

## **Is there a gender effect in the quality of audit services?**

**Authors : Garcia-Blandón, J.; Argilés-Bosch, J.M.; Ravenda, D.**

### **Abstract**

The behavioural economics literature and the glass ceiling for women in the audit profession indicate that female auditors might provide higher quality audit services than male auditors. We conduct the study with a sample of Spanish listed companies for the period between 2008 and 2015, and use the quality of the financial statements released by the auditor client as the proxy for the quality of audit services. Results provide sound and consistent support for a positive female partner effect on the quality of audit services. Although our figures show gender specialization of auditors, results are not driven by these differences. Moreover, the gender effect occurs from the very first year of the appointment of a female auditor in substitution of a male auditor. This study might contribute to challenge stereotypes and be informative for the ongoing political debate about the under representation of women in the senior management levels.

**Key-words:** female auditor; gender differences; glass ceiling; audit quality; gender specialization.

## 1. Introduction

The term gender in the psychology and sociology fields refers to feminists' efforts to distinguish between biological differences between men and women and differences which are determined by social and cultural forces (Welsh, 1992). Hence, while sex differences suggest the existence of some stable intrinsic traits for men and women, the concept of gender accounts for the effects of social norms on the differential perceptions between them (Unger, 1990; Welsh, 1992). In the guest editorial to an accounting and gender special issue, Broadbent and Kirkhamal (2008: 465) make the following controversial statement: "(...) though the World has, for some women, changed much over the last 30 years, it has, in some ways, stayed the same, and- for that reason the issue of gender remains just as relevant as it was then". While it is true that the last decades have seen the entry of women in the accounting profession in substantial numbers and that accounting firms have implemented target policies towards supporting women, the top ranks of the accounting profession remain resolutely gendered, showing a clear underrepresentation of women at senior levels (Broadbent and Kirkhamal, 2008). This situation occurs not only in the accounting profession, as the ongoing political debate within the European Union concerning the under-representation of women in firms' management positions demonstrates (Khlif and Achek, 2017).

Auditors play a fundamental role in the classical corporate governance scheme in guaranteeing the quality of financial statements. Following the Enron scandal, regulators and policy makers became particularly concerned with the quality of audit services (i.e., the Sarbanes-Oxley Act and, more recently, the Directive 2014/56/EU on audit quality). We investigate whether there exists a gender effect on the quality of audit services. Such effect could exist, as the psychology and behavioural economics literatures generally support that men and women tend to behave differently (e.g., Feingold, 1994; Costa, Terracciano and McCrae, 2001; Nettle 2007; Schmitt, Realo, Voracek and Allik, 2008; Croson and Gneezy, 2009). The investigation of gender differences in risk aversion is particularly meaningful for this study. In a review article, Charness and Gneezy (2012) conclude that women are more risk averse than men. This conclusion has potentially serious implications for the job market, mainly in the financial and accounting fields, where risk aversion is a fundamental issue. According to Ittonen, Vähämaa and Vähämaa (2013), gender-based differences in cognitive information processing, diligence, conservatism, overconfidence and risk tolerance might impact auditor judgements and, as a result, the final quality of audit services. With a sample of Swedish and Finnish companies they investigate the association between the gender of the auditor and the quality

of the clients' financial reports, and conclude that companies with female auditors tend to present higher financial reporting quality.

The research question of this study states: Do female auditors provide higher-quality audit services? The empirical analysis is conducted with a sample of Spanish listed companies for the research period between 2008 and 2015. Similar to prior related studies (Niskanen, Karjalainen, Niskanen and Karjalainen, 2011; Ittonen et al., 2013), we use the quality of the financial statements of the auditor client (as measured by discretionary accruals), as the proxy for the quality of audit services. According to the discussion in the former paragraph, the audit sector provides an ideal setting in which to observe a gender effect in the quality of the services provided. However, so far the scarce available evidence is limited to the Scandinavian region and has not provided sound and conclusive results. We, therefore, extend and refine the work of Ittonen et al. (2013) for Scandinavia to the Spanish audit market. Both the implications of the issue on various fields (i.e., gender studies, accounting and audit), and the limited available research make this study timely and potentially interesting. Additionally, it should be noted that because of the importance of the institutional context for the level of accountability of auditors (Bedard, 2012), the results of single country studies cannot be generalized. In our specific case, this is stressed by the clear country (or region) component of gender issues. For example, an important reason for supporting that firms with female auditors should manipulate less the financial statements is because women seem to be more ethical than men (Ruegger and King, 1992). However, Chen et al. (2016) argue that gender differences in ethics are more pronounced under the cultural dimension of gender egalitarianism. Accordingly, as the Scandinavian region is regarded as more gender egalitarian than Spain, we might observe that companies with female auditors manipulate less in Scandinavia but not necessarily in Spain. Therefore, we intend to contribute to the literature by providing the first study on the relationship between auditor gender and financial reporting quality outside the Scandinavian region. We also aim to contribute to the ongoing political debate about the under-representation of women in firms' management positions, providing updated evidence of the situation in Spain and its evolution during the last decade, and more importantly, on the implications of this situation for the quality of audit services. Moreover, unlike prior related studies we control for the different types of firms that male and female auditors generally audit, and also analyse the impact on financial reporting quality of the substitution of male auditors by female auditors.

Our results provide sound and consistent support for an auditor gender effect on the quality of audit services in Spain. Hence, we find that female auditors are positively and significantly associated with higher financial reporting quality. This result seems robust and consistent across

a variety of additional analyses and checks. In particular, to the fact that male and female auditors generally audit different types of firms. We also observe that the positive gender effect on the quality of audit services occurs from the very first year of the appointment of a female auditor in substitution of a male auditor. According to Dambrin and Lambert (2012), the lack of women in the higher ranks of the accounting profession suggests that until stereotypes are challenged gender inequality will remain. They link the need of critical and reflective research on gender with an ongoing struggle to improve the position of women's representation in the accounting profession (Haynes, 2017). The results reported here intend to contribute to this goal.

The remaining of the paper is organized as follows. Section two outlines a review of the literature and develops our hypothesis. In section three we present the design of the empirical research, followed by the discussion of the results in section four. Finally, in the last section we draw the conclusions and limitations of our research, as well as the implications of the findings.

## **2. Background and hypothesis development**

Should we expect a gender effect on the quality of the audit work? To answer this research question and pose the hypothesis of this study, firstly we examine which personal characteristics and skills are perceived as the most important in the audit profession and look for potential gender differences in these skills. Afterwards, we discuss how the existence of a glass ceiling for women auditors also provides sound arguments to support our hypothesis, and finally we discuss the evidence reported by related studies.

### *2.1. Gender differences in skills for the accounting profession*

Accounting conservatism, defined "as the accountant's tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses" (Basu, 1997, p. 7), has significantly influenced the accounting profession since long. Following Watts (2003), the available evidence supports that conservatism benefits financial reporting quality, at least from the perspective of the users of financial reports. Moreover, in countries such as Spain, requiring the signature of the auditor in the audit report, auditors are personally accountable for the audit report. Accordingly, more conservative auditors are expected to show stronger commitment with financial reporting quality. The overconfidence of auditors might also affect audit quality (e.g., Messier, Owhoso and Rakovski, 2008; Owhoso and Weickgenannt, 2009). According to Owhoso and Weickgenannt (2009, p. 17) "an overconfident auditor might fail to properly gauge the effectiveness of a client's systems and procedures, believing that he or she

has the capacity to discover whatever weaknesses the client may have.” As information processing is intrinsically related to the audit task (e.g., Brown and Solomon, 1991; Maletta and Kida, 1993), auditors with stronger information processing skills are likely to provide higher audit quality services. Finally, the audit profession plays a main social trust function by representing a mechanism for holding managers accountable for their actions (Jensen, 2006). Because of this, external auditors face a serious conflict of interest as they owe a professional duty to the company's stockholders and to society in general, although their remuneration is determined by the managers of the audited companies (Citron and Taffler, 2001). Summing up, conservatism, information processing skills and ethical behaviour should positively impact the quality of audit services, while overconfidence should have a negative impact.

Behavioural research has generally shown gender differences in the skills discussed before. Regarding conservatism, Byrnes, Miller and Schafer's (1999) meta-analysis on 150 studies shows that women are, in general, more conservative than men. Focusing specifically on financial risk, there seems to be a consensus that women tend to be more risk averse than men (e.g., Jianakoplos and Bernasek, 1998; Sunden and Surette, 1998; Charness and Gneezy, 2012); and the same holds for men being generally more overconfident than women (e.g., Levin, Snyder and Chapman, 1988; Lundeberg, Fox and Puncochar, 1994; Bengtsson, Persson and Willenhag, 2005), and also with regard the stronger information processing skills of women (e.g., Darley and Smith, 1995; Chung and Monroe, 2001). As for this latter issue, O'Donnell and Johnson (2001) concluded that female auditors demonstrate significantly greater efficiency than males on complex analytical procedures tasks. Finally, although there is no agreement on the existence of gender differences in ethical behaviour, some studies show that women tend to be more ethical than men in the perception of business ethical situations (Ruegger and King, 1992) and less willing to engage in unethical behaviour in the work place in order to obtain financial rewards (Betz, O'Connell and Shepard, 1989). Focusing specifically on the audit profession, Bernardi and Arnold (1997) conclude that female auditors are at a significantly higher average level of moral development than male auditors. However, evidence reported by other studies is not so strong (Roxas and Stoneback, 2004).

