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ORIGINAL PAPER

Partner Gender Differences in Prestige of Clients Served at the Largest U.S. Audit Firms

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Abstract
Despite tremendous investment to promote gender equity, U.S. public accounting firms continue to be gendered organizations. Our archival study examines gender equity within the partnership of these large firms for a one-year period. We find female partners are clustered in lower prestige client types including investment funds, benefit plans, and single audits, rather than higher prestige public company clients. Second, we consider whether there is gender bias in prestige of client served by female partners who lead public company audits. In these tests of those individuals who have already achieved the partnership and lead public company audits, we find no evidence of bias. This research contributes to the understanding of gender bias in U.S. public accounting firms and helps inform the societal narrative on where women continue to be marginalized even when they have achieved the highest levels in an organization.

Keywords Female partners · Diversity · Gender equity · Client prestige

Introduction

> The ability to retain and develop top talent and achieve diversity in leadership ranks today is imperative to better positioning firms for the future. Firms that deal seriously with these issues also will have the advantage of increased access to larger talent pools. The complexity of auditing—and the vast responsibilities of firms in providing assurance over financial reporting for the benefit of investors and the markets—requires harnessing the talents and energies of a diverse workforce.
> (Jeanette M. Franzel, PCAOB Board Member in speech "Leadership in Public Accounting Firms: Why So Few Women?" delivered March 13, 2014)

A large body of research has documented the gendered nature of public accounting organizations (Dambrin and Lambert 2012; Haynes 2017). Public accounting firms are known to value the "ideal worker" (Almer et al. 2012; Dwyer and Roberts 2004) who prioritizes work over all else and are structured to include standardized job descriptions, career ladders and manager-controlled evaluations, all of which are consistent with the definition of a gendered

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organization (Acker 1990). While accounting firms have made tremendous investments to promote gender equity (Cohen et al. 2019), now over thirty years after women began entering public accounting in equal numbers as men, women are still only 22% of partners (AICPA 2017). On the surface, this increase in the percentage of women partners appears to represent progress. Yet it is unclear whether these percentages might be portraying an overly optimistic picture of gender equality and whether the gender biases pervasive in public accounting organizations persist once the partnership is achieved. Such biases could result in female partners performing less prestigious work than their male counterparts. It is important to examine accounting firm partners as part of the narrative in society to understand the extent to which women continue to be marginalized even when they have achieved the highest levels in an organization (Haynes 2017).

Our study seeks to establish whether there are prestige differences in the work performed by female and male partners by examining for a 1-year period lead audit engagement partner (i.e., signing partner) gender distribution within client type, a proxy for prestige. Although prestige is in part driven by client size and fees (Taylor 2018), across different *types* of clients, public companies are the most prestigious (Hardies et al. 2018). Prestigious clients are highly visible in the marketplace, have short statutory reporting deadlines, include greater financial statement complexity and are riskier in terms of litigation—all characteristics of publicly traded corporations (Hardies et al. 2018). In contrast, lower prestige audit types are those which have much lower litigation risk, longer or more flexible reporting deadlines, and by the nature of the audit approaches employed, place less pressure on the audit partner. Benefit plans, investment funds and entities subject to the U.S. Single Audit Act (see 2 CFR §200) all share these characteristics common to lower prestige client types. Prestige of clients is important as it influences partner compensation, available opportunities for leadership roles within the partner ranks, and political capital (Dickins et al. 2005; Knechel et al. 2013; PWC 2016). Our U.S.-based study examines these specific client types because of the availability of the audit partner name.

The work of Acker is the leading theoretical framework for examining gender equity within organizations (Nkomo and Rodriquez 2018). Acker's theory of gendered organizations (1990, 1992) argues that it is specific aspects of organizational processes and policies which give rise to gender inequity. This theoretical framework has been used in a large number of studies across disciplines and in studies examining gender inequity in accounting firms (Anderson-Gough et al. 2005; Dambrin and Lambert 2012; Haynes 2017; Kornberger et al. 2010). In the current study, our examination of audit partners is grounded in this perspective of gendered organizational theory, complemented by three additional theories which potentially explain the differential treatment of women in accounting firms.

The first potential explanation for a gender bias is taste-based discrimination, which was initially advanced by Becker (1957) in terms of race and later applied to gender discrimination (Darity and Mason 1998). This economic theory asserts that organizations are willing to incur costs to accommodate conscious, biased preferences. Although adverse publicity is presumably a powerful deterrent for this behavior, the presence of lawsuits alleging various gender issues or sexual misconduct in the larger U.S. auditing firms precludes ruling out taste discrimination. For example, EY has faced two highly visible discrimination allegations involving partners (Olson 2018) and news accounts recently reported EY training focused on "fixing the women" (Huffington Post 2019). KPMG faced a potential class action lawsuit in 2011, and although a judge denied formation of a class, individual cases are still proceeding (Stanford Heisler Sharp 2018). Furthermore, although U.S. data is not available, all Big 4 firms in the U.K. and Australia report large gender pay gaps primarily driven by differentials within the upper ranks (Deloitte 2018; EY 2017; KPMG 2017; PWC 2017, 2018). Several studies have also provided archival evidence of gender pay gaps in European settings (Knechel et al. 2013; Vandenhaute et al. 2019).

In addition to taste-based discrimination, in today's more politically sensitive business culture, gender differences in prestige of clients could be explained by implicit or unconscious bias. The theory of statistical discrimination (Arrow 1972a, b; Phelps 1972) asserts decision makers use stereotypical characteristics to form "average expectations" of individuals in a group. In a public accounting setting, this predicts employers subconsciously and perhaps with good intentions, encourage women into "female friendly" types of clients which they think all women prefer. Stereotypical "female friendly" characteristics such as flexibility and lower time pressure align with lower prestige client types.

A third explanation for women having lower prestige clients is described by the theory of equalizing differences (Rosen 1987) which predicts women *self-select* into certain types of careers, often those with greater flexibility. The theory of equalizing differences acknowledges that employees make tradeoffs between wages and non-pecuniary benefits, which can include aspects of the job such as flexibility, travel, risk, stress, prestige, and opportunities for human capital development.

Collectively, these three theories suggest that there are differences in the types of engagements that men and women will lead. The process of determining the engagement partner is complex and is determined jointly by the partner, the firm and the client (Dodgson et al. 2020; Lee et al. 2019). To examine the proportion of prestigious and non-prestigious clients by audit partner gender, we use Public Company

Accounting Oversight Board (PCAOB) Form AP data, Federal Audit Clearinghouse data, and hand-collected partner demographic information from the seven largest U.S. public accounting firms. These seven firms audit 98% of the market capitalization and are viewed as having consistent levels of quality by investors (Cassell et al. 2013). First, we test whether there are gender differences in client type, comparing female representation for lead audit partners at public companies, to the less prestigious single audits, investment funds, and benefit plans. Although this comparison does not cover the full spectrum of client types available to partners, this comparison captures different levels of prestige. We find that, after controlling for partner qualifications including experience, education, and portfolio size, women are disproportionately represented in the lower prestige, more flexible client types of benefit plans, single audits, and investment funds as compared to public companies.

Next, in order to understand the extent to which any gender bias against women is influenced by factors other than the partner's preference for flexibility or the firm pushing the partner into flexible work, we focus on auditors who specialize in public company audits. This provides a unique setting because it includes only those partners who work in an area that is highly demanding and unlikely to accommodate flexibility. These public company auditors are individuals who have successfully navigated the process to the partnership and are deemed, because of their qualifications and personal characteristics, to meet the firm's and client's expectations. Accordingly, we test whether there are gender differences in the prestige of public company clients. Any residual bias would therefore not be a result of either statistical discrimination or female preferences for flexibility, but rather a result of the client via the auditor selection process or taste discrimination on the part of the firm. We fail to find a gender difference in the prestige of public companies audited.

This study contributes to the literature on gender equity in the accounting profession by first establishing whether there are partner gender differences in the prestige of U.S. audit clients served. Although female admission to the partnership indicates that some women have been able to successfully navigate the labyrinth of career progression (Eagly and Carli 2007) to the top levels, unless women who achieve the partnership are afforded the same opportunities in terms of assignments as their male counterparts, equity will not have been achieved, and the gendered nature of firms will persist.

Second, we apply economic theories to the gender literature in accounting which aid in explaining the complexities affecting gender equity in large U.S. firms. Taken together, these theories provide clarity into why gendered patterns have persisted and insights into potential mitigating policies and practices.

Third, our study takes an archival approach to examining the status of "rare" female audit partners, complementing prior research that largely utilized historical accounts, experimental, or survey-based approaches (Dambrin and Lambert 2012). The success of women at the partner ranks is an important marker because the partnership not only signals to female aspirant partners whether equal opportunities are available to them but also serves as a gateway to increasing the supply of women later available to serve in the top corporate roles and as board members.

