leader in the particular industry in year $t$ based on audited total assets
Big4	An indicator variable, 1 if the auditor is from the Big Four audit firms, 0 otherwise
AudAge	Auditor age. In case there are more than one auditor assigned to the audit report, then AUDAGE is the average age of all auditors
Influence	A proxy of client influence to the auditor, a proportion of log of total fees from a particular client to log total fees received by the auditor
Size	A natural logarithm of total assets
OCF	A firm cash flows from operations scaled by lagged total assets
Leverage	The firm's total liabilities scaled by total assets
CompAge	A number of years the firm has been listed
SalesGrowth	A firm's one year growth in sales from year $t - 1$ to year $t$
PPEGrowth	A firm's one year growth in gross property, plant and equipment from year $t - 1$ to year $t$
Loss	An indicator variable, 1 if the firm's net income is negative, 0 otherwise
MB	A ratio of a firm's market value of equity scaled by book value of equity
LagLoss	An indicator variable, 1 if operating income after depreciation in previous year is negative, 0 otherwise

**Table II.**  
Variable definitions

## Empirical findings

### *Descriptive statistics and univariate test*

Table III presents the descriptive statistics of the variables. Table III shows that firms who were audited by female auditors and who have female CFOs constitute 11 and 17 per cent of the sample or 107 and 166 observations, respectively. It also shows that firms audited by Big Four audit firms constitute 97 per cent of the sample or 947 observations. This indicates that the audit market of listed firms in Sweden was dominated by the Big Four. The mean (median) value of absolute discretionary accruals is 0.7940 (0.1419). The size of the sample firms ranges from 13.119 (SEK 498m) to 19.436 (SEK 272tn).

Table III also presents the descriptive statistics for the subsample of 107 firm-observations audited by female auditors. The mean values reveal that female auditors' ages range from 37 to 60 years old. Firms audited by female auditors reporting small positive profit and small positive profit increases are 15 and 45 per cent, respectively. Finally, for the subsample for 170 firm-observations with female CFOs, shows that 16 per cent of firms who have female CFOs were audited by female auditors

Variables	All firms ( $n = 976$ )		Firms with female auditors ( $n = 107$ )		Firms with female CFO ( $n = 170$ )	
	Mean	SD	Mean	SD	Mean	SD
AbAcc	0.7940	2.1166	0.4627	0.9124	0.5807	1.0156
SmallProfit	0.1900	0.3950	0.1500	0.3580	0.1900	0.3920
SmallIncrease	0.4900	0.500	0.4500	0.5000	0.4500	0.4990
AuditorGender	0.1100	0.313	–	–	0.1600	0.3720
CFOGender	0.1700	0.1700	0.2600	0.4420		
AudAge	49.683	0.3790	47.192	5.2985	50.892	6.2184
IndSpec	0.1500	0.3580	0.0500	0.2120	0.0400	0.1990
Big4	0.9700	0.1730	0.9300	0.2480	0.9400	0.2360
Influence	0.0379	0.0992	0.0341	0.0842	0.0374	0.1039
Size	14.640	2.0424	13.520	1.7535	14.216	1.9224
OCF	0.0624	0.1434	0.0750	0.1993	0.0765	0.1452
Leverage	0.5185	0.1838	0.4250	0.1917	0.4818	0.2008
CompAge	16.263	17.801	11.420	6.4938	12.400	6.4792
SalesGrowth	0.0815	0.3117	0.1094	0.3460	0.1027	0.3690
PPEGrowth	0.1095	0.6790	0.2472	0.7909	0.1151	0.6314
Loss	0.2000	0.4030	0.2500	0.4360	0.1700	0.3770
MB	2.3768	2.6374	3.1004	3.0868	2.2384	2.2782
LagLoss	0.1900	0.3960	0.2700	0.4470	0.1600	0.3720

**Notes:** Table III presents descriptive statistics of all firms used in this study and two subsamples: the subsample for firms audited by female auditors and firms with female CFO. The definition of each variable could be seen in Table II

**Table III.**  
Descriptive statistics

or 27 observations. The small percentage implies that although the CFO of the firms was a woman, however, there is no indication that the annual meeting preferred a female auditor to audit their firm. The small number of female auditors audited firms who have female CFO might also be explained by the number of female auditors that was fewer than male auditors and more common among the younger auditors than among the older ones. It is more likely that the auditor assignment of listed companies goes to the more experienced auditors as can be seen from the mean of auditor age (49 years old).