## *2.2. Barriers to entry and glass ceiling*

Even though women seem to possess strong skills for the audit profession, barriers of entry have led to the underrepresentation of women at senior levels of audit firms. As put by Haynes (2017), the incorporations of women to the accounting profession occurred over many decades of struggle. Kirkham and Loft (1993) stressed the gender hierarchy of accountancy dominated

by men when they claim that the masculine qualities required contrasted markedly with the image of women as being weak, dependent and emotional. After acknowledging advancements in recent decades in accountancy and other service professions, Empson, Muzio, Broschak and Hinings (2015) point out that barriers to real advancement are still important. The changing gender balance has not been straightforward, and quantitative changes in the numbers of women have not been accompanied by gender transformation in the profession's hierarchy (Ciancanelli, Gallhofer, Humphrey and Kirkham, 1990; Haynes, 2017). According to Anderson-Gough, Lightbody and Single (2005), women face stronger difficulties than men to reach leading positions in the audit profession because the evaluation of career promotion opportunities does not only involve technical and managerial skills but also the integration into informal and formal organizational processes that systematically disadvantage female auditors with family commitments. Similarly, Guillaume and Pochic (2007) argue that promotion criteria generally involve drawbacks for women. Finally, Haynes (2017) summarizes the main areas in which important challenges still remain: gendered career hierarchies (Broadbent and Kirkham, 2008; Dambrin and Lambert, 2012), interaction with motherhood (Haynes, 2008; Dambrin and Lambert, 2012), work-life issues and choices (Anderson-Gough et al., 2005; Ladva and Andrew, 2014) and feminisation and segmentation in the profession (Almer, et al., 2012; Lupu, 2012; Khalifa, 2013).

### *2.3. Results of related empirical studies*

Probably because most countries do not require the signature of the auditor on the audit report, empirical evidence on gender effects in the audit profession is very limited and focuses on the Scandinavian region. With a sample of small and medium-size private Finnish firms, Niskanen et al. (2011) study the impact of auditor gender on discretionary accruals, a usual proxy for audit quality. As the authors acknowledge, their results were twofold, as companies with female auditors show higher discretionary accruals in absolute values, thus, suggesting more accounting manipulation and lower financial reporting quality. However, in the analysis conducted with separate sub-samples of income increasing (earnings overstatements) and income decreasing (earnings understatements) accruals, female auditors seem to be more conservative than their male colleagues, thus indicating higher financial reporting quality. Later on, Ittonen et al. (2013) conduct a similar investigation with a sample of public Swedish and Finnish firms and observe a positive and significant direct relationship between having a female auditor and the quality of financial reports as measured by the absolute value of discretionary accruals. However, the evidence supporting this conclusion was not too strong, as it was not

consistent across the univariate and multivariate analyses or across measures of discretionary accruals.

Other studies have addressed related issues which are also of interest for our research. Hence, Menezes and Bras (2015) find evidence that a predominant presence of female certified public accountants in partnership positions in audit firms is positively associated with the quality of financial reports of the audit firm clients. Hardies, Breesch and Branson (2015) observe that Belgian firms pay higher audit fees (by about 7 percent) to female auditors. This evidence might be interpreted in terms of audit quality (higher audit fees might indicate higher audit quality services), although there are also alternative explanations, as the hiring of a female auditor might be demand-driven without necessarily involving higher audit quality.<sup>1</sup> Still for Belgium, Hardies, Breesch and Branson (2016) observe that firms with female auditors face a higher likelihood of receiving a going-concern modified opinion in the audit report. The authors interpret this result in terms of higher audit quality associated with female auditors.<sup>2</sup> Another related issue is how the presence of women in audit committees impacts financial reporting quality. The same reasons which support a gender effect on financial reporting quality might also explain higher financial reporting quality associated with the presence of women in the audit committee. Although the available evidence generally supports this view (e.g., Thiruvadi and Huang, 2011; Pucheta-Martinez, Bel-Oms and Olcina-Sempere, 2016), Sun, Liu and Lan (2011) are unable to identify any association between the proportion of female directors on audit committees and financial reporting quality. Finally, the available evidence generally supports that firms with female chief financial officers tend to show higher financial reporting quality (e.g., Barua, Davidson, Rama and Thiruvadi, 2010; Peni and Vahamaa, 2010; Francis, Hasan, Park and Wu, 2015).

#### *2.4. Hypothesis*

As we discussed before, women would seem to outperform men in the skills that are considered as the most important for the audit profession. Moreover, a female auditor gender effect in the quality of audit work might also be expected due to the important barriers of entry in the audit profession which make that female auditors in partnership positions have had to demonstrate extra competence (Ittonen et al., 2013). Accordingly, we should expect these

---

<sup>1</sup> For example, given that women are generally found to be more agreeable, tenderminded, warm and open to feelings, female auditors may be associated with higher client satisfaction (Hardies et al., 2015: 174).

<sup>2</sup> The higher propensity to issue going-concern opinions would indicate that female auditors are more independent.

female partners to provide, on average, higher quality audit services than male auditors. As for the empirical evidence, prior related research provides support for a positive relationship between having a female auditor and audit quality, and there is also evidence that both the presence of women in audit committees and in chief financial officer positions are associated with higher financial reporting quality. Therefore, we pose the hypothesis of this study as follows:

**Hypothesis:** Having a female auditor is positively and significantly associated with audit quality.

### 3. Research design and sample selection

#### 3.1. Research design

Following prior related studies (Niskanen et al., 2011; Ittonen et al. 2013), we proxy financial reporting quality by discretionary accruals, a usual indicator of accounting manipulation. Similar to these studies, we assume that high-quality auditors should lead to higher financial reporting quality by reducing the use discretionary accruals for accounting manipulation purposes. To estimate discretionary accruals, we follow the approach proposed by Francis and Wang (2008). Accordingly, we first calculate total accruals as operating net income minus cash flows from operations scaled by lagged total assets. Then, we define discretionary accruals as total accruals in year  $t$  minus predicted accruals for year  $t$  as defined below. Similar to Francis and Wang (2008), we prefer this measure of accruals over the Jones-type models (Jones, 1991, Dechow, Sloan and Sweeny, 1995, Kothari, Leone and Wasley, 2005) due to the generally low number of observations per year, industry and country in our sample.<sup>3</sup>

$$\text{Predicted accruals} = \{[sales_t \times (\text{current accruals}_{t-1}/sales_{t-1})] - [\text{gross PPE}_t \times (\text{depreciation}_{t-1}/\text{gross PPE}_{t-1})]/\text{total assets}_{t-1}$$

where,

$$\begin{aligned} \text{Current accruals (change in non-cash working capital)} = & \\ & \Delta[\text{total current assets} \\ & - \text{cash and short term investments} \\ & - \text{treasury stock shown as current assets}] \\ & - \Delta[\text{total current liabilities} \\ & - \text{total amount of debt in current liabilities} \\ & - \text{proposed dividends}] \end{aligned}$$

---

<sup>3</sup> The standard approach in the literature is to conduct separate cross-section estimations of Jones (1991) type models at the industry level. However, as Francis and Wang (2008) point out, this approach might not be feasible in many country-studies because of the low number of firms in some industries.

*gross PPE*: gross property, plant and equipment.

After computing discretionary accruals, the next step is to decide which form of the variable is the most appropriate measure of financial reporting quality: the absolute or the raw value of discretionary accruals. This is not a minor issue, as results sometimes are not consistent across different definitions of accruals (e.g., Niskanen et al., 2011). In order to report robust results, we use both measures of discretionary accruals, and also income-increasing and income-decreasing discretionary accruals. However, the main analysis is conducted with the raw value of discretionary accruals.<sup>4</sup>

As a preliminary step, we conduct a univariate analysis of mean and median differences of discretionary accruals by auditor gender. Subsequently, for the multivariate analysis we estimate the Model given by Equation (1) below, which includes discretionary accruals (*ACCRUALS*) as the dependent variable, and our gender variable (*FEMALE*) as well as the usual controls as independent variables (Francis and Wang, 2008).

$$\begin{aligned} ACCRUALS_{i,t} = & \beta_0 + \beta_1 FEMALE_{i,t} + \beta_2 BIG4_{i,t} + \beta_3 LSALES_{i,t} + \beta_4 CFO_{i,t} \\ & + \beta_5 LEV_{i,t} + \beta_6 LAG\_LOSS_{i,t} + \beta_7 GROWTH_{i,t} \\ & + \beta_8 \Delta PPE_{i,t} + fixed\ effects_{i,t} + \epsilon_{i,t} \end{aligned} \quad (1)$$

Dependent variable:

*ACCRUALS* (discretionary accruals) The raw value of discretionary accruals (*DA*). The absolute value of discretionary accruals (*ABSDA*), as well as income-increasing (*IIDA*) and income-decreasing (*IDDA*) accruals are also used as dependent variables for additional analyses.

Variable of interest:

*FEMALE* (female auditor). A dummy variable which takes the value of 1 when the firm has a female auditor and 0 otherwise.