Lastly, our study complements other recent research on audit partners and gender (e.g., Burke et al. 2019; Hardies et al. 2018; Lee et al. 2019). Most closely related to our study is Hardies et al.'s (2018) examination of gender-based prestige differences of public and private companies served in the Belgian audit market. In a U.S. context, we compare prestige differences by client type—public companies versus the less prestigious investment funds, benefit plans and single audits.

The remainder of this paper is organized as follows. First, we discuss how the path to the partnership has changed over time and the related theories of gender equity. Second, we motivate our research questions, describe our models, and discuss the results and additional analyses. Finally, we discuss directions for future research, implications for the profession, and limitations of the study.

The Environment and Career Path for Female Audit Partners

Understanding the gendered nature of audit firms requires considering how the path to partnership has changed for women over the past few decades. The first female admission to a Big 8 partnership occurred in 1969 (Kansas City Star 2017). By the late 1980s, women comprised half of new accounting graduates but were fewer than 4% of Big 8 partners (Berg 1988). The expectation was that as women advanced their accounting careers and occupied a greater proportion of the pipeline, the percentage of female partners would increase. By 2017, women continued to be half of the new hires but still represented only 22% of partners at the largest firms (AICPA 2017).

The nature of an auditor's career progression has changed since the first woman was made partner in 1969. In the 1980s, when women began entering the profession in equal numbers as men, the path to partner was approximately 10 years, while today it takes considerably longer (Baysden 2014). This longer timeline generally requires women to defer having children until after making partner or requires women who want to have children to do so in the critical years of building a case for promotion (Almer and Single 2007).

Once admitted, partners in local offices may serve as a lead engagement partner or have supporting roles on

engagements depending on a variety of factors such as local office client base, and the size, complexity, and risk of those clients. The complex process of partner assignments takes into consideration the skills, attributes, and capacity of the partner (Almer et al. 2005; Baysden 2014; Lee et al. 2019) and the biases and incentives of both the audit firm and the client on a variety of factors including partner gender. In a review of the partner assignment process, Dodgson et al. (2020) find, "Some interviewees also report clients' emphasis on diversity in their next partner. One notes, 'Our clients…want to see gender and racial diversity'" (p. 100).

Public Accounting Firms as Gendered Organizations

Prior research has established that public accounting firms are gendered organizations (Anderson-Gough et al. 2005; Dambrin and Lambert 2012; Haynes 2017; Kornberger et al. 2010). This body of research draws upon the seminal work of Acker (1990) who provides a theoretical framework to describe the five interacting processes which occur in gendered organizations. We similarly use Acker as a framework to provide a context from which gender equity within the partnership can be considered.

The first process is the construction of divisions along lines of gender (Acker 1990, p. 146). As applied to a public accounting firm, this process captures the demanding nature of work expectations which include long hours, travel and a prioritization on immediate client service, all of which have historically placed women at a disadvantage (Anderson-Gough et al. 2005; Kornberger et al. 2010; Lupu and Empson 2015). Another more current example is the move of firms to embrace data analytics in the audit process, which is likely to favor men as data analytics positions are largely filled by men (Harnham 2020). These divisions of labor are reflected throughout firms via dominance of men at the higher organizational levels, the increasing use of non-equity "director" positions for promotion of female senior managers (Almer et al. 2012) and potentially, assignment of women early in their careers to certain client types and industries.

Second, Acker (1990, p. 146) posits that gendered organizations "construct symbols or images that explain, express, reinforce or sometimes oppose those divisions". In public accounting, this process can be seen as exalting professionals who embody the "ideal worker" (Williams 2000) who prioritize work over family, embrace the testosterone charged culture of "work hard, play hard", and pervasive use of sports and teamwork analogies (Anderson-Gough et al. 2005). Acker describes these symbols as capturing "successful, forceful masculinity" (p. 146). This can be clearly seen in a recent GoingConcern.com article on Tim Ryan, PWC's U.S. Chairman, with the headline "Tim Ryan Crunches More than Just Numbers", accompanied by a picture of him doing one of his 1200 daily sit ups (Bramwell 2019).

The third process that produces gendered social structures or organizations are interactions between individuals "including all those patterns that enact dominance and submission" (Acker 1990, p. 147). In public accounting, prior research has shown these dominance practices includes social events which focus on sports and bars (Anderson-Gough et al. 2005) and a culture that values competitiveness and self-promotion. A recent article about EY training for senior women in the firm provides a timely example of practices related to submission. The article reported that women were told to "fix themselves to fit into a male dominated workplace" through such behaviors as not interrupting men, sitting at an angle so as to be less threatening and having a well-polished appearance (Huffington Post 2019).

Fourth, Acker posits that the previous "processes help to produce gendered components of individual identity, which may include consciousness of the existence of the other three aspects of gender such as organization's choice of appropriate work, language use, clothing and presentation of self as a gendered member of an organization" (Acker 1990, p. 147). For example, Anderson-Gough et al. (2005) report that women are very aware of sports dominating social conversations within firms. This fourth process suggests that women may internalize this and attempt to participate or become a more avid spectator of sports to conform to expectations. In effect, this is referring to the more general process of socialization in accounting firms that has been described by Covaleski et al. (1998). Consistent with this, prior research has found that men and women in public accounting adopt behaviors more consistent with masculine stereotypes as they move up in the firm (Maupin and Lehman 1994).

Finally, gender is implicated in the fundamental ongoing processes through which social structures are created and conceptualized, which is what Acker calls organizational logic. "Organizational logics are manifest in organizational procedures, such as work rules, employment contracts, job evaluation schedules, managerial directives and performance evaluations" (Carmona and Ezzamel 2016, p. 4). In particular, Acker (1990) emphasizes that job evaluations are a key tool which create gendered organizations. Through the evaluations, employees are rewarded and punished according to both written and unwritten assumptions about whether the employee "fits" in the organization. Historically employee fit has been a key feature supporting the "up or out model" of advancement in audit firms and has arguably disadvantaged women (Almer et al. 2012).

Theories of Gender Equity

Against this backdrop of Acker's theory of gendered organizations, there are a number of relevant theories when considering gender bias in client assignments. Concerns about differences in type of work performed by men and women

with similar qualifications has been extensively addressed by the labor economics literature on gender pay gaps. The prevailing labor economics view is that gender pay gaps are complex and driven by a myriad of factors including education, experience, workforce interruptions, length of workweek, worker preferences, and employer discrimination (see Blau and Kahn 2017 for a review). Insights from this literature can be analogized to our domain of gender differences in client type. Unlike other settings such as medicine, where large gender differences in specialties correspond to different levels of required training, our setting allows for a cleaner understanding of the causes of gender differences because engagement leaders all fulfill similar roles and have comparable education and experience. However, the type of client the audit partner serves holds varying degrees of prestige within the audit firm.

Taste-based discrimination is a fundamental economic theory advanced by Becker (1957). He asserted that firms are willing to incur costs to make conscious preferences in their hiring and promotion practices. He also notes that as these practices become more overt, the cost will eventually become prohibitive, and market forces will reduce the discriminatory practices. In an audit setting, the market incentives are that the firms must attract women to adequately staff the practice with the required competencies and respond to client demand for diverse audit teams (Cohen et al. 2019; Lee et al. 2019). While ostensibly highly visible discrimination lawsuits against some large accounting firms (Stanford Heisler Sharp 2018) provide evidence that taste-based discrimination may still exist, several other theories related to more implicit biases should also be considered as a contributing factor to the gendered nature of accounting firms.

In contrast, the theory of statistical discrimination (Phelps 1972; Arrow 1972a, b) suggests that bias against women and minorities may be more subtle and a result of imperfect information. A large body of sociology research contends that ingrained views of gender roles permeate decisions in the workplace, resulting in gender bias (Reskin and Bielby 2005). These views are formed throughout a lifetime, in subtle ways, even by well-intentioned individuals, and can result in women being pushed into certain directions.

Statistical discrimination occurs when decision makers use stereotypical characteristics of women to form "average expectations" of individuals in that group. These average expectations ("statistical") are then used to guide decisions regarding those individuals. As a result, even rational and well-intentioned decision makers fall prey to stereotyping the average expectations of women, thereby introducing bias into their decisions. Labor economists have used this theory to explain demand side drivers of the gender wage gap (Blau and Kahn 2017) including studies of lawyers (Noonan et al. 2005) and MBAs (Bertrand et al. 2010). Organizational decision makers may implicitly attribute the preferences of the average woman to *individual* female professionals because *on average* women bear a greater proportion of home and family demands, and have lower ability to relocate than men (Baldridge et al. 2006). As a result, when it comes to making decisions regarding opportunities afforded to women throughout their career, the theory of statistical discrimination explains how even well-intentioned decision makers have gender bias. For example, anecdotally, female auditors report that expressed concerns about the ability to balance professional and personal obligations are often met with suggestions to shift to less demanding clients which are more amenable to flexibility. While perhaps unintentional, this results in firms encouraging women into lower prestige client types as a retention strategy.