Table IV presents the pairwise correlations among the variables. The Pearson correlation shows both AuditorGender and CFOGender as being negatively correlated with |AbAcc|, SmallProfit and SmallIncrease. The Spearman correlation shows similar results, except the correlation between CFOGender and |AbAcc|. However, none of those correlations is significant at any conventional levels. It can also be observed that the matrix shows that AudAge, IndSpec, Influence, Size, Leverage and CompAge are positively correlated with |AbAcc|, whereas Loss and LagLoss are negatively correlated with |AbAcc|, and these correlations are significant at conventional levels. Table IV shows the correlation between Big4 and |AbAcc| is not statistically significant at any conventional levels. This could be because 97 per cent of the firms in the sample are audited by Big Four firms; therefore, the statistical power to discriminate Big Four and non-Big Four is limited. The results of the pairwise correlations should be interpreted with caution because they are only accounting for two variables at a time, excluding the effects of other variables. It should be noted that all continuous variables are winsorised at the 1 and 99 per cent levels of per centiles to moderate the effects of outliers.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.  AbAcc	0.003	0.003	0.033	-0.055	-0.046	<b>0.115</b>	<b>0.328</b>	0.007	<b>0.155</b>	<b>0.364</b>	0.032	<b>0.169</b>	<b>0.363</b>	-0.022	0.002	-0.119	-0.040	-0.103
2. SmallProfit	0.061	0.040	0.018	-0.038	-0.005	-0.002	-0.010	0.042	-0.042	<b>0.115</b>	-0.043	<i>0.080</i>	<b>0.093</b>	-0.119	-0.058	-0.247	-0.211	-0.004
3. SmallIncrease	0.040	0.018	0.030	-0.030	-0.041	0.004	<i>0.079</i>	-0.003	0.053	<b>0.216</b>	<b>0.183</b>	0.040	<i>0.072</i>	-0.005	-0.335	<b>0.094</b>	-0.121	
4. AuditorGender	-0.003	-0.038	-0.030	<i>0.081</i>	-0.142	-0.142	-0.102	-0.071	-0.014	-0.192	0.031	-0.179	<b>0.096</b>	0.031	<i>0.071</i>	0.042	<b>0.096</b>	<i>0.068</i>
5. CFOGender	0.003	-0.005	-0.041	<i>0.081</i>	0.090	-0.141	-0.075	-0.003	-0.003	-0.095	0.045	-0.092	-0.100	0.031	0.004	0.0038	-0.024	-0.035