Controls:

*BIG4* (type of audit firm). A dummy variable which takes the value of 1 if the auditor belongs to a Big 4 audit firm and 0 otherwise;

*LSALES* (client's sales). The log of the client's sales in millions of €;

*CFO* (cash-flow from operations). Operating cash flows of the client scaled by lagged total assets;

*LEV* (leverage). The client's financial leverage, measured as total liabilities divided by total assets;

---

<sup>4</sup> Similar to Francis and Wang (2008) we base our decision on the fact that the use of the absolute value of discretionary accruals does not allow to control for the different implications of earnings overstatements and earnings understatements. The limitations of absolute discretionary accruals as a reliable measure of financial reporting quality are clearly illustrated by the fact that, although Niskanen et al. (2011) found a positive and significant relationship between having a female auditor and absolute discretionary accruals and Ittonen et al. (2013) reported a negative and significant relationship, both authors came to the same conclusion: firms with female auditors presented higher financial reporting quality.

*LAG\_LOSS* (lagged losses). A dummy variable which takes the value of 1 if the client reports negative income before extraordinary items in year  $t-1$  and 0 otherwise;  
*GROWTH* (sales growth). Sales in year  $t$  minus sales in  $t-1$  and scaled by sales in year  $t-1$ ; and  
*ΔPPE* (growth rate of gross property plant and equipment). Gross PPE in year  $t$  minus gross PPE in  $t-1$  and scaled by gross PPE in  $t-1$ .

Year and industry dummy variables are also included as fixed effects.

According to the hypothesis of this study, we predict a negative and significant coefficient for our variable of interest *FEMALE*. This would indicate that female auditors are associated with lower levels of discretionary accruals and, thus, with higher financial reporting quality.

Next, we briefly discuss the control variables in our model in similar terms as Francis and Wang (2008). We include *BIG4* because prior studies generally show that large audit firms provide higher quality services (e.g., Becker, DeFond, Jiambalvo and Subramanyam, 1998; Francis, Maydew and Sparks, 1999). According to Francis and Wang (2008), large firms (*LSALES*) show lower levels of accruals than smaller firms, even after scaling accruals by firm size. With *CFO* we intend to control for a well-documented inverse relationship between operating cash flows and accruals (Dechow, 1994). We include *LEV*, as highly leveraged firms have stronger incentives to manipulate earnings to avoid debt covenant violations (Becker et al., 1998). The reporting of losses (*LAG\_LOSS*) constitutes an indicator of poor financial health and according to DeAngelo, DeAngelo and Skinner (1994), troubled companies face strong incentives to manipulate earnings. Finally, as Francis and Wang (2008), we include *GROWTH* and *ΔPPE* to control for firm's growth which could also affect accruals if the relationship between accruals and accruals drivers (sales and PPE) is nonlinear.

### 3.2. Sample selection

We conduct the empirical analysis with a sample of non-financial companies<sup>5</sup> listed on the Spanish Stock Exchange (*Sistema de Interconexión Bursátil Español*) for the period between 2008 and 2015. Information about our variable of interest (*FEMALE*) is hand collected from financial reports available at the National Securities Market Commission (*Comisión Nacional del Mercado de Valores - CNMV*) website. Data for control variables is obtained from Capital IQ. Our sample consists of 91 firms and, given the eight-year research period, 728 firm-year observations.

---

<sup>5</sup> As it is usual in the audit literature, we exclude financial companies because we use financial ratios as control variables in Equation (1).

However, due to lack of data for seven firm-year observations the final sample consists of 721 firm-year observations.

Table 1 summarizes the presence of female audit partners in Spain during our research period. As it can be seen, firms with female auditors only represent 10% of the total sample. This percentage is slightly lower than in Ittonen et al. (2013) (11%). However, it should be noted that the research period in Ittonen et al. (2013) was 2005-2007. For 2008, the first year of our research period, the presence of women in our sample is just 5%.<sup>6</sup> Thus, a first conclusion is that the presence of female audit partners in Spain is lower (or at least was lower in the past) than in the Scandinavian region. A second interesting figure is that the number of audit reports signed by women has multiplied by three during our research period, meaning an average annual rate of growth of 15%. Finally, the presence of women is not homogeneously distributed across industries, being “consumer services”, “financial services and real estate” and “technology and telecommunications” the industries with the highest percentage of female auditors, whereas “petrol and power” and “basic materials, industry and construction” the industries with the lowest percentage. These figures indicate that men and women tend to audit different types of firms and clearly show industry specialization of auditors by gender.

**Insert Table 1 around here**

Table 2 shows some descriptive statistics for our sample. The most interesting feature is the extreme concentration of the audit market by Big 4 audit firms, representing 94% of the market for listed companies. This percentage is slightly above the 90% value in Ittonen et al. (2013).

**Insert Table 2 around here**

Table 3 provides Pearson correlation coefficients with significance levels. We are particularly interested in the correlation patterns of our gender variable *FEMALE* with discretionary accruals. The most remarkable result is the negative and significant correlation between both variables, suggesting that firms with female auditors show lower discretionary accruals, and thus higher financial reporting quality. Another interesting feature is the negative and significant correlation between having a female auditor and client’s sales, indicating that women tend to audit smaller firms. As for the dependent variable, the Table shows the expected correlation pattern of

---

<sup>6</sup> We do not compare our figures with Niskanen et al. (2011) or even Hardies et al. (2016) because both papers use samples of private firms.

discretionary accruals with cash flows, leverage and losses. However, for the type of audit firm and *GROWTH* the sign of the correlation is opposite to our expectations. Finally, given the relatively low correlations coefficients (maximum value is 0.32 for the correlation between sales and audit firm type), we do not expect serious multicollinearity problems in the dataset.

**Insert Table 3 around here**

## **4. Results and discussion**

### *4.1. Results of the univariate analysis*

We start with a univariate analysis of mean and median differences of discretionary accruals by auditor gender, results displayed in Table 4. Although the main analysis is conducted with raw discretionary accruals (*DA*), we also provide information for the alternative definitions of accruals (*ABSDA*, *IIDA* and *IDDA*). We use the *t*-test to assess the statistical significance of mean differences and the Mann-Whitney test for median differences. The figures indicate that firms with female auditors show significantly lower discretionary accruals and thus, present higher financial reporting quality. The same result is observed with both the *t*-test and the Mann-Whitney test, although in the latter case significance is reported only at marginal levels (*p-value* < 0.10). This result reinforces the negative correlation between *FEMALE* and *DA* observed in Table 3. As for the alternative definitions of accruals, significant differences in means are also observed for the absolute value of discretionary accruals and for income decreasing discretionary accruals. Summing up, Table 4 suggests that female auditors seem to show stronger accounting conservatism, as the firms they audit present lower income-decreasing discretionary accruals which eventually result in lower raw discretionary accruals and larger absolute discretionary accruals.<sup>7</sup> Prior evidence reported by Ittonen et al. (2013) did not show significant differences in discretionary accruals by auditor gender.<sup>8</sup>

**Insert Table 4 around here**

### *4.2. Results of the multivariate analysis*

Table 5 shows the estimates of Equation (1). The first column displays the results of the main analysis using with raw discretionary accruals and the remaining columns the results of the

---

<sup>7</sup> Female auditors are associated with lower levels of income-decreasing discretionary accruals. As these accruals have a negative sign, this result means stronger accounting conservatism, and thus, higher financial reporting quality.

<sup>8</sup> Ittonen et al. (2013) conduct only the *t*-test of differences of means and reported non-significant differences.

estimations with the alternative definitions of accruals. In accordance with the panel structure of our dataset, all estimations are performed with panel data techniques. As we detected heteroscedasticity and autocorrelation in the dataset, we utilize Prais-Winsten regression with heteroscedastic panels corrected errors for the estimation of the models with *DA* and *ABSDA*. Regarding the models with *IIDA* and *IDDA* as the dependent variables, the fact that both variables are censored at zero advocates the use of Tobit panel data regression (Greene, 2000). All four estimations are statistically significant at the usual levels ( $p\text{-value} < 0.01$ ) with relatively high explanatory power.<sup>9</sup> Although Pearson correlation coefficients in Table 3 did not suggest multicollinearity problems, after the estimations we calculate variance inflation factors (untabulated) to further assess potential multicollinearity problems. The rather low values of these factors (average value of 1.16 with a maximum of 1.27 for *LAG\_LOSS*) support the view of no serious multicollinearity in our dataset.

#### **Insert Table 5 around here**

The results of the main analysis (first column of Table 5) show a negative and significant coefficient for *FEMALE*. Accordingly, female auditors are associated with lower discretionary accruals, and thus with higher financial reporting quality. This result supports our hypothesis of a positive female auditor effect on the quality of financial statements. As for the additional analyses, we observe a positive and significant coefficient for *FEMALE* in the model with discretionary accruals in absolute values. This indicates that when we ignore the sign of accruals, firms with female auditors present significantly higher levels of discretionary accruals. Prior research provides conflicting results on the impact auditor gender on absolute discretionary accruals. Hence, while Niskanen et al. (2011) observe that female auditors are associated with higher accruals, Ittonen et al. (2013) concluded oppositely.<sup>10</sup> Therefore, even though this study shows more similarities with Ittonen et al. (2013), our results are more in line with Niskanen et al. (2011). Results for control variables generally meet expectations. Hence, with the only exception of the type of audit firm (marginally significant with a positive sign), whenever a significant effect is observed, it has the predicted sign. We report significant effects for cash flow and growth and marginally significant results for leverage. Conversely, we do not observe significant results for sales, lagged losses or increase in property, plant and equipment.