We now consider a theory that addresses whether gender differences could be driven by women's choices. Rosen (1987) argues that the theory of equalizing differences is fundamental to market equilibrium in labor economics. This widely used theory asserts that total compensation is a combination of tradeoffs between wages and non-pecuniary benefits which are viewed as either favorable or unfavorable by the worker. Non-pecuniary benefits include aspects of the job such as flexibility, travel, risk, stress, prestige, and opportunities for human capital development. Prior research has introduced the notion of tradeoffs between wages and non-pecuniary benefits in the public accounting firm/professional labor market (Almer et al. 2005). Using an experimental approach, Wiswall and Zafar (2018) isolate the effect of worker preferences from employer demand side factors and find women are willing to pay (WTP) 7.3% of their salary for greater flexibility, whereas men are only willing to pay 1.1%. They also find that men have a higher WTP for jobs with higher future earnings growth than women. Applied to our setting of audit partners, this finding on WTP suggests some women may self-select into lower paying jobs which typically have lower prestige because of the associated flexibility.

Research Questions

Our two research questions examine different aspects of whether there is a gender bias in the prestige of clients served by lead engagement partners. Consistent with prior literature, we treat public clients as the most prestigious (Hardies et al. 2018; Taylor 2018). In addition, we introduce the notion that benefit plans, investment funds and single audits are relatively less prestigious client types. As compared to public companies, these less prestigious client types vary on the important dimensions of

flexibility and audit strategy employed.[1] The prestige of clients is likely a continuum incorporating factors such as audit fees (Hardies et al. 2018; Taylor 2018), profitability (Hoang et al. 2019), client visibility, market leadership and networking opportunities. While within each client type there are varying levels of prestige, we would argue that serving an important client within a less prestigious client type still does not equate to being a partner serving public companies. In other words, we assume that the most prestigious benefit plan, single audit and investment fund clients are less prestigious than even the smallest public company. Therefore, in our study, we treat different types of clients as discrete prestige categories. However, as a sensitivity test, we also consider varying prestige levels using alternative measures (i.e., client size, audit fees and federal financial assistance).

Gender Differences in Client Type

Our first research question establishes whether there is gender disparity in the type of work performed by audit partners. We consider whether gender varies with the prestige of client types because of where the clients fall on the continuum of flexibility and audit strategy employed. The importance of flexibility to women has been demonstrated in a public accounting setting through the examination of flexible work arrangements (Almer and Kaplan 2002; Almer et al. 2004; Cohen and Single 2001). The following discussion considers specific features of audits that differ with each client type (Kaufman and Fetters 1983), and presents arguments for why certain client types may either be (Wiswall and Zafar 2018) or thought to be more appealing to women (Rosen 1987) in part due to differing flexibility.

Flexibility is a function of time pressure, overtime, and unpredictability which has consequences for how demanding the audit is. As a result, client type affects the extent to which audit team members can be afforded flexibility, particularly in the number of hours worked per week. For example, public companies have relatively short reporting deadlines of 60 to 90 days, and their complex nature results in frequent unexpected demands on the auditors' time to deal with "client fires." In contrast, single audits have no statutory reporting deadlines, typically resulting in less overtime. Six months is considered by the Government Finance Officers Association as a timely deadline for a single audit. Similarly, benefit plan audits are governed by the Employee Retirement Income Security Act (ERISA) which specifies filing deadlines up to nine and a half months after plan year-end. Benefit plan audits are also much shorter in duration compared to public company audits and are unlikely to experience the kind of urgent matters that require unexpected immediate attention by the auditor. Investment funds fall somewhere on the time pressure continuum with 75- to 120-day reporting deadlines depending upon the type of entity.

The nature of the audit approach also varies significantly between our four client types, and some audit approaches are more prescriptive than others regarding where the audit work is conducted. Audits with greater demands to be at the client's site afford less flexibility to audit team members than audits with work that can be completed at the firm's office or while telecommuting. Public companies are arguably among the most inflexible in terms of where the work is completed because the underlying complexity and dynamic nature of business transactions requires greater on-site client interaction to ensure an effective audit. In contrast, investment fund transactions tend to be similar from year to year, and the financial statements are fairly straightforward. Moreover, a number of efficiencies occur with these client types which reduce demands on the audit team and increase flexibility. Investment funds within a fund family have many shared internal controls and operating features such as the same administrator or transfer agent, and much of the audit can rely on third-party reports (i.e., system and organizational controls "SOC" reports) to evaluate certain internal controls. Additionally, a large portion of investment fund balance sheets can be audited by the firm's specialized support teams performing confirmations and valuations at centralized sites, further minimizing demands to perform audit tasks at the client site.

Similar to investment funds, audits of benefit plans are more amenable to work being conducted off-site. Benefit plan audits generally utilize third-party service providers and third-party verification of asset and liability values, which allows for extensive reliance on SOC reports and confirmations. Benefit plan financial statements are also fairly straightforward, and although there are ERISA reporting requirements, they are less complex than public company audits and typically do not involve application of subjective accounting standards which requires extensive meeting time with client personnel.

While unrelated to flexibility, it should also be noted that there are differences in litigation risk between these

[1] Not only does flexibility and strategy differ for less (more) prestigious clients, but those clients are typically associated with less (more) audit risk. Some studies have also shown that there are gender-based differences in risk preferences (Byrnes et al. 1999; Francis et al. 2015; Jianakoplos and Bernasek 1998; Powell and Ansic 1997). While this finding may be argued to support that female auditors prefer client types with lower risk profiles, a meta-analysis concludes that gender-based differences in risk preference is highly context dependent and has diminished over time (Byrnes et al. 1999). Furthermore, the claim that women are more risk-averse has also not been verified for managers and professionals (Byrnes et al. 1999), and research has shown that as men and women move up within public accounting, they are both more likely to possess traditionally "male" personality characteristics (Maupin and Lehman 1994).

client types. Public companies and investment plans have high potential for litigation given current securities laws. In contrast, with few exceptions, benefit plans and single audits rarely result in lawsuits. Oversight of single audits occurs through the American Institute of CPAs (AICPA) peer review process rather than more onerous PCAOB inspections. Further, with single audits of governmental entities, the separation of local, state, and federal governments has generally resulted in relatively little Securities and Exchange Commission (SEC) oversight of the state and municipal bond markets except in extreme cases of fraud. The first case brought against a municipality was settled in 2016 involving the City of Miami (SEC 2016).

Taken together, the preceding discussion provides a summary of specific features that differ with each client type (Kaufman and Fetters 1983). In this section we have presented arguments for why certain client types have varying levels of flexibility. While this flexibility may result in women either self-selecting (Wiswall and Zafar 2018) or being encouraged (Rosen 1987) into jobs with these features, it is also possible that no such bias exists in today's public accounting environment. Accordingly, our first research question seeks to establish whether female audit firm partners lead less prestigious engagement types than their male counterparts.

RQ1: Are women less (more) likely to be the engagement partner on higher (lower) prestige client types?

Gender Differences Within Public Company Clients

Next, we consider whether gender bias exists after eliminating flexibility as an explanatory factor by focusing only on audits of public companies. Relative to other client types, public companies are more demanding, inflexible, risky, and are more likely to require travel. Partners who audit public companies must have accepted the requisite lifestyle and risk regardless of their gender. The women in this group are not individuals who have chosen or have been pushed by the firm into more flexible, lower prestige client types. These women may have survived by adopting more stereotypically male behaviors (Maupin and Lehman 1994) or a gender strategy (Bird and Rhoton 2011) which aligns with the expectations and practices of public company audit partners. By examining this group in isolation, we are able to eliminate female preferences for flexibility and statistical discrimination as causes of any evident gender differences. Accordingly, any remaining gender differences within the public company partners would be attributable to bias from either the client or the firm for reasons other than flexibility. Thus, we propose the following research question:

RQ2: Are women less likely to be the engagement partner on the more prestigious public company clients?

Methods

Research Design

RQ1: Gender Differences in Prestige of Client Types

In order to test RQ1, we estimate the probability of engagement prestige, as proxied by client type, using a logistic model to discern whether partner gender is an explanatory factor.[2] To estimate the logistic regression we group together the three lower prestige client types (*Investment_Fund, Single_Audit* and *Benefit_Plan*) and create an indicator variable equal to one for lower prestige clients (*Low_Prestige_Client*), zero for public companies. The logistic regression examining the probability of engagement prestige as a function of gender is estimated as:

$$\begin{aligned}\text{Probability}(Low\_Prestige\_Client) &= \beta_0 + \beta_1 Female + \beta_2 Experience + \beta_3 Elite\_Education \\ &+ \beta_4 Audit\_Market\_Size + \beta_5 Engagements\_Total \\ &+ \Sigma\text{Audit Firm Fixed Effects} + \varepsilon \end{aligned} \quad (1)$$

The independent variable of interest is *Female* which is coded as one if the audit partner is a woman, zero otherwise. A positive coefficient on *Female* indicates that female partners are more likely to be the engagement lead on lower prestige client types when compared to public companies.