6. AudAge	<i>0.068</i>	<i>0.002</i>	0.004	-0.141	<b>0.095</b>	<b>0.122</b>	-0.014	0.062	0.062	<b>0.160</b>	0.017	<b>0.167</b>	<i>0.078</i>	0.015	-0.019	-0.048	0.000	-0.070
7. IndSpec	<b>0.156</b>	-0.010	<i>0.079</i>	-0.102	-0.141	<b>0.103</b>	-0.008	-0.008	<b>0.267</b>	<b>0.515</b>	<b>0.161</b>	<b>0.159</b>	<b>0.443</b>	-0.039	-0.046	-0.135	0.006	-0.142
8. BIG4	0.0021	0.042	-0.003	-0.071	-0.075	-0.014	-0.008	-0.008	-0.721	<b>0.142</b>	-0.028	0.035	0.042	-0.097	-0.054	-0.028	-0.100	-0.047
9. Influence	<b>0.196</b>	0.050	<b>0.135</b>	-0.137	-0.058	<b>0.153</b>	<b>0.413</b>	-0.291	<b>0.687</b>	<b>0.218</b>	<b>0.094</b>	<i>0.064</i>	<b>0.246</b>	0.040	0.027	-0.073	0.056	-0.054
10. Size	<b>0.302</b>	<b>0.115</b>	<b>0.226</b>	-0.193	-0.103	<b>0.149</b>	<b>0.471</b>	<b>0.142</b>	<b>0.687</b>	<b>0.207</b>	<b>0.405</b>	<b>0.472</b>	-0.075	-0.029	-0.358	-0.205	-0.352	
11. OCF	-0.195	-0.171	<b>0.148</b>	0.015	0.013	0.022	<b>0.179</b>	-0.010	<b>0.115</b>	<b>0.100</b>	<b>0.100</b>	-0.007	0.025	0.058	0.113	-0.567	-0.097	-0.507
12. Leverage	<b>0.217</b>	<b>0.085</b>	<b>0.116</b>	-0.169	-0.067	<b>0.149</b>	<b>0.150</b>	0.027	<b>0.376</b>	<b>0.419</b>	-0.126	<b>0.125</b>	-0.013	-0.021	-0.120	-0.066	-0.169	
13. CompAge	<b>0.118</b>	<b>0.094</b>	0.049	-0.058	0.009	0.004	<b>0.273</b>	-0.013	<b>0.197</b>	<b>0.295</b>	-0.070	<b>0.086</b>	-0.092	-0.066	-0.090	-0.046	-0.082	
14. SalesGrowth	-0.092	-0.177	<b>0.248</b>	0.031	0.010	0.025	0.001	-0.065	-0.045	-0.050	<b>0.229</b>	0.018	-0.138	<b>0.234</b>	-0.044	<b>0.107</b>	<b>0.099</b>	
15. PPEGrowth	-0.055	-0.075	<b>0.085</b>	<b>0.109</b>	0.022	-0.018	0.056	0.012	0.023	<i>0.072</i>	<b>0.256</b>	-0.011	-0.026	<b>0.340</b>	-0.092	<b>0.098</b>	-0.040	
16. Loss	-0.074	-0.247	-0.335	0.042	-0.038	-0.050	-0.135	-0.028	-0.239	-0.357	<b>0.534</b>	-0.113	-0.031	-0.183	-0.220	<b>0.121</b>	<b>0.541</b>	
17. MB	-0.099	-0.311	-0.060	<i>0.081</i>	-0.032	0.010	<b>0.135</b>	-0.079	-0.018	-0.188	<b>0.28</b>	-0.119	-0.153	<b>0.216</b>	<b>0.130</b>	-0.028	<b>0.122</b>	
18. LagLoss	-0.041	-0.004	-0.121	<i>0.068</i>	-0.035	-0.078	-0.142	-0.047	-0.221	-0.350	-0.439	-0.159	-0.016	-0.005	-0.195	<b>0.541</b>	0.001	