---

<sup>9</sup> 32% *R-squared*. In Niskanen et al. (2011) and Ittonen et al. (2013), *pseudo R-square* is 6% and 20%, respectively.

<sup>10</sup> It should be noted, that Ittonen et al. (2013) reported significant results with one measure of discretionary accruals, but non-significant results with another measure.

Our segmented analyses with income-increasing (*IIDA*) and income-decreasing (*IDDA*) accruals support that the higher levels of absolute discretionary accruals for firms with female auditors are explained by the fact that women are in fact more conservative than men. Results for *IIDD* are on the edge of marginal significance with a negative sign, indicating lower earnings overstatements associated with female auditors. Results are even clearer for *IDDA*, as the coefficient of *FEMALE* is negative and statistically significant. This indicates that female auditors tend to be more conservative<sup>11</sup> than male auditors and, as accounting conservatism is positively regarded in the financial reporting literature (Watts, 2003), this suggests higher financial reporting quality. Results in Table 5 stress the importance of taking into account the widest possible definition of discretionary accruals when this variable is used as a proxy for financial reporting quality. Summing up, the results of the multivariate analysis are strongly consistent with the preliminary univariate analysis displayed in Table 4.

To end this section, we investigate whether the positive association between female auditors and financial reporting quality might be explained by differences in the audit effort between male and female auditors. Hence, we collected the amount of audit fees for our sample of firms during the research period<sup>12</sup> and subsequently conducted the *t*-test and Mann-Whitney test to look for significant gender differences in audit fees. The results of both tests displayed in Table 6 (panel B) do not provide support for significant differences in audit fees due to the gender of the audit partner. Therefore, the relationship between auditor gender and financial reporting quality does not seem to be driven by gender differences in audit effort.

**Insert Table 6 around here**

#### 4.3. Robustness checks

In this subsection we discuss the results of various checks conducted to assess the robustness of the main result of this study that female auditors provide higher-quality audit services.

First, we checked for potential endogeneity problems in our estimations. The results of the Durbin–Wu–Hausman test (augmented regression test) do not suggest endogeneity problems in the estimations of Equation (1) (results untabulated). Hence, when we re-estimated the equation after including the residuals of the potentially endogenous variable (*FEMALE*) as a new variable in the model, the coefficient of the new variable is not statistically significant (*p-value* =

---

<sup>11</sup> As income-decreasing accruals (*IDDA*) have negative sign, lower levels of accruals mean higher earnings understatement adjustments and, thus, stronger accounting conservatism.

<sup>12</sup> This analysis was conducted with a subsample of 612 firm-year observations, as for 109 cases we were not able to collect the amount of audit fees.

0.861), while *FEMALE* remains statistically significant with the same sign as in the original estimations.

Secondly, after the estimation of Equation (1) with the definition of discretionary accruals provided by Francis and Wang (2008), we checked the robustness of our results to other definitions of discretionary accruals. Hence, we re-estimated Equation (1), first with the definition of discretionary accruals proposed by DeFond and Park (2001) and Carey and Simnett (2006), among others, which essentially captures abnormal working capital accruals<sup>13</sup> and afterwards, with discretionary accruals defined as in Kothary, Leone and Wasley (2005)<sup>14</sup> controlling for firm performance. Given the relatively low number of observations in some industries, we conduct country-year estimations of the model. For the first definition of discretionary accruals, results (untabulated) are very similar to those reported in Table 5. On the other hand, when we utilized Kothary et al.'s (2005) definition of accruals, *FEMALE* shows negative and significant coefficients in all the new estimations except in the model with income-decreasing accruals ( $\beta = -0.011$  with  $p\text{-value} < 0.05$  in the model with *DA*;  $\beta = -0.007$  with  $p\text{-value} < 0.10$  in the model with *ABSDA*;  $\beta = -0.019$  with  $p\text{-value} < 0.05$  in the model with *IIDA*; and  $\beta = -0.003$  with  $p\text{-value} = 0.767$  in the model with *IDDA*). Therefore, the positive association between female auditors and financial reporting quality observed in Table 5 is robust across alternative definitions of discretionary accruals.

In the third check, we examine whether the positive association between female auditors and financial reporting quality might be driven by the fact that they could allow more “big baths” (one-time overstatement of expenses which would reduce future expenses) than male auditors. This would be consistent with the results displayed in Table 5 in the models with *IIDA* (non-significant results for *FEMALE*) and *IDDA* (significant results with negative sign for *FEMALE*), even though for Kothary et al.'s (2005) definition of discretionary accruals, results do not support that female auditors allow more big baths than male auditors. Under the big baths explanation, the interpretation that female auditors provide higher-quality audit services could be put into question, as big baths indicate in fact lower financial reporting quality. To conduct this analysis, we defined two new variables: *BIGLOSS* (big losses): 1 if net income divided by lagged total assets is lower than -10% and 0 otherwise; and *BIGNEGSURP* (big negative surprise): 1 if the reported

---

<sup>13</sup> *AWCA* (abnormal working capital accruals) are defined as:  $AWCA_t = WC_t - [(WC_{t-1}/S_{t-1}) \times S_t]$ ; where *WC* and *S* denote non-cash working capital and sales respectively.

<sup>14</sup> The model is similar to the Jones (1991) model, but it also includes lagged return on assets. It is defined as:  $TA_{it} = d_0/ASSETS_{it-1} + d_1\Delta SALES_{it} + d_2PPE_{it} + d_3ROA_{it-1} + u_{it}$ ; where *TA*, *ASSETS*,  $\Delta SALES$ , *PPE* and *ROA* denote total accruals, total assets, increase in sales, property plant and equipment and return on assets, respectively. Discretionary accruals are captured by the error term of the model.

net income was less than 75% the expected net income by the consensus of analysts.<sup>15</sup> Afterwards, we utilized *Pearson Chi-square* test to assess whether gender differences in both variables are significant. Results of the test displayed in Table 6 (panel A) do not suggest that female auditors allow more big baths than male auditors, as we do not observe significant differences in either *BIGLOSS* or *BIGNEGSURP* by auditor gender. Therefore, it does not seem that our results supporting female association with higher financial reporting quality would be biased by female propensity to big baths practices.

The last check tackles whether the higher financial reporting quality observed for firms with female auditors might be driven by the fact that, as women seem to be more risk-averse than men (e.g., Jianakoplos and Bernasek, 1998; Sunden and Surette, 1998; Charness and Gneezy, 2012), they might tend to audit those companies with lower levels of risk. Even though Equation (1) already controlled for clients' riskiness and the results of the endogeneity test discussed before did not suggest this to be the case, we further checked for this possibility. Accordingly, we chose cash-flows from operations (*CFO*) and financial leverage (*LEV*) as the proxies for client's riskiness, and then utilized both the *t*-test and Mann-Whitney test for assessing differences in clients' riskiness by auditor gender. As shown by Table 6 (panel C), both tests agree that there are no significant gender differences in either *CFO* or *LEV*. Therefore, we should discard the explanation that the association between auditor gender and the quality of audit services is driven by differences in clients' riskiness.

#### 4.4. Additional analysis (I): financial reporting quality measured by accounting restatements

This analysis addresses whether the auditor gender effect on financial reporting quality holds for a different proxy of financial reporting quality. It is motivated by the fact that, as DeFond and Zhang (2014) point out, measuring audit quality is a challenging task and all the proposed proxies (including discretionary accruals) present one limitation or another. The issuance of modified audit opinions to those clients who deserve it and accounting restatements are other usual proxies widely used in the accounting and auditing literatures (DeFond and Zhang, 2014). In the latter case, the restatement of accounting statements is interpreted as an indicator of lack of financial reporting quality and of audit quality. Due to the very low number of modified opinions in our sample, insufficient for conducting a sound analysis based on this variable, we utilized

---

<sup>15</sup> We chose these cut-off points based on the distribution of both variables in our sample. However, we checked for the -5% and 50% thresholds for *BIGLOSS* and *BIGNEGSURP* respectively, and results do not change.

accounting restatements as the additional proxy for financial reporting quality. Accordingly, we propose the model given by Equation (2) below:

$$RESTATE_{i,t} = \beta_0 + \beta_1 FEMALE_{i,t} + \beta_2 BIG4_{i,t} + \beta_3 LSALES_{i,t} + \beta_4 AGE_{i,t} + \beta_5 CFO_{i,t} + \beta_6 LEV_{i,t} + \beta_7 LAG\_LOSS_{i,t} + fixed\ effects_{i,t} + \epsilon_{i,t} \quad (2)$$

The dependent variable *RESTATE* is defined as 1 if the accounting statements of the given year were later restated and 0 otherwise.<sup>16</sup> The frequency of restatements in our sample is 20 percent. This figure is slightly higher than in prior studies for the US (e.g., 17.6% in Paterson and Valencia, 2011; 16% in Blay and Geiger, 2013).

The variable of interest (*FEMALE*) is the same as in Equation (1), and we include the usual control variables (e.g., Kinney et al., 2004; Paterson and Valencia, 2011). According to the hypothesis of this study we expect that female auditors are associated with higher financial reporting quality and, therefore, with lower likelihood of restatements. Table 7 displays the estimates of the logistic model represented by Equation (2). The most interesting result in the Table is the negative and significant coefficient of *FEMALE* (*p-value* < 0.05), indicating that, as predicted, firms with female auditors show lower likelihood of accounting restatement. Accordingly, the main conclusion from Table 5 that female auditors were associated with higher financial reporting quality holds when financial reporting quality is proxied by accounting restatements.