We include additional partner characteristics that may influence client type. Recent studies provide evidence that individual auditor characteristics are associated with perceived and actual audit quality, and firms may deploy higher quality auditors to mitigate prior identified engagement risk (Aobdia et al. 2016; Porumb et al. 2017; Stice et al. 2017). Riskier, larger, and more prestigious audits require more experience. Therefore, partner experience (*Experience*) is included as a control. The social networks of audit partners may also influence their opportunities. In a variety of

[2] In robustness tests, we estimate a multinomial logistic model to individually compare the client types, which implies multiple categorical dependent variables (Long 1997). This method assumes no ordering of the lower prestige client types and simultaneously compares each of the three low prestige client types (investment company, benefit plan, and single audits) against the high prestige public company client type to predict the probability of a public company client given the gender of the lead engagement partner. Our conclusions remain unchanged when estimating a multinomial logistic regression in that females are less likely to serve publicly traded companies compared to lower prestige client assignments.

settings, these social networks have been found to affect perceptions and actual financial outcomes (Cohen et al. 2014; He et al. 2017), including generating revenue in an audit domain (Carter and Spence 2014). Therefore, attending an elite university could be an additional factor explaining engagement types. Using definitions from Badalto et al. (2014), we create an indicator variable equal to one, zero otherwise, for partners with elite institution degrees (*Elite_Education*).

Further, the number of audit clients in the local office of the audit partner may influence the opportunities available. Therefore, we include the size of the local audit market as the log of the number of publicly traded audit clients in the audit partner's city (*Audit_Market_Size*). The log of the total number of engagements that the individual partner signed during a one-year period is also included to control partner portfolio differences (*Engagements_Total*). Lastly, audit firm fixed effects are included to control for any audit firm specific variation and cluster standard errors by audit partner to control for correlations across observations with the same audit partner.

While typical audit archival models for publicly traded firms include control variables for size, profitability, and risk, our model is limited by data availability. These control variables are not included because our sample compares publicly traded companies to investment funds, benefit plans, and single audits for which those typical variables are unavailable or not applicable. Therefore, model (1) is estimated with variables which control for differences in partner characteristics, some of which were extensively hand-collected. In further tests using only public companies, we are able to include additional control variables.

RQ2: Gender Bias in Audit Partners on Public Company Clients

The next model allows investigation of whether gender bias persists within just public company clients. Public company audits provide a setting where flexibility is less likely to be an explanatory factor for any detected bias, and any remaining gender differences would be attributable to bias from either the client or the firm for reasons other than flexibility. We should note that failing to find gender bias with this test does not mean that bias has been eliminated in firms. Rather it may reflect a survivor bias from those women who persisted to the partnership with public company clients, perhaps through strategies which make their persona more acceptable in an environment that prefers men.

$$\begin{aligned} Prestige = {} & \beta_0 + \beta_1 Female + \beta_2 Female\_CEO\_or\_CFO \\ & + \beta_3 Experience + \beta_4 Elite\_Education \\ & + \beta_5 Audit\_Market\_Size + \beta_6 Engagements\_Total \\ & + \beta_7 Public\_Co\_Portfolio \\ & + \sum \text{Audit Firm Fixed Effects} + \varepsilon \end{aligned} \tag{2}$$

Three different dependent variables capture the level of prestige within public companies: if the entity is a Fortune 500 Company (*Fortune_500_Company*), if the total audit fees are above the median (*High_Audit_Fee*),[3] and the log of total assets (*Ln_Total_Assets*). Each of these variables are related to partner compensation and opportunities (Dickins et al. 2005; Knechel et al. 2013; PWC 2016) and reflect high prestige clients. This approach facilitates parsimonious models with the same independent variables to provide initial evidence on the effects of gender on the levels of prestige within public company client types. Models with the *Fortune_500_Company* and *High_Audit_Fee* are estimated using a logistic regression and the model using *Ln_Total_Assets* is estimated using Ordinary Least Squares regression. The variable of interest is *Female* and a positive (negative) coefficient on *Female* indicates that female partners serve less (more) prestigious public companies.

We include partner variables that may be considered for more prestigious clients. For example, partners with greater experience (*Experience*) and elite educations (*Elite_Education*) may be viewed as more qualified to serve larger and more prestigious clients. Additionally, the current workload and availability of a partner influence the ability to take on another public client. *Public_Co_Portfolio* controls for the public company workload of the partners, measured as the number of public companies each audit partner serves in the one-year period. *Engagements_Total* controls for the total audits the partners signs. While the audit committee hires the auditor, the CEO and CFO influence the final decision regarding the audit partner (Fiolleau et al. 2013; Almer et al. 2014; Dodgson et al. 2020). CEO or CFO gender may help explain audit partner gender to the extent it is reflective of company's diversity or corporate social responsibility initiatives (Liao et al. 2018). Thus, *Female_CEO_or_CFO* controls for the diversity of the company and is an indicator

[3] Consistent with Taylor (2018) which uses audit fees to examine prestige, we use a categorical audit fee variable. Other research (Burke et al. 2020; Lee et al. 2019) does not test prestige and has instead used commonly accepted models of audit fees (Whisenant et al. 2003) to proxy for work performed when testing gender effects. These models control for numerous client characteristics. In our study, we do not use the traditional fee models but use variables that might explain whether a woman would lead a high prestige engagement. Thus, our model includes items such experience and education rather than client characteristics.

Table 1 Sample selection—firm-year observations

	Public companies	Investment funds	Employee benefit plans	Single audits[a]	Total
Total AP filers and single audits	8168	5813	1204	1791	16976
Less:					
Foreign firms	1118	3	8	0	1129
Small audit firms	2729	551	642	0	3922
Dual dated	231	3	2	0	236
Non-equity signer (e.g., directors)	0	0	0	378	378
Missing partner experience	1140	1287	230	359	3016
Insufficient data to calculate audit market size	27	1	5	42	75
Final sample of firm observations	2923	3968	317	1012	8220
Less: Missing total assets, audit fees or CEO/CFO gender	656				
Sample used for public company regressions in Table 10.	2267				

[a]In 2015, the Federal Audit Clearing House includes a total of 41183 entities. Only 1791 were audited by the largest seven public accounting firms. The remainder was audited by smaller firms or state audit agencies

variable equal to one, zero otherwise, if the public company being audited has either a female CEO or CFO. Lastly, the number of clients in the audit market is also included in the model because the audit market size can influence the availability of prestigious clientele. Model (2) also includes audit firm fixed effects and clustering standard errors by audit partner.

Sample Selection

Our study examines two segments of the assurance market: Form AP filers and entities subject to a single audit for the seven largest U.S. audit firms (Deloitte, EY, KPMG, PricewaterhouseCoopers, BDO, Grant Thornton, and RSM). The sample is restricted to these U.S. audit firms because auditors' careers vary substantially in smaller firms.

Form AP filers in our sample include public companies, investment funds, and benefit plans that filed a Form AP from February 1, 2017 to January 31, 2018. Data available for this analysis are facilitated by PCAOB Rule 3211 requiring audit firms to file Form AP which identifies audit partners signing audit reports for filers completed after January 31, 2017. Single audit data are from the 2015 Federal Audit Clearinghouse database which contains audit partner name and entity type (e.g., states, municipalities, counties, airport authorities, utility districts, universities, and nonprofits) for entities that receive over $750,000 annually in federal assistance. We use 2015 single audits to get a complete year of observations because these audits do not have a filing deadline. Gender is determined two ways: hand-collected from commonly used online social media sites, wedding announcements, alumni network newsletters, and audit firm publications or using partner first and middle name (consistent with Burke et al. 2019). Further, using these online resources, we hand-collected graduation date or number of years in the firm, when available, to estimate years of professional experience as well as educational institution for each partner.

Table 1 presents the sample selection of firm-year observations for public filers and single audits. The initial sample consists of 16976 firm observations. We exclude observations as follows: 1129 non-U.S.-based auditors, 3922 clients of small audit firms, 236 public companies with dual-dated opinions due to subsequent events (AS 3110), 378 non-equity owning engagement lead (e.g., Directors) signing a single audit,[4] 3016 missing partner experience and 75 with insufficient data to calculate audit market size. Our final sample consists of only U.S.-based audit firm partners and includes 2923 public companies, 3968 investment funds, 317 employee benefit plans, and 1012 single audits for a total of 8220 observations.