Notes: *Italics* indicates  $p$ -value  $\leq 0.05$  level; **bold** indicates  $p$ -value  $\leq 0.01$  level (both are in a two-tailed test)

**Table IV.**  
Pearson (Spearman)  
correlation coefficients  
above (below) the  
diagonal

*Regression results*

*Abnormal accruals tests.* Table V provides the results of the regression analysis with  $|AbAcc|$  as the dependent variable. Model 1 includes AuditorGender as the independent variable, whereas Model 2 includes CFOGender. Model 3 is the full model that includes AuditorGender, CFOGender and the interaction between the two. All model specifications have the same control variables. The adjusted  $R^2$  of the models are between 23 and 25 per cent and the  $F$ -statistics for all of the models are statistically significant. The adjusted  $R^2$  values can be seen as low (Hair *et al.*, 2010) or, on the contrary, substantial (Cohen, 1977). Those values are not uncommon for gender studies that use abnormal accruals as the proxy of earnings quality (Ittonen *et al.*, 2013; Chin and Chi, 2008; Liu *et al.*, 2016; Gavious *et al.*, 2012).

The results show that the coefficient estimates of AuditorGender in Model 1 and Model 3 are positive but not statistically significant at conventional levels, indicating that this study cannot reject  $H1$ . The results may provide tentative support for  $H1$ , that is auditor gender is not associated with the client's earnings quality. This is consistent with Cahan and Sun (2015) and Gul *et al.* (2013). Furthermore, Models 2 and 3 document that the coefficients of CFOGender are positive but are not statistically significant at conventional levels, thereby supporting  $H2$ . This implies that there is no association between CFO gender and firms' earnings quality, which is consistent with Ge *et al.* (2011) and Arun *et al.* (2015). The coefficient estimate of AuditorGender  $\times$  CFOGender in Model 3 is positive but not

Variables	Predicted sign	Model 1	Model 2	Model 3
Constant		-2.356 (0.046)**	-2.219 (0.063)*	-2.326 (0.052)*
<i>Interest variables</i>				
AuditorGender	$\pm$	0.250 (0.216)		0.220 (0.339)
CFOGender	$\pm$		0.000 (0.998)	-0.035 (0.846)
AuditorGender $\times$ CFOGender	$\pm$			0.137 (0.770)
<i>Control variables</i>				
AudAge	$\pm$	0.019 (0.058)*	0.018 (0.075)*	0.019 (0.059)*
IndSpec	$\pm$	1.103 (0.000)***	1.112 (0.000)***	1.101 (0.000)***
Big4	$\pm$	-0.018 (0.976)	-0.032 (0.956)	0.001 (0.999)
Influence	+	0.632 (0.545)	0.617 (0.555)	0.659 (0.531)
Size	+	0.121 (0.017)**	0.116 (0.022)**	0.120 (0.019)**
OCF	-	-0.586 (0.302)	-0.558 (0.326)	-0.591 (0.299)
Leverage	+	0.098 (0.796)	0.061 (0.873)	0.097 (0.799)
CompAge	-	0.027 (0.000)***	0.027 (0.000)***	0.027 (0.000)***
SalesGrowth	$\pm$	0.101 (0.621)	0.098 (0.634)	0.100 (0.626)
PPEGrowth	$\pm$	0.060 (0.519)	0.063 (0.493)	0.060 (0.515)
Loss	+	-0.154 (0.450)	-0.157 (0.441)	-0.154 (0.450)
MB	+	-0.001 (0.968)	0.001 (0.963)	-0.002 (0.944)
LagLoss	+	0.075 (0.707)	0.082 (0.681)	0.074 (0.709)
Industry included		Yes	Yes	Yes
Year included		Yes	Yes	Yes
Adjusted $R^2$		0.229	0.251	0.227
$N$		976	976	976
$F$ -Statistics		10.644 (0.000)***	10.576 (0.000)***	9.962 (0.000)***
VIF		1.107-3.025	1.106-3.025	1.108-3.048

**Table V.**  
Regression results:  
 $|AbAcc|$  as  
dependent variable

**Notes:**  $p$ -value of the coefficients are presented in parentheses; \*, \*\* and \*\*\* statistically significant at the 0.1, 0.05 and 0.01 levels (two-tailed), respectively

statistically significant at conventional levels. The insignificance of the interaction supports *H3*, suggesting that the interactions between an auditor and a CFO which affects a firm's earnings quality is not associated with their gender.

Furthermore, the coefficient estimates of the control variables show *AudAge* and *IndSpec* as positively associated with  $|AbAcc|$ , with both being statistically significant ( $p < 0.1$ ). This is consistent with *Ittonen et al. (2013)*. According to them, the positive sign might suggest that hiring an auditor who is specialised in a particular industry does not improve a client's earnings quality. This study also reveals that *Size* is positively associated with  $|AbAcc|$ , which is consistent with prior studies (*Geiger and North, 2006; Chen et al., 2010; Srinidhi et al., 2011; and Gul et al., 2013*). Moreover, *CompAge* is positively statistically associated with  $|AbAcc|$ , which is consistent with *Boone et al. (2012)*. Lastly, it should be mentioned that variance inflation factor for all of the variables are less than 10, suggesting that multicollinearity should not be a problem in the model specifications.