**Insert Table 7 around here**

#### 4.5. Additional analysis (II): analysis with a matched sample

Results in Tables 4, 5 and 7 suggest a positive association between female auditors and the quality of audit services. While the battery of robustness checks conducted so far makes us conclude that this is a sound result, we want to explore more in depth whether this result might be driven by differences in the types of clients generally audited by male and female partners. The glass ceiling for women in the audit profession provides some justification for this analysis, as the stronger difficulties of female auditors to reach the top of the hierarchy in the audit firms (Anderson-Gough et al., 2005; Dambrin and Lambert, 2008) suggest that they are likely given the smallest and less complex clients, which might present lower audit difficulties. In order to

---

<sup>16</sup> Restatements (categorized as “RS” in the Capital IQ database) involve any situation in which net income or cash from operations are fundamentally different from originally reported.

control for this issue, we first need to assess whether male and female partners do in fact audit different types of clients. Table 6 (panel C) displays mean and median values of sales and business segments (proxies for size and complexity, respectively) for firms by auditor gender. The Table also provides the results of both the *t*-test and Mann-Whitney test to assess about the statistical significance of these differences. While the *t*-test supports that women generally audit smaller and less complex firms, the Mann-Whitney test provides non-significant results. Moreover, Table 1 showed that the presence of female auditors was not homogeneously distributed across industries (i.e., women being openly underrepresented in “petrol and power” and in “basic materials, industry and construction”). Therefore, according to the figures in Tables 1 and 6, it seems convenient to check whether the gender effect observed in this study so far is driven by the different types of firms that men and women generally audit.

#### **Insert Table 8 around here**

Accordingly, we re-estimate the model with a matched sample in order to control for the facts that: 1) women generally audit smaller and less complex firms, and 2) their clients are not homogeneously distributed across industries. The usual way of constructing a matched sample with a panel dataset would be to match each firm with a female auditor in year *t* with a similar firm (in terms of industry, size and number of business segments) with a male auditor the same year. However, because of the low presence of female auditors in our sample, we follow an alternative approach which ignores the time dimension in the matching procedure, and thus we match each firm with a female auditor with a similar firm (same industry, similar size and same number of business segments) with a male auditor, resulting in a final matched sample of 349 firm-year observations.<sup>17</sup> Once created, it is necessary to check whether the matched sample adequately controls for the different types of clients of male and female auditors. Both the *t*-test and Mann-Whitney test (untabulated) show non-significant differences in client’s size or complexity by auditor gender when applied to the matched sample. Additionally, the Kruskal–Wallis test (untabulated) shows non-significant differences in the industry distribution of clients by auditor gender. Therefore, we should conclude that the matched sample effectively controls for these issues.

Table 8 shows the results of the new set of estimations of the Equation (1) with the matched sample. All four estimations are statistically significant at the usual levels (*p-value* < 0.01), with similar explanatory power as the estimations conducted with the whole sample. However,

---

<sup>17</sup> The standard matching procedure would have involved the loss of around 80 percent of the dataset. The fact that our initial sample was not too large precludes us from following this approach.

because of the smaller size of the matched sample, results in Table 8 are not as trustful as those displayed in Table 5. This being said, the main result is the negative and significant coefficient of *FEMALE* in the main model with raw discretionary accruals (*DA*) as the dependent variable. As in Table 5, this indicates that female auditors are associated with lower discretionary accruals, and thus with higher financial reporting quality. This result reinforces our previous findings with the whole sample and, more importantly, indicates that results in Table 5 were not driven by the particular types of firms that women generally audit. Unlike Table 5, we do not observe significant results for *FEMALE* in any of the additional estimations. It should be noted, however, that the number of observations have importantly decreased, with respect to the estimations with the full sample, especially in the estimation with income-decreasing accruals. Nevertheless, the sign of the coefficients is always the same as in Table 5, and in the estimations with accruals in absolute values and, particularly, with income-decreasing accruals (the estimations which show significant results for *FEMALE* in Table 5), results are on the edge of marginal significance.

#### 4.6. Additional analysis (III): the substitution of a male auditor by a female auditor

In the last analysis of this study we investigate whether the appointment of a female auditor in substitution of a male auditor has any significant impact on financial reporting quality. According to our hypothesis and the results reported so far, we should expect a positive impact. Accordingly, we reestimate Equation (1) with two new variables of interest: *MALE-FEMALE* (1 if a female auditor substitutes a male auditor and 0 otherwise) and *MALE-MALE* (1 if a male auditor substitutes another male auditor and 0 otherwise) instead of the original variable *FEMALE*.<sup>18</sup> Table 9 displays the new set of estimates which are strongly consistent with the figures in Table 5. Hence, the new variable *MALE-FEMALE* has negative and significant coefficient in the main model with raw discretionary accruals as the dependent variable, indicating that the substitution of a male auditor by a female auditor is associated with lower discretionary accruals (higher financial reporting quality). Moreover, as in Table 5 we also report a positive and statistically significant coefficient in the model with accruals in absolute values, and a negative and significant coefficient in the model with income-decreasing accruals. Moreover, while in Table 5 the impact of *FEMALE* on income-increasing accruals was on the edge of marginal significance, results for *MALE-FEMALE* in Table 9 becomes significant (*p-value* < 0.05) with the predicted negative sign. This indicates that the substitution of a male auditor by a female auditor is

---

<sup>18</sup> To conduct these new estimations, we removed from the sample seven observations corresponding to substitutions of female auditors by male auditors and one observation corresponding to a substitution of a female auditor by another female auditor. Because of the low number of cases, we have not included the corresponding *FEMALE-FEMALE* or *FEMALE-MALE* variables in the new estimations.

associated with less overstatement of earnings, providing further support against the “big baths” explanation discussed before. It should be noted, however, that because of the low number of male-female auditor changes in our sample (only 20), the results of these estimations need to be taken carefully.

Conversely, the *MALE-MALE* variable presents non-significant coefficients in all the estimations. Hence, unlike what occurs when a female auditor substitutes a male auditor, the substitution of a male auditor by another male auditor does not involve any significant effect on discretionary accruals, and this holds independently on how discretionary accruals are defined. Therefore, we should conclude that while the appointment of a female auditor in substitution of a male auditor is associated with an increase in the quality of audit services, the appointment of a male auditor is not.

**Insert Table 9 around here**

## **5. Conclusions, implications ad limitations**

Women are clearly underrepresented in the top ranks of audit firms. This situation, which occurs not only in the accounting profession but also in other areas of management, has motivated intense academic and political debate on its causes and, more importantly, on the possible solutions. In the specific case of Spain, our figures show that even though the audit reports signed by women have multiplied by three during our eight-year research period, at the end of 2015 they still represented less than 20% of total reports. Such an unbalanced situation, although far from surprising, seems particularly undesirable in the audit profession as the behavioural economics literature suggests that women possess strong advantages in some of the skills which are considered as the most important for the audit profession. Our results indicate the existence of a gender effect on the quality of audit services, as having a female auditor is associated with significantly higher levels of financial reporting quality. To minimize the risk of reporting purely spurious results, we have conducted a variety of robustness checks which indicate that this result can be regarded as considerable robust.

The evidence reported here extends and reinforces prior related research for the Scandinavian region, where the presence of women in the senior levels of audit firms started before than in Spain. Our figures also indicate that the presence of female auditors is much higher in certain industries (consumer services and financial services and real estate) than in

others (petrol and power and basic materials, industry and construction). We also observe that women tend to audit relatively smaller and less complex firms. Therefore, we have controlled for potential endogeneity problems which might cause that the positive female auditor effect observed here to be driven by the different types of firms audited by men and women. Nevertheless, results obtained with a matched sample, which controls for this issue, do not suggest this to be the case. Furthermore, results also show that the positive female auditor impact on financial reporting quality occurs since the very first year of the appointment of a female auditor in substitution of a male auditor.

These results openly support Jeacle's (2011) claim that female gender, often viewed as a negative characteristic to achieving career success within the discriminatory environment of the accounting firm, may act as a positive attribute in business more generally. In the same vein, Dambrin and Lambert (2012) argue the need to perform critical and reflective research on gender to improve the position of women's representation in the accounting profession, as until stereotypes are challenged gender inequality will remain. This study might contribute to challenge these stereotypes and be informative for the ongoing political debate about the under representation of females in the senior levels of the accounting and audit profession.

Like prior related studies, the main limitation of this paper is due to the low presence of female auditors in our sample which might make our results sensitive to the particular characteristics, beyond the gender of the auditor, of these relatively few female auditors. Additionally, the research design of this study does not allow to know whether the gender effect reported here is explained by difference in skills between male and female auditors, by the glass-ceiling effect in the audit profession or by a combination of both.

This study could be extended in at least two meaningful ways. First, it would be interesting to elaborate on the drivers of the relationship between auditor gender and audit quality. While our results do not seem to be explained by gender differences in audit effort, other issues such as differences in accounting conservatism could be further explored. Likewise, additional research on the relative importance of explanations based on gender differences in skills versus those based on the glass-ceiling effect would be welcome. Finally, the investigation of the interaction effects of female auditors, female CEOs and CFOs, and the presence of women in the audit committee on financial reporting quality could be also an interesting issue to address.

