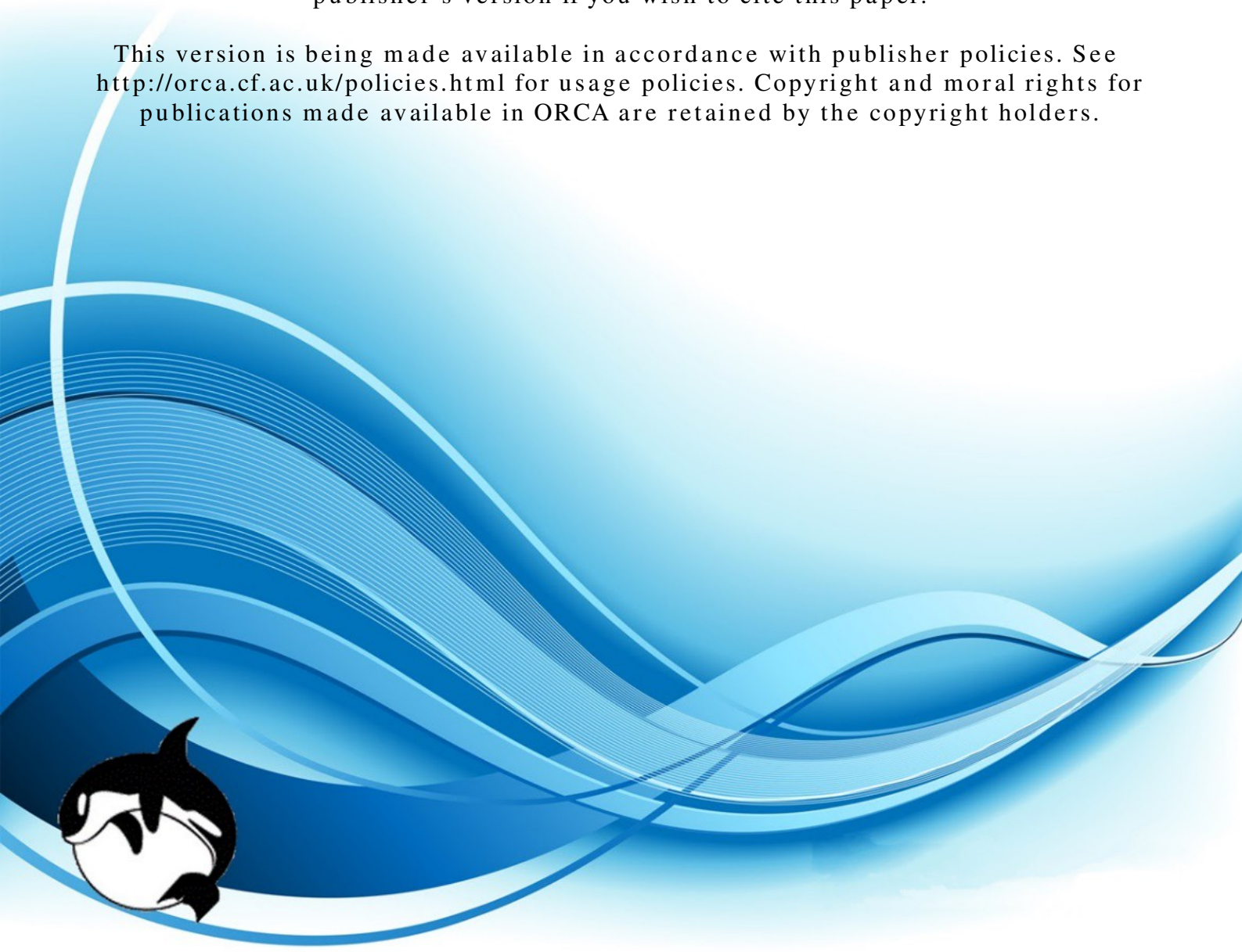

Reporting Accountant Appointments and Accounting Restatements: Evidence from UK Private Companies

Abstract

In recent years, regulators have exempted an increasing number of companies from the requirement to appoint auditors, yet little is known about the role of the accounting profession in preparing and validating the financial statements of unaudited companies. In this paper, we examine empirically the factors associated with the appointment of reporting accountants. We then provide novel evidence on whether unaudited UK small private companies are less likely to restate their annual accounts when they have been prepared by an external accountancy firm (i.e., a reporting accountant). Based on a cross sectional analysis of a large sample of small private unaudited UK companies, we find that, in accordance with the 'confirmation hypothesis', larger companies that voluntarily disclose more financial information are more likely to appoint a reporting accountant. We also find that the accounts of companies with a reporting accountant are significantly less likely to be restated than those without. This result is more pronounced for companies disclosing more financial information and for those employing a larger accounting firm. Given the dwindling number of private companies opting for audits, our findings contribute to debates on the role of the accounting profession in enhancing private company financial reporting quality.