*Meet or beat earnings tests.* Tables VI and VII provide the results, where reporting a small positive profit (*SmallProfit*) and small positive profit increases (*SmallIncrease*) are the dependent variables. As in the previous analysis, three models using a logistic regression are run. The results in Table VI show that the coefficients of *AuditorGender*, *CFOGender* and

Variables	Predicted sign	Model 1	Model 2	Model 3
Constant		-16.86 (0.999)	-16.47 (0.999)	-16.62 (0.999)
<i>Interest variables</i>				
<i>AuditorGender</i>	±	-0.048 (0.902)		0.178 (0.679)
<i>CFOGender</i>	±		-0.256 (0.332)	-0.153 (0.603)
<i>AuditorGender</i> × <i>CFOGender</i>	±			-1.172 (0.310)
<i>Control variables</i>				
<i>AudAge</i>	±	-0.010 (0.580)	-0.009 (0.622)	-0.009 (0.627)
<i>IndSpec</i>	±	0.591 (0.146)	0.579 (0.153)	0.610 (0.134)
<i>Big4</i>	±	0.463 (0.737)	0.439 (0.749)	0.459 (0.737)
<i>Influence</i>	+	-1.856 (0.457)	-1.742 (0.484)	-1.797 (0.470)
<i>Size</i>	+	-0.215 (0.031)**	-0.222 (0.027)**	-0.223 (0.026)**
<i>OCF</i>	-	-15.137 (0.000)***	-15.109 (0.000)***	-15.150 (0.000)***
<i>Leverage</i>		0.189 (0.805)	0.148 (0.848)	0.172 (0.824)
<i>CompAge</i>	-	0.015 (0.023)**	0.014 (0.026)**	0.015 (0.025)**
<i>SalesGrowth</i>	±	-2.752 (0.000)***	-2.726 (0.000)***	-2.720 (0.000)***
<i>PPEGrowth</i>	±	0.031 (0.856)	0.021 (0.901)	0.019 (0.915)
<i>Loss</i>	+	-28.110 (0.989)	-27.964 (0.989)	-28.026 (0.989)
<i>MB</i>	+	-0.662 (0.000)***	-0.680 (0.000)***	-0.675 (0.000)***
<i>LagLoss</i>	+	1.402 (0.000)***	1.392 (0.000)***	1.385 (0.000)**
<i>Industry included</i>		Yes	Yes	Yes
<i>Year included</i>		Yes	Yes	Yes
<i>Pseudo R<sup>2</sup></i>		0.492	0.492	0.494
<i>N</i>		976	976	976
<i>Model chi-square</i>		357.97***	358.80***	360.14***
<i>Classification accuracy</i>				
<i>Small profit</i>		50.5%	49.5%	51.1%
<i>No small profit</i>		95.1%	94.7%	94.8%

**Table VI.**  
Regression results:  
Small Profit as  
dependent variable

**Notes:** *p*-value of the coefficients are presented in parentheses; \*\* and \*\*\* statistically significant at the 0.05 and 0.01 levels (two-tailed), respectively

Variables	Predicted sign	Model 1	Model 2	Model 3
Constant		-1.782 (0.285)	-1.401 (0.403)	-1.466 (0.384)
<i>Interest variables</i>				
AuditorGender	±	0.105 (0.664)		0.165 (0.556)
CFOGender	±		-0.266 (0.176)	-0.261 (0.224)
AuditorGender × CFOGender	±			-0.103 (0.849)
<i>Control variables</i>				
AudAge	±	-0.014 (0.253)	-0.012 (0.302)	-0.012 (0.328)
IndSpec	±	-0.176 (0.522)	-0.190 (0.490)	-0.195 (0.481)
Big4	±	-0.255 (0.712)	-0.319 (0.643)	-0.324 (0.641)
Influence	+	0.157 (0.897)	0.127 (0.916)	0.121 (0.921)
Size	+	0.151 (0.012)**	0.144 (0.017)**	0.146 (0.016)**
OCF	-	1.009 (0.195)	1.090 (0.163)	1.076 (0.169)
Leverage	+	0.426 (0.356)	0.383 (0.405)	0.403 (0.383)
CompAge	-	-0.003 (0.493)	-0.004 (0.454)	-0.004 (0.468)
SalesGrowth	±	0.550 (0.034)**	0.557 (0.032)**	0.560 (0.031)**
PPEGrowth	±	-0.176 (0.118)	-0.179 (0.114)	-0.180 (0.112)
Loss	+	-1.910 (0.000)***	-1.929 (0.000)***	-1.928 (0.000)***
MB	+	-0.039 (0.240)	-0.040 (0.223)	-0.041 (0.213)
LagLoss	+	0.698 (0.007)**	0.696 (0.007)**	0.691 (0.008)**
Industry included		Yes	Yes	Yes
Year included		Yes	Yes	Yes
Pseudo R <sup>2</sup>		0.236	0.238	0.238
N		976	976	976
Model chi-square		190.14***	190.14***	192.14***
<i>Classification accuracy</i>				
Small increase		76.3%	75.0%	74.8%
No small increase		61.9%	61.9%	61.9%