**Funding:** This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

## References

- Almer E.D., Lightbody M.G., Single L.E. (2012). Successful promotion or segregation from partnership? An examination of the "Post-Senior Manager" position in public accounting and the implications for women's careers. *Accounting Forum*, 36(2), 122-33.
- Anderson-Gough F., Grey C., Robson K. (2005). 'Helping them to forget': The organizational embedding of gender relations in public audit firms. *Accounting, Organizations and Society*, 30(5), 469-90.
- Barua, A., Davidson, L. Rama, D. and Thiruvadi, S. (2010). CFO gender and accruals quality. *Accounting Horizons*, 24(1), 25–39.
- Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics*, 24(1), 3-37.
- Becker, C.L., DeFond, M.L., Jiambalvo J.J. and Subramanyam, K.R. (1998). The effect of audit quality on earnings management. *Contemporary Accounting Research*, 15(1), 1–24.
- Bedard, J. (2012). Discussion of “Audit partner specialization and audit fees: Some evidence from Sweden”. *Contemporary Accounting Research*, 29(1), 341-348.
- Bengtsson, C., Persson, M. and Willenhag, P. (2005). Gender and overconfidence. *Economics Letters*, 86(2), 199-203.
- Bernardi, R.A. and Arnold, D.F. (1997). An examination of moral development within public accounting by gender, staff level, and firm. *Contemporary Accounting Research*, 14(4), 653-668.
- Betz, M., O'Connell, L. and Shepard, J.M. (1989). Gender differences in proclivity for unethical behavior. *Journal of Business Ethics*, 8(5), 321-324.
- Blay, A.D. and Geiger, M.A. (2013). Auditor fees and auditor independence: Evidence from going concern reporting decisions. *Contemporary Accounting Research*, 30(2), 579-606.
- Broadbent J., Kirkham L. (2008). Glass ceilings, glass cliffs or new worlds? *Accounting, Auditing and Accountability Journal*, 21(4), 465 – 73.
- Brown, C.E. and Solomon, I. (1991). Configural data processing in auditing: the role of domain specific knowledge. *The Accounting Review*, 66(1), 110-119.
- Byrnes, J.P., Miller, D.C. and Schafer, W.D. (1999). Gender differences in risk taking: A meta-analysis. *Psychological Bulletin*, 125, 367–383.
- Carey, P.J. and Simnett, R. (2006). Audit partner tenure and audit quality. *The Accounting Review*, 81(3), 653-676.
- Charness, G. and Gneezy, U. (2012). Strong evidence for gender differences in risk taking. *Journal of Economic Behavior & Organization*, 83(1), 50-58.

- Chen, C.W., Velasquez Tuliao, K., Cullen, J.B. and Chang, Y.Y. (2016). Does gender influence managers' ethics? A cross-cultural analysis. *Business Ethics: A European Review*, 25(4), 345-362.
- Chung, J. and 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.
- Ciancanelli P., Gallhofer S., Humphrey C., Kirkham L. (1990). Gender and accountancy: Some evidence from the UK. *Critical Perspectives on Accounting*, 1(2), 117 - 44.
- Citron, D.B. and Taffler, R.J. (2001). Ethical behaviour in the UK audit profession: The case of the self-fulfilling prophecy under going-concern uncertainties. *Journal of Business Ethics*, 29(4), 353-363.
- Costa, P., Terracciano, A. and McCrae, R. (2001). Gender differences in personality traits across cultures: Robust and surprising findings. *Journal of Personality and Social Psychology*, 81, 322–331.
- Croson, R., and Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic Literature*, 47(2), 1–27.
- Dambrin C., Lambert C. (2012). Who is she and who are we? A reflexive journey in research into the rarity of women in the highest ranks of accounting. *Critical Perspectives on Accounting*, 23(1), 1 - 16.
- Darley, W.K. and Smith, R.E. (1995). Gender differences in information processing strategies: An empirical test of the selectivity model in advertising response. *Journal of Advertising*, 24(1), 41-56.
- DeAngelo, H., DeAngelo, L. and Skinner, D.J. (1994). Accounting choice in troubled companies. *Journal of Accounting and Economics*, 17(1), 113-143.
- Dechow, P.M. (1994). Accounting earnings and cash flows as measures of firm performance. *Journal of Accounting and Economics*, 18(1), 3–42.
- Dechow, P.M., Sloan, R.G. and Sweeney, A.P. (1995). Detecting earnings management. *The Accounting Review*, 70(2), 193–225.
- DeFond, M., and Park, C. W. (2001). The reversal of abnormal accruals and the market valuation of earnings surprises. *The Accounting Review* 76 (3), 375–404.
- DeFond, M. and Zhang, J. (2014). A review of archival auditing research. *Journal of Accounting and Economics*, 58(2-3), 275-326.
- Empson, L., Muzio, D., Broschak, J. and Hinings, B. (2015). Researching professional service firms: An introduction and overview. *The Oxford Handbook of Professional Service Firms*, 1-24.
- Feingold, A. (1994). Gender differences in personality: A meta-analysis. *Psychological Bulletin*, 116, 429–456.

- Francis, B., Hasan, I., Park, J.C. and Wu, Q. (2015). Gender differences in financial reporting decision making: Evidence from accounting conservatism. *Contemporary Accounting Research*, 32(3), 1285-1318.
- Francis, J.R., Maydew, E.L. and Sparks, H.C. (1999). The role of Big 6 auditors in the credible reporting of accruals. *Auditing: A Journal of Practice and Theory*, 18(2), 17-34.
- Francis, J.R. and Wang, D. (2008). The joint effect of investor protection and big 4 audits on earnings quality around the world. *Contemporary Accounting Research*, 25(1), 157-191.
- Guillaume, C. and Pochic, S. (2009). What would you sacrifice? Access to top management and the work–life balance. *Gender, Work & Organization*, 16(1), 14-36.
- Greene, W. H. (2000). *Econometric analysis* (International edition).
- Hardies, K., Breesch, D. and Branson, J. (2016). Do (fe) male auditors impair audit quality? Evidence from going-concern opinions. *European Accounting Review*, 25(1), 7-34.
- Hardies, K., Breesch, D. and Branson, J. (2015). The female audit fee premium. *Auditing: A Journal of Practice and Theory*, 34(4), 171-195.
- Haynes, K. (2017). Accounting as gendering and gendered: A review of 25 years of critical accounting research on gender. *Critical Perspectives on Accounting*, 43(2), 110-124.
- Haynes K. (2008). Transforming identities: Accounting professionals and the transition to motherhood. *Critical Perspectives on Accounting*, 19(5), 620 - 42.
- Hichem K. and Achek, I. (2017). Gender in accounting research: a review, *Managerial Auditing Journal*, 32(6), 627-655.
- Ittonen, K., Vähämaa, E. and Vähämaa, S. (2013). Female auditors and accruals quality. *Accounting Horizons*, 27(2), 205-228.
- Jeacle I. (2011). A practice of her own: Female career success beyond the accounting firm. *Critical Perspectives on Accounting*, 22(3), 288-03.
- Jensen, M. (2006). Should we stay or should we go? Accountability, status anxiety, and client defections. *Administrative Science Quarterly*, 51(1), 97-128.
- Jianakoplos, N.A. and Bernasek, A. (1998). Are women more risk averse? *Economic Inquiry*, 36 (4), 620-630.
- Jones, J.J. (1991). Earnings management during import relief investigation. *Journal of Accounting Research*, 29(2), 193–228.
- Khalifa R. (2013). Intra-professional hierarchies: The gendering of accounting specialisms in UK accountancy. *Accounting, Auditing and Accountability Journal*, 26(8), 1212-45.
- Kinney W. R., Palmrose, Z. V. and Scholz, S. (2004). Auditor independence, non-audit services, and restatements: Was the U.S. Government right? *Journal of Accounting Research*, 42(3), 561-588.