[4] For single audits and private companies, there is no regulatory prohibition on audit opinions being signed by CPAs holding such titles as director or managing director rather than partner or shareholder. (See Almer et al. 2011, 2012 for more discussion of these alternative non-partner titles.) Because the focus of this study is partners, based on title we have excluded non-partners signing Single Audits and benefit plans from our sample.

Table 2 Descriptive statistics

Variables	*N*	Mean	Std. Dev.	P25	Median	P75
Female	8220	0.337	0.473	0.000	0.000	1.000
Public_Company	8220	0.356	0.479	0.000	0.000	1.000
Investment_Fund	8220	0.483	0.500	0.000	0.000	1.000
Benefit_Plan	8220	0.039	0.193	0.000	0.000	0.000
Single_Audit	8220	0.123	0.329	0.000	0.000	0.000
Low_Prestige_Client	8220	0.644	0.479	0.000	1.000	1.000
Experience	8220	24.954	5.850	20.000	25.000	29.000
Elite_Education	8220	0.061	0.240	0.000	0.000	0.000
Audit_Market_Size	8220	145.169	167.246	32.000	98.000	155.000
Engagements_Total	8220	113.588	216.088	3.000	10.000	62.000
Descriptive statistics for public companies						
High_Audit_Fee	2267	0.533	0.499	0.000	1.000	1.000
Ln_Total_Assets	2267	7.250	2.006	5.927	7.300	8.530
Fortune_500_Company	2267	0.130	0.337	0.000	0.000	1.000
Female_CEO_or_CFO	2267	0.207	0.405	0.000	0.000	0.000
Public_Co_Portfolio	2267	2.423	1.358	1.000	2.000	3.000
Change	2267	0.085	0.279	0.000	0.000	0.000

All variables are defined in the Appendix

Table 3 Correlations

Variables		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female	(1)	–							
Public_Company	(2)	**− 0.26**	–						
Investment_Fund	(3)	**0.31**	**− 0.72**	–					
Single_Audit	(4)	**− 0.06**	**− 0.28**	**− 0.36**	–				
Benefit_Plan	(5)	**− 0.04**	**− 0.15**	**− 0.19**	**− 0.08**	–			
Experience	(6)	**− 0.20**	0.00	**0.05**	**− 0.02**	**− 0.09**	–		
Elite_Education	(7)	**− 0.03**	0.02	− 0.02	− 0.01	**0.02**	**− 0.03**	–	
Audit_Market_Size	(8)	**0.14**	**− 0.17**	**0.27**	**− 0.12**	**− 0.07**	**0.02**	0.00	–
Engagements_Total	(9)	**0.51**	**− 0.38**	**0.52**	**− 0.18**	**− 0.10**	**− 0.14**	**− 0.11**	**0.12**

All variables are defined in the Appendix. Correlations significant at the 10% level are bolded

Results

Descriptive Statistics

Table 2 provides descriptive statistics for the full sample. Thirty-four percent of audit engagements have female partners signing the audit opinion. The average experience for the signers is 25 years and only 6% of the sample attended an elite institution. The largest engagement type represented is investment fund audits (48%), followed by public company (36%), single audits (12%), and benefit plan audits (4%), thus 64% of the observations are from lower prestige client types.

Table 3 provides correlation statistics for the full sample. On a bivariate basis, our variable of interest, *Female*, is negatively related to public company engagements. The correlations are high between the total engagements of the partner (*Engagements_Total*) and both *Female* and audits of investment funds.

Table 4 provides summary statistics at the engagement level for gender distribution by audit firm and entity type. On average, female partners issued 34% of audit reports, with Deloitte (51%), Grant Thornton (45%), Pricewaterhouse-Coopers (31%), KPMG (24%) and BDO (22%) having the highest overall female representation, and Ernst and Young (19%) and RSM (14%) the lowest. Across all firms, female partners sign the audit report on 17% of public issuers, 49% of investment funds, 24% of employee benefit plans, and 26% of single audits. These statistics provide initial support that women are more likely to be the engagement partner on the less prestigious engagement types (i.e., Investment Funds, Benefit Plans, and Single Audits).

Table 4 Summary statistics

Distribution of engagement partner gender by audit firm and entity type															
Firm	Total number of engagements			Public companies			Investment fund			Employee benefit			Single audits		
	Female	Total	% *F*	Female	Total	% *F*	Female	Total	% *F*	Female	Total	% *F*	Female	Total	% *F*
Deloitte	1020	2018	51	115	525	22	885	1406	63	17	65	26	3	22	14
EY	240	1232	19	122	715	17	85	378	22	18	83	22	15	56	27
KPMG	278	1138	24	62	479	13	122	381	32	4	36	11	90	242	37
PWC	559	1828	31	111	682	16	406	995	41	15	61	25	27	90	30
BDO	99	445	22	41	221	19	1	2	50	2	26	8	55	196	28
GT	517	1146	45	32	187	17	433	773	56	20	31	65	32	155	21
RSM	59	413	14	14	114	14	0	33	0	0	15	0	45	251	18
Total	2772	8220	34	497	2923	17	1932	3968	49	76	317	24	267	1012	26

Table 5 Partner characteristics and client type mix

Panel A: Partner characteristics (n = 1916)			
Variables	Male	Female	*T*-stat
Experience	25.39	23.12	6.02***
Elite_Education	0.07	0.07	0.26
Audit_Market_Size	99.86	116.58	2.03**
Engagements_Total	3.57	7.11	2.88***

Panel B: Partner and client type mix				
Number of partners and engagements by client type mix	Male partners	Female partners	Total partners	Engagements
Public company only	1078 (71%)	232 (60%)	1310 (68%)	2502
Single audit only	203 (13%)	74 (19%)	277 (15%)	1012
Public company and benefit plan	99 (5%)	20 (5%)	119 (6%)	455
Investment fund only	59 (4%)	33 (9%)	92 (5%)	2971
Public company and investment fund	45 (3%)	11 (3%)	56 (3%)	1037
Benefit plan only	34 (3%)	13 (3%)	47 (3%)	94
Investment fund and benefit plan	4 (< 1%)	4 (1%)	8 (< 1%)	86
Public company, benefit plan and investment fund	4 (< 1%)	3 (< 1%)	7 (< 1%)	63
Total	1526 (80%)	390 (20%)	1916	8220

Panel C: Average number of engagements per partner				
Client type	Male partners	Female partners	Total partners	*T*-stat
Public_Company	1.59	1.27	1.52	3.90***
Investment_Fund	1.33	4.95	2.07	2.95***
Benefit_Plan	0.15	0.19	0.17	1.00
Single_Audit	0.49	0.68	0.53	1.71*
Total	3.57	7.11	4.29	2.88**

This table presents the comparative descriptive statistics for the sample and includes observations with a male and female partner. All variables are defined in the Appendix. Significance is denoted ***, **, and * at the 1, 5, and 10% levels (two-tailed), respectively

Table 5 provides partner descriptive statistics and client type mix by gender. Panel A shows the average experience for male partners is statistically greater than female partners (25 versus 23 years). Very few partners overall (7%) attended elite institutions, and there was no gender difference. The size of the audit market is larger for female partners when compared to male partners (117 versus 100 clients), and female partners have on average 7 engagements as opposed to 4 for male partners. Thus, male partners have slightly

Table 6 Logistic regression modeling client prestige on partner gender

	Low_Prestige_Client Engagement level (1)	*Low_Prestige_Client* Partner level (2)
Female	0.681***	0.618***
	(3.99)	(4.46)
Experience	− 0.019*	− 0.021**
	(− 1.76)	(− 2.12)
Elite_Education	− 0.192	− 0.267
	(− 0.48)	(− 1.02)
Audit_Market_Size	− 0.065	− 0.130***
	(− 1.27)	(− 2.86)
Engagements_Total	1.635***	0.709***
	(20.15)	(10.38)
Constant	− 2.508***	− 1.708***
	(− 7.22)	(− 4.94)
Audit firm fixed effects	Yes	Yes
Observations	8220	1916
Pseudo R^2	0.508	0.125
Area under ROC curve	0.928	0.721

This table presents results from a logistic regression estimation of model (1) estimating low prestige engagements (i.e., non-public company engagements) on audit partner gender. Multicollinearity is not an issue, as the Belsley et al. (1980) collinearity diagnostics did not have any indices greater than 30 with variance inflation factors exceeding 0.50 for all models.

The unit of observation is at the individual engagement level in column 1 and the individual partner level in column 2. The sample includes all Form AP filers and single audits where data are available. Significance is denoted ***, **, and * at the 1, 5, and 10% levels (two-tailed), respectively.

Z-stats are in parentheses. All variables are defined in the Appendix

more professional experience compared to female partners and women work in larger audit markets.