**Table VII.**  
Regression results:  
SmallIncrease as  
dependent variable

**Notes:** *p*-value of the coefficients are presented in parentheses; \*\* and \*\*\* statistically significant at the 0.05 and 0.01 levels (two-tailed), respectively

AuditorGender × CFOGender are not significant at conventional levels, indicating that the likelihood of reporting small positive profit is not significantly different between firms audited by male or female auditors and firms with male or female CFOs. Moreover, the interaction between auditor and CFO gender are less likely to affect firms reporting a small positive profit. Therefore, the results tentatively support this study's hypotheses. The results also show that the coefficients of six control variables are significant, in which the coefficients of two control variables are positive (CompAge and LagLoss), indicating that older firms and firms that experienced a loss in the prior year are more likely to report a small positive profit. Meanwhile, the coefficients of the four control variables are negative (Size, OCF, SalesGrowth and MB). This indicates that larger firms, firms with higher OCF, sales growth and market to book ratio are less likely to report a small positive profit. The signs of those coefficients, in some respects, are consistent with Francis and Yu (2009) and Frankel *et al.* (2002).

Table VII shows that the coefficients of AuditorGender, CFOGender and AuditorGender × CFOGender are not significant at conventional levels, suggesting that the likelihood of reporting small positive profit increasing is not significantly different between firms audited by female or male auditors and firms with male or female CFOs. Moreover, it also shows that the coefficients of four control variables are statistically significant, in which the coefficients of three control



variables (Size, SalesGrowth and LagLoss) are positive, indicating that larger firms, firms with higher sales growth and firms who experienced a loss in the prior year are more likely to report small positive profit increases. Meanwhile, only one control variable (Loss) has a significant negative sign, suggesting that firms who experienced loss are less likely to report small positive profit increases. The coefficients of the control variables are, in some ways, in line with Francis and Yu (2009). Finally, the pseudo  $R^2$  of the models in Tables VI and VII are between 24 and 49 per cent. These values are slightly higher than some previous studies that use the small profit and small increase as the independent variables (Blay *et al.*, 2014; Francis and Yu, 2009).

### Sensitivity analyses

Several sensitivity analyses were conducted to test whether the results were affected by several perturbations. First, to test whether the results are affected by outliers, the continuous variables in the Model 1, 2 and 3 are winsorised again at the 0.5 and 99.5 levels of per centile, and the models are re-estimated. The coefficients of estimates (not tabulated) are primarily consistent with the results reporting on Table V.

To ascertain that the results are not affected by the potential problem of redundant variables, Models 1, 2 and 3 are constructed in a more parsimonious way, only including Big4, Size, OCF, Leverage, Loss and MB as control variables. The results of these parsimonious models (not tabulated) are qualitatively similar to the results reported in Table V.

To ensure that the choice of accrual measurements does not affect the results, Models 1, 2 and 3 were re-estimated using alternative measures of earnings quality. First, Jones' model of abnormal accruals is used in which this measure controls for the firm's performance (Jones, 1991; Dechow *et al.*, 1995; McNichols, 2002; Kothari *et al.*, 2005; Jones *et al.*, 2008; Francis and Yu, 2009; Francis *et al.*, 2013, Gul *et al.*, 2013). Following Francis and Yu (2009), OLS are used to estimate the total accruals and discretionary accruals for the sample. The coefficients of estimates of the regression analysis (not tabulated) with the modified Jones model of abnormal accrual as the dependent variable are principally consistent with the results reported in Table V, except for CFOGender. The result shows that the estimate of CFOGender is positive and significant ( $p < 0.1$ ). This different result could be caused by the different approach applied by the Dechow and Dichev model and the modified Jones model for identifying abnormal accruals (Francis *et al.*, 2013). Second, an alternative specification of small positive profit and small positive profit increases was also used. We follow the cut-off used by Ashbaugh *et al.* (2003), Carey and Simnett (2006) and Frankel *et al.* (2002) of between 0 and 2 per cent and re-run our models. The estimates of the logistic regression for the AuditorGender, CFOGender and AuditorGender  $\times$  CFOGender (not tabulated) are qualitatively similar, as reported in Tables VI and VII.