- Kirkham L. and Loft A. (1993). Gender and the construction of the professional accountant. *Accounting, Organizations and Society*, 18(6), 507-58.
- Kothari, S. P., Leone, A. J. and Wasley, C. E., 2005. Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, 39(1), 163-197.
- Ladva P. and Andrew J. (2014). Weaving a web of control: "The promise of opportunity" and work-life balance in multinational accounting firms. *Accounting, Auditing and Accountability Journal*, 27(4), 634-54.
- Levin, I., Snyder, M. and Chapman, D. (1988). The interaction of experimental and situational factors and gender in a simulated risky decision-making task. *Journal of Psychology*, 122, 173-181.
- Lundeberg, M.A., Fox, P.W. and Puncochar, J. (1994). Highly confident but wrong: Gender differences and similarities in confidence judgments. *Journal of Educational Psychology*, 86(1), 114-121.
- Lupu I. (2012). Approved routes and alternative paths: The construction of women's careers in large accounting firms. Evidence from the French Big Four. *Critical Perspectives on Accounting*, 23(4-5), 351-69.
- Maletta, M.J. and Kida, T. (1993). The effect of risk factors on auditors' configural information processing. *The Accounting Review*, 68(3), 681-191.
- Menezes, T. and Bras, F.A. (2015). Audit quality: does gender composition of audit firms matter? *Spanish Journal of Finance and Accounting*, 44(3), 264-297.
- Messier, W.F. Jr., Owhoso, V. and Rakovski, C. (2008). Can audit partners predict subordinates' ability to detect errors? *Journal of Accounting Research*, 46(5), 1241-1264.
- Nettle, D. (2007). Empathizing and systemizing: What are they, and what do they contribute to our understanding of psychological sex differences? *British Journal of Psychology*, 98, 237-255.
- Niskanen, J., Karjalainen, J. Niskanen, M. and Karjalainen, J. (2011). Auditor gender and corporate earnings management behavior in private Finnish firms. *Managerial Auditing Journal*, 26, 778-793.
- O'Donnell, E. and Johnson, E. (2001). The effects of auditor gender and task complexity on information processing efficiency. *International Journal of Auditing*, 5(2), 91-105.
- Owhoso, V. and Weickgenannt, A. (2009). Auditors' self-perceived abilities in conducting domain audits. *Critical Perspectives on Accounting*, 20(1), 3-21.
- Paterson, J. S. and Valencia, A. (2011). The Effects of Recurring and Nonrecurring Tax, Audit-Related, and Other Nonaudit Services on Auditor Independence. *Contemporary Accounting Research*, 28(5), 1510-1536.
- Peni, E. and Vähämaa, S. (2010). Female executives and earnings management. *Managerial Finance*, 36(7), 629-645.

- Pucheta-Martínez, M.C., Bel-Oms, I. and Olcina-Sempere, G. (2016). Corporate governance, female directors and quality of financial information. *Business Ethics: A European Review*, 25(4), 363-385.
- Roxas, M. and Stoneback, J. (2004). The importance of gender across cultures in ethical decision making. *Journal of Business Ethics*, 50(2), 149-165.
- Ruegger, D. and King, E.W. (1992). A study of the effect of age and gender upon student business ethics. *Journal of Business Ethics*, 11(3), 179-186.
- Schmitt, D., Realo, A., Voracek, M. and Allik, J. (2008). Why can't a man be more like a woman? Sex differences in big five personality traits across 55 cultures. *Journal of Personality and Social Psychology*, 94, 168–182.
- Sun, J., Liu, G. and Lan, G. (2011). Does female directorship on independent audit committees constrain earnings management? *Journal of Business Ethics*, 99(3), 369-382.
- Sunden, A.E. and Surette, B. J. (1998). Gender differences in the allocation of assets in retirement savings plans. *American Economic Review*, 88(2), 207-211.
- Thiruvadi, S. and Huang, H.W. (2011). Audit committee gender differences and earnings management. *Gender in Management: An International Journal*, 26(7), 483-498.
- Unger, R.K. (1990). Imperfect reflections of reality: psychology constructs gender, in HareMustin, R.T. and Maracek, J. (Eds), *Making a Difference: Psychology and the Construction of Gender*, Yale University Press, New Haven, CO.
- Watts, R.L. (2003). Conservatism in accounting part I: Explanations and implications. *Accounting Horizons*, 17(3), 207-221.
- Welsh, M.J. (1992). The construction of gender: some insights from feminist psychology, *Accounting, Auditing & Accountability Journal*, 5(3), 120-132.

**Table 1. Number of audit reports per year and industry. In parentheses, the number of audit reports signed by female auditors**

	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>Total</b>
<b>Petrol and Power</b>	8 (0)	8 (0)	8 (0)	8 (0)	8 (0)	8 (1)	8 (2)	8 (1)	<b>64 (4)</b>
<b>Basic Materials, Industry and Construction</b>	29 (1)	28 (0)	28 (0)	28 (2)	29 (3)	29 (3)	29 (3)	29 (3)	<b>229 (15)</b>
<b>Consumer goods</b>	23 (1)	23 (1)	23 (2)	23 (2)	23 (3)	23 (3)	22 (3)	22 (3)	<b>182 (18)</b>
<b>Consumer services</b>	14 (2)	14 (2)	14 (2)	14 (2)	14 (2)	14 (2)	13 (1)	13 (3)	<b>110 (16)</b>
<b>Financial Services and Real Estate</b>	11 (1)	11 (2)	11 (1)	11 (1)	11 (1)	11 (1)	11 (3)	11 (3)	<b>88 (13)</b>
<b>Technology and Telecommunications</b>	6 (0)	6 (0)	6 (0)	6 (0)	6 (1)	6 (2)	6 (2)	6 (2)	<b>48 (7)</b>
<b>Total</b>	<b>91 (5)</b>	<b>90 (5)</b>	<b>90 (5)</b>	<b>90 (7)</b>	<b>91 (10)</b>	<b>91 (12)</b>	<b>89 (14)</b>	<b>89 (15)</b>	<b>721 (73)</b>

**Table 2. Descriptive statistics for our sample**

<b>Variable</b>	<b>Mean</b>	<b>Median</b>	<b>Standard Dev.</b>	<b>Maximum</b>	<b>Minimum</b>
<i>FEMALE</i>	0.10	0.00	0.30	1.00	0.00
<i>BIG4</i>	0.94	1.00	0.23	1.00	0.00
<i>LSALES</i>	2.77	2.80	0.88	4.92	0.18
<i>CFO</i>	0.07	0.06	0.08	0.50	-0.34
<i>LEV</i>	0.74	0.67	1.03	21.17	0.10
<i>LAG_LOSS</i>	0.28	0.00	0.45	1.00	0.00
<i>GROWTH</i>	0.02	0.00	0.45	6.82	-0.94
<i>ΔPPE</i>	0.04	-0.02	0.95	20.71	-2.34

*Variables:*

*FEMALE* (female auditor); *BIG4* (type of audit firm); *LSALES* (client's sales); *CFO* (cash-flow from operations); *LEV* (leverage); *LAG\_LOSS* (lagged losses); *GROWTH* (sales growth); and *ΔPPE* (growth rate of gross property plant and equipment).

**Table 3. Pearson correlations and levels of significance**

	<i>DA</i>	<i>FEMALE</i>	<i>BIG4</i>	<i>LSALES</i>	<i>CFO</i>	<i>LEV</i>	<i>LAG_LOSS</i>	<i>GROWTH</i>
<i>FEMALE</i>	-0.13***							
<i>BIG4</i>	0.10***	-0.04						
<i>LSALES</i>	-0.04	-0.07*	0.32***					
<i>CFO</i>	-0.25***	-0.02	0.11***	0.19***				
<i>LEV</i>	0.13***	-0.01	-0.15***	-0.13***	-0.11***			
<i>LAG_LOSS</i>	0.09**	0.09**	-0.18***	-0.25***	-0.30***	0.15***		
<i>GROWTH</i>	-0.31***	0.04	0.00	0.07*	0.15***	-0.08**	-0.05	
<i>ΔPPE</i>	-0.06	0.10***	-0.02	0.02	0.15***	-0.07*	-0.05	0.07*

\*, \*\*, \*\*\* Significant at 10%, 5% and 1% respectively.

*Variables:*

*DA* (raw value of discretionary accruals); *FEMALE* (female auditor); *BIG4* (type of audit firm); *LSALES* (client's sales); *CFO* (cash-flow from operations); *LEV* (leverage); *LAG\_LOSS* (lagged losses); *GROWTH* (sales growth); and *ΔPPE* (growth rate of gross property plant and equipment).

**Table 4. Univariate analysis. Mean and median values of discretionary accruals for the subsamples of firms with male and with female auditors**

Variable	Mean			Median		
	Female auditor	Male auditor	<i>p-value</i>	Female auditor	Male auditor	<i>p-value</i>
<i>DA</i>	-0.068	-0.037	0.027	-0.048	-0.040	0.088
<i>ABSDA</i>	0.111	0.089	0.069	0.075	0.061	0.452
<i>IIDA</i>	0.082	0.083	0.959	0.035	0.048	0.638
<i>IDDA</i>	-0.111	-0.086	0.025	-0.076	-0.066	0.288

The *t*-test is used to assess statistical significance of mean accruals while the Mann-Whitney test is used for median accruals.

Variables:

*DA* (raw value of discretionary accruals); *ABSDA* (absolute value of discretionary accruals); *IIDA* (income-increasing discretionary accruals); and *IDDA* (income-decreasing discretionary accruals).

**Table 5. Multivariate analysis. Results of the estimation of the model (z-values in parentheses). Main analysis with *DA* as the dependent variable. Additional analyses with *ABSDA*, *IIDA* and *IDDA* as the dependent variables**

Variable	Predicted Sign	<i>DA</i>	<i>ABSDA</i>	<i>IIDA</i>	<i>IDDA</i>
<i>FEMALE</i>	-	-0.032 (-3.13) ***	0.028 (2.25) **	-0.042 (-1.62)	-0.030 (-2.41) **
<i>BIG4</i>	-	0.032 (1.82) *	-0.061 (-1.99) **	0.006 (0.17)	0.037 (1.98) **
<i>LSALES</i>	-	0.005 (1.31)	-0.032 (-5.13) ***	-0.027 (-2.13) **	0.015 (2.52) **
<i>CFO</i>	-	-0.651 (-9.98) ***	0.243 (3.94) ***	-0.834 (-7.93) ***	-0.605 (-10.55) ***
<i>LEV</i>	+	0.029 (1.80) *	0.064 (2.90) ***	0.078 (2.78) ***	-0.000 (-0.00)
<i>LAG_LOSS</i>	+	0.001 (0.84)	-0.003 (-0.41)	-0.008 (-0.51)	-0.004 (-0.46)
<i>GROWTH</i>	+	0.057 (3.13) ***	0.079 (4.36) ***	0.128 (5.61) ***	0.015 (1.07)
$\Delta$ <i>PPE</i>	+	-0.018 (-1.37)	-0.008 (-0.61)	-0.028 (-1.31)	-0.012 (-1.09)
<i>Industry effects</i>		YES	YES	YES	YES
<i>Year effects</i>		YES	YES	YES	YES
Constant		-0.102 (-4.29) ***	0.198 (5.30) ***	-0.095 (-1.60)	-0.124 (-4.16) ***
# of observ.		721	721	203	518
R-sq.		0.32	0.32		
Wald-Chi sq.		223.46 ***	125.53 ***	122.96 ***	184.01 ***

\*, \*\*, \*\*\* Significant at 10%, 5% and 1% respectively.