Panel B of Table 5 presents client type mix by gender for our 1916 partners and their 8220 engagements. Several different patterns are evident between male and female partners. Seventy-one percent of male partners in our sample audit only public companies as compared to 60% of female partners. A much higher percentage of women than men have only single audits and investment funds in their portfolio (19 versus 13% and 9 versus 4%, respectively). Male and female partners were similar for benefit plans and mixed portfolios. Notably no partners who performed single audits also performed any of the other types of audits. Overall this table shows that 90% of partners specialize in one client type.

Panel C of Table 5 presents the average number of engagements performed by female and male partners within each client type. On average males audit significantly ($p < 0.01$) more publicly traded companies (1.59) when compared to female partners (1.27). However, on average women have significantly ($p < 0.01$) more investment fund (4.95) and single audit engagements (0.68) compared to their male counterparts (1.33 and 0.49, respectively).

Multivariate Results

RQ1: Engagement Prestige

Table 6 presents the main test of RQ1 using a logistic regression model to examine the likelihood of a lower prestige client type for female partners after controlling for partner characteristics. The dependent variable is *Low_Prestige_Client* equal to one (zero otherwise) if the engagement type is an investment fund, benefit plan, or single audit. The results in the first column estimate model (1) using individual engagement level data. Since Table 5 demonstrates considerable differences in the client type mix and number of clients served, we collapse the observations at the individual partner level and report the results in column 2. By collapsing observations at the partner level, we remove the effects of individual partners conducting multiple engagements.

Both columns 1 and 2 in Table 6 show positive and significant coefficients on *Female* (p values < 0.01). In both these model specifications, the control variables of experience (*Experience*) and the total workload of the partner (*Engagements_Total*) are significant. Audit market size (*Audit_Market_Size*) is only significant in column 2 and elite education (*Elite_Education*) is not significant.[5] This answers RQ1 which indicates women are more likely to be the engagement lead on lower prestige client types as predicted by both the theories of equalizing differences and statistical discrimination.

In untabulated robustness tests we remove the variables hand-collected through social media sites (*Experience* and *Elite_Education*) to increase our sample size to 11219 and our result that women are more likely to serve less prestigious clients (p value < 0.01) remains unchanged.

Supplemental Analyses of RQ1 by Audit Firm

While the above analysis includes audit firm fixed effects, we also consider if our findings vary by firm. Table 7 presents

[5] Given prior audit office level results in Hardies et al. (2018), we attempted to include a variable to control for audit offices using a hierarchical linear model (HLM) which allows for a different intercept for each office. Due to the sample size and degrees of freedom, this model could not be run at the engagement level (i.e., Tables 5 and 8 column 1). Although the model specifications were met at the partner level (i.e., Tables 5 and 8 column 2), an interclass correlation under 10% was found, suggesting that in our sample it is not necessary to control for audit office (Lee 2000).

Table 7 Logistic estimation of low prestige engagement on partner gender by audit firm with individual engagements ($n = 8220$) as the unit of observation

Firm	Deloitte	EY	KPMG	PWC	Non-Big 4
	Low_Prestige_Client	*Low_Prestige_Client*	*Low_Prestige_Client*	*Low_Prestige_Client*	*Low_Prestige_Client*
	(1)	(2)	(3)	(4)	(5)
Female	− 0.264	0.531***	1.127***	1.037***	0.686***
	(− 1.16)	(2.84)	(5.35)	(5.53)	(4.07)
Experience	− 0.042**	− 0.061***	0.040***	− 0.078***	0.024**
	(− 2.31)	(− 4.51)	(2.70)	(− 5.28)	(2.40)
Elite_Education	− 2.115***	0.286	0.204	0.196	− 0.148
	(− 6.08)	(0.87)	(0.54)	(0.64)	(− 0.52)
Audit_Market_Size	− 0.115	0.061	− 0.274***	0.039	− 0.165***
	(− 1.64)	(1.16)	(− 4.47)	(0.66)	(− 3.88)
Engagements_Total	2.008***	1.462***	1.847***	1.929***	1.415***
	(16.88)	(17.44)	(16.09)	(21.16)	(17.44)
Constant	− 2.027***	− 1.676***	− 2.726***	− 1.539***	− 1.935***
	(− 3.83)	(− 4.18)	(− 5.86)	(− 3.44)	(− 6.01)
Observations	2018	1232	1138	1828	2004
# Females	1020	240	278	559	675
Pseudo R^2	0.689	0.370	0.409	0.553	0.408
Area under ROC curve	0.973	0.866	0.895	0.938	0.902

This table presents results from a logistic estimation of model (1) where each audit firm is independently estimated and the dependent variable is *Low_Prestige_Client* defined as equal to one if the audit is not an audit of a public company (zero otherwise).

Significance is denoted ***, **, and * at the 1, 5, and 10% levels (two-tailed), respectively.

Z-stats are in parentheses.

The variable of interest is *Female*. All variables are defined in the Appendix

Table 8 Logistic estimation of low prestige engagement on partner gender by audit firm with individual partners ($n = 1916$) as the unit of observation

Firm	Deloitte	EY	KPMG	PWC	Non-Big 4
	Low_Prestige_Client	*Low_Prestige_Client*	*Low_Prestige_Client*	*Low_Prestige_Client*	*Low_Prestige_Client*
	(1)	(2)	(3)	(4)	(5)
Female	0.004	0.336	0.918***	0.760***	0.639**
	(0.01)	(1.04)	(2.82)	(2.63)	(2.37)
Experience	− 0.064*	− 0.071***	0.046**	− 0.078***	0.015
	(− 1.92)	(− 2.94)	(1.99)	(− 3.18)	(0.94)
Elite_Education	− 0.433	− 0.355	− 0.043	− 0.177	− 0.575
	(− 0.51)	(− 0.63)	(− 0.07)	(− 0.33)	(− 1.09)
Audit_Market_Size	0.090	− 0.045	− 0.411***	0.011	− 0.249***
	(0.58)	(− 0.43)	(− 3.67)	(0.11)	(− 3.21)
Engagements_Total	0.711***	0.361**	0.925***	1.006***	0.548***
	(4.31)	(2.01)	(5.24)	(6.88)	(4.03)
Constant	− 1.395	− 0.191	− 1.751**	− 0.663	− 0.603
	(− 1.37)	(− 0.28)	(− 2.37)	(− 0.91)	(− 1.15)
Observations	316	425	346	460	369
# females	63	81	63	103	80
Pseudo R^2	0.114	0.044	0.131	0.168	0.066
Area under ROC curve	0.669	0.645	0.720	0.749	0.675

This table presents results from a logistic estimation of model (1) where each audit firm is independently estimated and the dependent variable is *Low_Prestige_Client* defined as equal to one if the audit is not an audit of a public company (zero otherwise).

Significance is denoted ***, **, and * at the 1, 5, and 10% levels (two-tailed), respectively.

Z-stats are in parentheses.

The variable of interest is *Female*. All variables are defined in the Appendix

Table 9 Logistic estimation of high prestige engagement on partner gender

Client type	Panel A: Logistic estimation of high prestige engagement on partner gender for individual engagements (n = 5269[a])			Panel B: Logistic estimation of high prestige engagement on partner gender for individual partners (n = 493[a])		
	Investment company	Benefit plan	Single audit	Investment company	Benefit plan	Single Audit
	High_Audit_Fee	*High_Audit_Fee*	*High_Fed_Assist*	*High_Audit_Fee*	*High_Audit_Fee*	*High_Fed_Assist*
	(1)	(2)	(3)	(4)	(5)	(6)
Female	1.065**	0.147	0.358*	0.959**	− 0.365	0.928***
	(2.53)	(0.34)	(1.68)	(2.08)	(− 0.64)	(2.66)
Experience	− 0.048	− 0.021	− 0.008	− 0.018	0.006	− 0.006
	(− 1.64)	(− 0.61)	(− 0.45)	(− 0.51)	(0.12)	(− 0.27)
Elite_Education	− 0.016	0.357	− 0.427	− 0.636	0.626	− 0.408
	(− 0.03)	(0.58)	(− 0.85)	(− 0.85)	(0.71)	(− 0.46)
Audit_Market_Size	− 0.139	0.153	0.011	− 0.036	0.116	− 0.082
	(− 1.10)	(1.35)	(0.22)	(− 0.20)	(0.65)	(− 0.75)
Engagements_Total	0.156	− 0.259	− 0.114	− 0.105	− 0.548	− 1.369***
	(0.82)	(− 0.88)	(− 1.04)	(− 0.66)	(− 1.41)	(− 5.64)
Constant	1.590**	0.040	0.354	1.000	0.639	0.581
	(1.98)	(0.04)	(0.52)	(0.83)	(0.51)	(0.71)
Observations	3966	291	1012	136	80	277
Pseudo R^2	0.198	0.212	0.0983	0.066	0.146	0.216
Area under ROC curve	0.784	0.784	0.708	0.683	0.759	0.799

Panel A presents results from a logistic estimation where high prestige client is independently estimated for each client type. The dependent variable is *High_Audit_Fee* for columns 1 and 2 defined as equal to one if the audit fees for the client are above the median and the dependent variable is *High_Fed_Assist* for column 3 defined as equal to one if the federal expenditures for the client are above the median.