Lastly, this study uses the alternative definition of AuditorGender as the proportion of female auditors in an audit engagement. The alternative definition is used to capture audit reports that were signed by two auditors. This study re-estimates the OLS regression model [equation (2)] using the alternative measure of auditor gender. The results (not tabulated) are qualitatively similar to the results in Table V.

### Conclusions and limitations

This study investigates the association between auditor gender, CFO gender, the interaction between auditor and CFO gender and a firm's earnings quality. The hypotheses developed in this study are motivated by the competing theories in the literature about the impact of gender on behaviour. This study contributes to the prior literature on gender differences, particularly the association between auditor and CFO gender and earnings quality. The results give evidence to tentatively support the structural approach for explaining the situation in Sweden. The results show that auditor and CFO gender are not associated with

a client's earnings quality. The results also show that the interactions between auditor and CFO, which may affect earnings quality, are not associated with their gender. This study used abnormal accruals and "meet and beat" earnings as proxies of earnings quality. In addition, the sensitivity analyses show that the results are robust.

These results may have practical and theoretical implications. As mentioned above, previous studies on gender and earnings quality have provided inconclusive evidence. The structural approach contends that gender differences will be overridden once people enter and work in a particular profession in which individuals' behaviour or decisions are not determined by their gender. The female auditors and CFOs investigated in this study may be considered as most successful in their occupations. They probably have broken glass ceilings at the road to their present position. [Cook and Glass \(2014\)](#) find that a promotion of minorities (e.g. women and ethnic minorities) above the glass ceiling demanded longer tenure of the employee and often in the situation where organisations are in crisis. This suggests that those above the glass ceiling are firmly socialised into the profession and the organisational culture and thereby more likely to act in accordance with the occupational role rather than their gender role. One promising road for future studies is to investigate if the speculation that career success, professional belonging and societal context influence the degree of influences of gender socialisation in a certain occupation and the occupational role identification, respectively.

Furthermore, this study notices that studies that find a positive association between gender and earnings quality were conducted in more masculine societies (e.g. China, Taiwan, Finland and the USA) where the glass ceiling effect may be stronger ([Van Vianen and Fischer, 2002](#)). Sweden is categorised as a feminine society where individuals are encouraged to strive for quality of life rather than material success. [Vitell et al. \(1993\)](#) argue that a feminine society may be more conducive for ethical conduct than a masculine one. Therefore, it could also be argued that a feminine society will reduce risk-taking tendencies of both men and women. However, this study did not directly account for cultural dimensions in the empirical analysis. Future studies should include the femininity/masculinity cultural dimension when investigating issues regarding the impact of gender differences.

This study acknowledges several caveats that may affect the empirical results. First, while the sample includes 976 observations, only 107 observation firms were audited by a woman, only 170 firms had a female CFO and only 28 firms were audited by a female whilst employing a female CFO. Although this number is larger than in prior studies ([Ittonen et al., 2013](#)), it may still be considered small. The insignificant associations between auditor gender, CFO gender and earnings quality and the interaction of auditor and CFO gender on earnings quality could be affected by this issue. Second, this study utilised data from one country and consisted of listed firms in the Nasdaq OMX Stockholm from 2008 to 2013. Generalising these results to other countries, samples or settings is not recommended. Lastly, it must be stated that the estimates in the empirical analysis might be affected by the measurement errors of the proxies of earnings quality. Further studies should utilise other alternative measures such as earnings persistence or earnings conservatism to test whether the results are consistent.

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