Variables:

*DA* (raw value of discretionary accruals); *ABSDA* (absolute value of discretionary accruals); *IIDA* (income-increasing discretionary accruals); *IDDA* (income-decreasing discretionary accruals); *FEMALE* (female auditor); *BIG4* (type of audit firm); *LSALES* (client's sales); *CFO* (cash-flow from operations); *LEV* (leverage); *LAG\_LOSS* (lagged losses); *GROWTH* (sales growth); and  $\Delta$ *PPE* (growth rate of gross property plant and equipment).

**Table 6. Clients characteristics (panels A and C) and audit effort (panel B) by auditor gender**

<b>Panel A: The “big baths” explanation</b>	<b>Female auditor</b>	<b>Male auditor</b>	<b>p-value</b>
% of clients with big losses	15	11	0.28
% of clients with big negative surprises	14	12	0.64

	<b>Mean</b>			<b>Median</b>		
<b>Panel B: Differences in audit effort</b>	<b>Female auditor</b>	<b>Male auditor</b>	<b>p-value</b>	<b>Female auditor</b>	<b>Male auditor</b>	<b>p-value</b>
Audit fees (in millions of €)	0.70	1.28	0.18	0.22	0.37	0.25
<b>Panel C: Difference in client’s characteristics</b>						
Size (sales in millions of €)	932.86	4584.08	0.01	597.96	643.60	0.14
# of business segments	3.81	4.66	0.05	4.00	4.00	0.11
CFO	0.06	0.07	0.67	0.04	0.06	0.31
LEV	0.70	0.68	0.66	0.67	0.66	0.84

*p-values* correspond to *Pearson Chi-squared* test in panel A, and *t-test* (means) and *Mann-Whitney test* (medians) in panels B and C.

**Table 7. Results of the estimation of the logistic model with accounting restatements (*RESTATE*) as the dependent variable (z-values in parentheses)**

Variable	Predicted Sign	<i>RESTATE</i>
<i>FEMALE</i>	-	-0.869 (-2.20) **
<i>BIG4</i>	-	-2.116 (-5.18) ***
<i>LSALES</i>	+/-	0.394 (2.83) ***
<i>AGE</i>	-	0.024 (1.47)
<i>CFO</i>	-	-2.429 (-1.73) *
<i>LEV</i>	+	0.078 (0.19)
<i>LAG_LOSS</i>	+	0.136 (0.56)
<i>Industry effects</i>		YES
<i>Year effects</i>		YES
Constant		-0.128 (-0.18)
# of observ.		721
R-sq.		0.122
Wald-Chi sq.		92.63 ***

\*, \*\*, \*\*\* Significant at 10%, 5% and 1% respectively.

Variables:

*RESTATE* (accounting restatements); *FEMALE* (female auditor); *BIG4* (type of audit firm); *LSALES* (client's sales); *AGE* (client's age); *CFO* (cash-flow from operations); *LEV* (leverage); and *LAG\_LOSS* (lagged losses).

**Table 8. Results of the estimations with a matched sample (z-values in parentheses). Main analysis with *DA* as the dependent variable. Additional analyses with *ABSDA*, *IIDA* and *IDDA* as the dependent variables**

Variable	Predicted sign	<i>DA</i>	<i>ABSDA</i>	<i>IIDA</i>	<i>IDDA</i>
<i>FEMALE</i>	-	-0.034 (-2.37) **	0.018 (1.33)	-0.037 (-0.99)	-0.022 (-1.53)
<i>BIG4</i>	-	0.061 (1.45)	-0.073 (-1.95) *	0.045 (0.72)	0.069 (2.75) ***
<i>LSALES</i>	-	0.002 (0.24)	-0.051 (-4.77) ***	-0.037 (-1.32)	0.019 (1.91) *
<i>CFO</i>	-	-0.772 (-7.29) ***	0.173 (1.94) *	-1.353 (-7.27) ***	-0.690 (-7.67) ***
<i>LEV</i>	+	0.076 (2.11) **	0.089 (3.13) ***	0.137 (3.09) ***	0.005 (0.23)
<i>LAG_LOSS</i>	+	0.011 (0.63)	-0.012 (-0.85)	-0.010 (-0.31)	0.000 (0.03)
<i>GROWTH</i>	+	0.076 (2.42) **	0.116 (3.93) ***	0.210 (5.83) ***	0.007 (0.40)
<i>ΔPPE</i>	+	-0.025 (-1.83) *	-0.000 (-0.03)	-0.076 (-1.84) *	-0.018 (-1.92)
<i>Industry effects</i>		YES	YES	YES	YES
<i>Year effects</i>		YES	YES	YES	YES
Constant		-0.135 (-2.27) **	0.230 (3.71) ***	-0.129 (-1.17)	-0.135 (-3.13) ***
# of observ.		349	349	257	92
R-sq.		0.35	0.36		
Wald-Chi sq.		132.97 ***	94.02 ***	100.31 ***	120.84 ***

\*, \*\*, \*\*\* Significant at 10%, 5% and 1% respectively.

*Variables:*

*DA* (raw value of discretionary accruals); *ABSDA* (absolute value of discretionary accruals); *IIDA* (income-increasing discretionary accruals); *IDDA* (income-decreasing discretionary accruals); *FEMALE* (female auditor); *BIG4* (type of audit firm); *LSALES* (client's sales); *CFO* (cash-flow from operations); *LEV* (leverage); *LAG\_LOSS* (lagged losses); *GROWTH* (sales growth); and *ΔPPE* (growth rate of gross property plant and equipment).

**Table 9. The substitution of auditors (*MALE-MALE* and *MALE-FEMALE*). Main analysis with *DA* as the dependent variable (z-values in parentheses). Additional analyses with *ABSDA*, *IIDA* and *IDDA* as the dependent variables**

Variable	Predicted sign	<i>DA</i>	<i>ABSDA</i>	<i>IIDA</i>	<i>IDDA</i>
<i>MALE-FEMALE</i>	-	-0.065 (-3.12) ***	0.049 (2.37) **	-0.106 (-1.99) **	-0.056 (-2.91) ***
<i>MALE-MALE</i>	+/-	-0.101 (-1.33)	0.005 (0.71)	-0.20 (-1.25)	-0.011 (-1.28)
<i>BIG4</i>	-	0.023 (1.29)	-0.067 (-2.21) **	-0.000 (-0.00)	0.033 (1.76) *
<i>LSALES</i>	-	0.006 (1.34)	-0.029 (-4.76) ***	-0.030 (-2.35) **	0.015 (2.50) **
<i>CFO</i>	-	-0.642 (-9.95) ***	0.250 (4.05) ***	-0.849 (-7.83) ***	-0.602 (-10.44) ***
<i>LEV</i>	+	0.037 (2.23) **	0.064 (3.00) ***	0.079 (2.83) ***	0.001 (0.06)
<i>LAG_LOSS</i>	+	0.007 (0.76)	-0.004 (-0.48)	-0.010 (-0.60)	-0.004 (-0.45)
<i>GROWTH</i>	+	0.057 (3.04) ***	0.078 (4.17) ***	0.125 (5.40) ***	0.013 (0.93)
<i>ΔPPE</i>	+	-0.016 (-1.16)	-0.013 (-0.92)	-0.023 (-1.09)	-0.011 (-0.97)
<i>Industry effects</i>		YES	YES	YES	YES
<i>Year effects</i>		YES	YES	YES	YES
Constant		-0.101 (-4.28) ***	0.193 (5.11) ***	-0.075 (-1.26)	-0.119 (-3.94) ***
N		713	713	713	713
R-sq.		0.33	0.33		
Wald-Chi sq.		221.45 ***	134.62 ***	125.11 ***	187.88 ***

\*, \*\*, \*\*\* Significant at 10%, 5% and 1% respectively.

*Variables:*

*DA* (raw value of discretionary accruals); *ABSDA* (absolute value of discretionary accruals); *IIDA* (income-increasing discretionary accruals); *IDDA* (income-decreasing discretionary accruals); *MALE-FEMALE* (change from male to female auditor); *MALE-MALE* (change from male to male auditor); *LSALES* (client's sales); *CFO* (cash-flow from operations); *LEV* (leverage); *LAG\_LOSS* (lagged losses); *GROWTH* (sales growth); and *ΔPPE* (growth rate of gross property plant and equipment).