Panel B presents results from a logistic estimation where high prestige client is independently estimated for each client type. The dependent variable is *High_Audit_Fee* for columns 4 and 5 defined as equal to one if the audit fees for the client are above the median and the dependent variable is *High_Fed_Assist* for column 6 defined as equal to one if the federal financial assistance for the client is above the median.

Significance is denoted ***, **, and * at the 1, 5, and 10% levels (two-tailed), respectively.

Z-stats are in parentheses. The variable of interest is *Female.* All variables are defined in the Appendix

[a]Excludes observations where there was no variation for that audit firm in the dependent variable (i.e., all *High_Audit_Fee* were above the median)

an analysis at the individual engagement level of client type by partner gender for each of the Big 4 accounting firms and aggregated for the three non-Big 4 firms. The small number of observations within each client type for the non-Big 4 required aggregation across this category of firms. The coefficients on *Female* (p value < 0.01) are positive and significant for all audit firms except Deloitte. This indicates women, other than those at Deloitte, are more likely to serve low prestige clients.

To examine whether the coefficients are significantly different across the five analyses, we use simultaneous equations (untabulated) and find the coefficient for *Female* is significantly smaller (p value < 0.01) for Deloitte when compared to the others. Additionally, the coefficient on *Female* is statistically smaller for EY compared to PWC and KPMG. Lastly, the coefficient on *Female* is statistically smaller for the Non-Big 4 compared to the coefficient on *Female* for KPMG. All other comparisons of the coefficient on *Female* are not significantly different.

Similar to column 2 in Table 6, we also consider whether the variation in client type mix for partners influences the results. Thus, Table 8 collapses the observations to the individual partner level. By collapsing observations by audit partner, we remove the effects of an individual audit partner conducting multiple engagements. All results are consistent with Table 7 except the coefficient on *Female* for EY is no longer significant.

Supplemental Analyses of RQ1 Within Low Prestige Client Types

We also consider varying levels of prestige *within* each of our low prestige client types. Thus, for each low prestige engagement type, we create an indicator variable equal to one (zero otherwise) if the audit fees (for investment fund and benefit plans) or federal financial assistance (for single audits) are equal to or above median. For single audits, we

Table 10 Logistic and OLS regression estimation of partner gender on audit prestige of all public companies

Variables	Fortune_500_Company (1)	High_Audit_Fee (2)	Ln_Total_Assets (3)
Female	0.016	0.103	− 0.064
	(0.09)	(0.77)	(− 0.54)
Female_CEO_or_CFO	0.640***	0.354***	0.308***
	(4.24)	(2.93)	(3.06)
Experience	0.095***	0.071***	0.071***
	(8.49)	(7.50)	(8.88)
Elite_Education	0.224	0.299	0.536***
	(0.82)	(1.44)	(3.18)
Audit_Market_Size	− 0.067	0.057	− 0.006
	(− 1.22)	(1.47)	(− 0.21)
Engagements_Total	0.169	− 0.157	− 0.028
	(0.76)	(− 1.00)	(− 0.18)
Public_Co_Portfolio	− 0.476***	− 0.205**	− 0.159**
	(− 3.73)	(− 2.56)	(− 2.07)
Constant	− 3.198***	− 1.001***	6.252***
	(− 7.97)	(− 3.28)	(22.95)
Audit firm fixed effects	Yes	Yes	Yes
Observations	2267	2267	2267
Pseudo R^2	0.140	0.164	0.205
Area under ROC curve	0.771	0.758	N/A

Columns (1) and (2) presents results (*Z*-stats in parentheses) from a logit regression estimation of model (2). Column (3) presents results (*t*-stats in parentheses) from an ordinary least squares regression estimation of model (2). The dependent variable is *Fortune_500_Company, High_Audit_Fee,* and *Ln_Total_Assets.* The sample in columns includes all Form AP filers for public companies. Significance is denoted ***, **, and * at the 1, 5, and 10% levels (two-tailed), respectively.

All variables are defined in the Appendix

use federal financial assistance instead of audit fees as this most comprehensive measure of client size that is readily available. The dependent variable is *High_Audit_Fee* for investment companies and benefit plans, and *High_Fed_Assist* for single audits. Table 9 Panel A estimates model (1) at the engagement level and Panel B estimates model (1) at the partner level.

The coefficient on *Female* in Panel A remains positive and significant for investment funds (p value < 0.05) and single audits (p value < 0.10), suggesting that women are more likely to serve larger and potentially more prestigious clients within these two lower prestige client types. However, we fail to find significance on *Female* within benefit plans. Panel B presents results at the partner level. The coefficient on *Female* remains significant and positive for investment companies and single audits (p value < 0.05 and p value < 0.01, respectively). Taken together, the results provide evidence that women serve more prestigious clients within investment funds and single audits.

RQ2: Test of Gender Bias in Engagement Prestige of Public Clients

Table 10 examines RQ2, which considers whether there is a gender bias in prestige of public company clients. Three different measures of prestige are considered in Table 10 including an indicator variable equal to one (zero otherwise) if the company is in the Fortune 500, an indicator variable equal to one (zero otherwise) if the total audit fees are greater than the median[6] of public companies, and the log of total assets. The Fortune 500 and audit fee variables are analyzed using a logistic regression and total assets is analyzed using an OLS regression. By restricting the sample to public company clients, any gender bias would arise from the firm or the client, rather than being an artifact of female preferences for flexibility or statistical discrimination.

Our results show insignificant coefficients on *Female* for all three measures of prestige. This result informs RQ2 as we

[6] Our results remain qualitatively unchanged if we use the top 20, 25, and 33 & 1/3 percent of audit fees of clients within the audit firm.

find no evidence of gender bias for or against women serving the more prestigious public companies.

The positive and significant coefficients on *Experience* suggest audit partners with more experience serve larger and more prestigious clients. Further, the positive and significant coefficient on *Female_CEO_or_CFO* suggests that the CEOs and/or CFOs for prestigious clients are more likely to be a woman, which may be indicative of companies' initiatives for diverse leadership. In sum for RQ2, we fail to find any gender bias in accounting firms for partners serving more prestigious public companies.

Discussion, Conclusion, and Limitations

Public accounting firms have long been considered gendered organizations (Dambrin and Lambert 2012; Haynes 2017). Yet in order to maintain high audit quality, firms need to attract and retain talent from a diverse pool of professionals. Given that women are over half of new public accounting hires, female retention up to and including the partner level is imperative to sustainability of the accounting profession. Over a decade ago, the Treasury Department TCAP report (U.S. Department of the Treasury 2008) highlighted the paucity of women in public accounting partnership roles. Since then, firms have expended tremendous effort to address these issues, but gender equality outcomes have been difficult to assess by mere raw percentages of female partners publicly disclosed by firms. Our study exposes gender bias which may be contributing to gender imbalance at the partnership level by highlighting prestige differences in the work performed by female and male audit partners. It is important to examine accounting firm partners as part of the larger issue of gender equity to understand the extent to which women at the highest levels of organizations continue to be marginalized (Haynes 2017).

Before discussing the results related to our research questions, it is important to note the demographic differences in our sample. The female partners are slightly less experienced than the men and are more likely to be in a larger market and have more engagements overall. The higher number of engagements is primarily driven by women having client portfolios made up of fewer public companies, and more investment funds and single audit engagements.

Our results indicate that women do disproportionately serve lower prestige client types. Although it is possible that this is due to women self-selecting into these more flexible client types earlier in their career as they specialize into certain industries, our results are also consistent with taste discrimination and/or statistical discrimination on the part of the firm. Particularly given the persistence of highly visible news accounts of gender discrimination allegations in large public accounting firms, future behavioral and survey research should consider the factors which cause women to be represented in larger percentages in these lower prestige client types.

On the other hand, within the public companies, there is no gender difference in the prestige of public companies served. In interpreting these results, one must keep in mind that the women who succeed to this level have had to navigate the labyrinth (Eagly and Carli 2007) of a gendered public accounting firm. The group we are studying are the ones that have been successful, potentially by adopting the gendered components of individual identity (Acker 1990) consistent with male stereotypes. Particularly given that the results of RQ1 suggest bias may still exist in type of client served, future research should consider examining the various critical decision junctures, organizational factors and personal qualities that impact success in getting to this level within the most prestigious client types.

Women are also more likely to lead engagements for the most prestigious single audits and investment funds. Future research should consider potential explanations for this interesting finding. For example, it may be that among the top talent for each gender, men are more likely to focus on public company audits, while the women in larger numbers focus on the client types with greater flexibility. Alternatively, it may be possible that among single audits clients subject to laws favoring women and minority contractors, the larger more influential clients may have a preference for female partners.

Finally, we found there are firm specific differences in the extent of gender equity in the prestige of clients. Most notable, we found that at both the individual partner and engagement level, Deloitte female partners are no more likely than men to serve low prestige client types. In contrast, our tests show some level of bias at all the other firms. There are a number of potential explanations for this finding that future research should consider. For example, could it be that some firms use different criteria to promote within each of the client types? Are different firms more or less effective at creating a culture or programs in which women are likely to meet the expectations to achieve the partnership and focus on public companies? Finally, might the extent to which desired flexibility impacts a woman's career (Kornberger et al. 2010) vary by firm? Answers to these questions go beyond the scope of the current study, but our findings highlight that the number of female partners disclosed by firms portrays an overly optimistic picture of gender equality. Firms are only disclosing aggregated numbers of female partners, and our results demonstrate there are differences in types of clients that female partners serve, and that barriers emanating from a gendered hierarchy still exist within the profession (Kyriakidou et al. 2016).

While our study uses an archival approach to establish the existence of gender differences, more research is needed to better understand the underlying mechanism driving our results. Current female partners have entered the partnership

over a three-decade period of dramatic change. Appreciating lack of gender parity within the partnership requires understanding the numerous decision junctures which affect women's careers and their related specialization in certain client types. If women work in lower prestige areas earlier in their careers, industry specialization in the firms suggests they will continue in those same lower prestige tracks to the partnership. This lack of being put into high profile assignments throughout a career is one reason noted by Cohen et al. (2019) that female accountants believe the glass ceiling exists. Structured interviews or survey-based research is needed to discern whether this specialization process is driven more by firms engaging in taste-based or statistical discrimination, or by female professionals' personal preferences for flexibility as explained by WTP. Investigating how partners end up in different client types has implications for firms seeking to retain and advance women. The resulting understanding would allow firms to implement processes to deploy personnel to client types aligned with the professionals' interests.

Our results also highlight the need to better understand where all the female partners are being deployed in their firms, not just those who are included in publicly available data used in our research. For example, are female partners disproportionately in client service versus non-client service roles? Are female partners being equally selected for office practice leader or managing partner and firm-wide leadership roles? Furthermore, research is needed to better understand gender differences in grooming prospective and new partners. Aspirant partners likely perceive the disparity in prestige of work performed by men and women as they look at the leadership ranks, which may contribute to women exiting the profession in a greater proportion than men.

As more years of data become available through Form AP, it would also be of interest to consider the circumstances where clients have a preference for women to serve as the lead engagement partner. While all three of our theories predict female partners are more likely to lead less prestigious audit engagement types, the current business culture which focuses on corporate social responsibility and sustainability may actually have the opposite effect. Stakeholder theory posits that the current business environment makes the promotion of gender equity a business imperative (de Anca and Gabaldon 2014). This may result in corporate boards who appoint the audit partner preferring female audit partners in order to respond to calls for gender equity from constituent groups. Since these female partners are a relatively "scarce" resource, it may be that these women are allocated to new clients as a competitive strategy.

Results of our study also call attention to the need for better understanding the retention of women in the partnership. Anecdotally, women are more likely to leave the partnership than males, which is echoed in Hermanson et al. (2016). In their structured interviews, partner comments highlight the increasing difficulty of the job due to long hours, stress and pressure from the PCAOB. One partner stated, "We are struggling to retain audit partners, especially women." (Hermanson et al. 2016, p. A40). Future research is needed within the partner class to understand partner turnover differences by gender. For example, does the short supply of high-level female accounting talent and pressure on public corporations for greater diversity make opportunities outside the firms more attractive?

Finally, our research could also be informative when considering whether there are gender-based compensation differences among partners. Recent mandated Big 4 gender pay gap disclosures in the UK and Australia (EY 2017; KPMG 2017; PWC 2017) conclude that while there is equal pay for equal work, a pay gap arises because of the lack of women in senior positions. Given that our study found female partners were more likely to audit lower prestige types of clients, this raises the issue of whether a similar wage gap exists within the Big 4 audit firms in the U.S.

This study is subject to limitations due to data availability in several respects. Our research design employs only publicly available names of audit engagement leaders. This approach precludes analysis of assurance partners who do not serve as engagement leads for public filers or single audits. Partners are excluded who serve non-public companies, or occupy positions as firm-wide technical experts, quality reviewers and supporting partners (i.e., non-signing partners). Our data is also limited by incomplete social media profiles which may bias against findings as younger (and more gender diverse) partners are more likely to engage in social media. Data limitations also preclude taking into account the audit office which prior research has been found to impact results in a different national context (Hardies et al. 2018). Additionally, although three different commonly utilized measures of prestige were considered within the public company sample, it is possible that measurement error was present. Finally, our study is limited by the availability of archival data. A rich understanding of the causes of gender bias requires a multi-method approach to include field studies, experiments, and surveys. Future research should consider a broader population of current and past partners, including those who have chosen to retire early (PCAOB 2017), possibly because of issues related to gender.

Data Availability Data are available from the public sources cited in the text.

Appendix

Variable definitions	
Variable name	Variable definition
Independent variable of interest	
Female	Indicator variable equal to one (zero otherwise) if the engagement lead is a woman. (Source: Hand-collected)
Client types	
Benefit_Plan	Indicator variable equal to one (zero otherwise) if the auditee is a benefit plan. (Source: Form AP)
Investment_Fund	Indicator variable equal to one (zero otherwise) if the auditee is an investment fund. (Source: Form AP)
Public_Company	Indicator variable equal to one (zero otherwise) if the auditee is a publicly traded company. (Source: Form AP)
Single_Audit	Indicator variable equal to one (zero otherwise) if the auditee is subject to a single audit because it receives federal funding. (Source: Federal Audit Clearinghouse)
Low_Prestige_Client	Indicator variable equal to one (zero otherwise) if the engagement is NOT a public company client type (i.e., a benefit plan, single audit, or investment fund). (Source: Form AP and Federal Audit Clearinghouse)
Partner control variables	
Audit_Market_Size	The number of publicly traded clients for each partner's city for 2015. (Source: Form AP and Federal Audit Clearinghouse)
Elite_Education	Indicator variable equal to one (zero otherwise) if the partner graduated (undergraduate or graduate) from an elite institution as defined by Badalto et al. (2014). (Source: Hand-collected)
Engagements_Total	The number of audit engagements each partner signed during the one-year period. (Source: Form AP and Federal Audit Clearinghouse)
Experience	A proxy for the work experience of the partner calculated as the number of years since the partner graduated with their undergraduate degree winsorized at the 1st and 99th percentiles. (Source: Hand-collected)

Variable definitions	
Variable name	Variable definition
Public company control variables	
High_Audit_Fee	Indicator variable equal to one (zero otherwise) if the total audit fees are greater than the median audit fees within public companies. (Source: Audit Analytics)
Ln_Total_Assets	Log of total assets of the client. (Source: Compustat)
Female_CEO_or_CFO	Indicator variable equal to one (zero otherwise) if the CEO or CFO is a woman. (Source: BoardEx and Execucomp)
Fortune_500_Company	Indicator variable equal to one (zero otherwise) if the client is a Fortune 500 company. (Source: Compustat)
Public_Co_Portfolio	Number of Public Companies the audit partner serves in the current year. (Source: Form AP)
Change	Indicator variable equal to one (zero otherwise) if it is the audit firm's first year auditing the client. (Source: Audit Analytics)
Alternative measures of prestige	
High_Audit_Fee	Indicator variable equal to one (zero otherwise) if the total audit fees (for investment fund and benefit plans) are greater than the median audit fees within each engagement type. (Source: Audit Analytics)
High_Fed_Assist	Indicator variable equal to one (zero otherwise) if the total federal financial assistance is greater than the median for single audits. (Source: Federal Audit Clearinghouse)
Variables for partner level analyses	
Low_Prestige_Client	Indicator variable equal to one (zero otherwise) if the partner serves at least one engagement that is NOT a public company client type (i.e., a benefit plan, single audit, or investment fund). (Source: Form AP and Federal Audit Clearinghouse)
High_Audit_Fee	Indicator variable equal to one (zero otherwise) if the total audit fees for that partner's portfolio (for investment fund and benefit plans) are greater than the median audit fees within each engagement type. (Source: Audit Analytics)

Variable definitions

Variable name	Variable definition
High_Fed_Assist	Indicator variable equal to one (zero otherwise) if the total federal financial assistance for the partner's portfolio is greater than the median for single audits. (Source: Federal Audit Clearinghouse)

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