Keywords: Reporting accountants; accounting restatements; disclosure; private companies.

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1. Introduction and background

The extent to which private companies are exempt from the obligation to publish audited financial statements is a major accounting policy issue (e.g., Breuer, 2018; BEIS, 2017). The main dilemma regulators face is to balance the information needs of outside stakeholders conducting business with a limited liability company, with the direct and indirect costs to small, closely held, private companies of the preparation, disclosure and audit of accounting information. Over time, regulators have progressively increased the size thresholds that allow UK and EU private companies to claim exemption from external audit, such that companies filing unaudited financial statements now dominate the small company sector. For instance, 486,600 British companies filed audit exempt accounts at Companies House (CH, the UK regulator) in 2002, whereas 1,713,000 did so in 2014 (CH, 2003; CH, 2014). This has led audit professionals and credit ratings agencies to express concern about the implications for unaudited firms' financial reporting quality (Dedman and Kausar, 2012). However, audit is not the only option available to small private companies. They may opt to appoint an external accountant to prepare and report on their statutory annual financial statements. This offers a lower level of assurance than a full audit, but comes at a lower cost (Stewart, 2017).

Motivated by the lack of evidence on the large and growing unaudited private company sector, this paper has two main objectives. The first is to examine empirically the factors associated with the appointment of independent accountancy firms (i.e., reporting accountants) to prepare annual statutory accounts. This choice is made by a large proportion of small private companies, yet little is known about what drives it. The second is to provide evidence on whether unaudited companies whose annual accounts disclose they are prepared by a reporting accountant are less likely to be restated than the accounts of firms without a reporting accountant.

Existing research on private company financial reporting and assurance focuses predominantly on the impact of voluntary audits for companies (particularly those opting to publish full, rather than abbreviated financial statements) on a variety of outcomes, including the cost of debt, credit scores and

measures of financial reporting quality (e.g. Kim, Simunic, and Stein, 2011; Lennox and Pittman, 2011; Dedman and Kausar, 2012; Vanstraelen and Schelleman, 2017; Haapamäki, 2018). Studies of the determinants of credit scores report that small UK private companies receive significantly better credit scores when they opt to have an audit (Lennox and Pittman, 2011; Dedman and Kausar, 2012). This is attributed to signalling/assurance, regardless of whether the information produced in audited financial statements is of higher quality. Lennox and Pittman (2011) argue that mandatory audit regimes may be undesirable because they deprive companies of the option to signal their type *via* their choice of audit. Nevertheless, a signalling explanation of voluntary audit says little about whether the positive signal generated by added outside assurance is justified by intrinsically higher quality information.

The quality of private firms' accounting information is important for a number of reasons. First, even though private companies have lower information asymmetry than public companies (Minnis and Schroff, 2017), they typically depend heavily on debt financing (Brav, 2009; Peel, 2019) and recent evidence confirms that banks rely on financial statement information for *ex post* monitoring of borrowers' financial condition and collateral (Minnis and Sutherland, 2017). Restatements of private companies' accounting information are important because a lack of accurate accounts reduces their utility and reliability for contracting and monitoring purposes.[1] For example, lenders use financial covenants to impose maximum limits on additional borrowing and dividends, as well as minimum levels of performance and capital ratios, such as debt to equity or debt to profits. These covenants are designed to assign decision rights to lenders in the event of deteriorating performance (e.g. Armstrong, Guay and Weber, 2010). If the accounting information used for calculating these covenants contains errors, its usefulness to lenders will be impaired because the covenants may either indicate a company is in breach when it is not or, more seriously, suggest that a company is not in breach when it is. Second, in the event of a company sale, it is likely that the accuracy of the publicly available information will form part of buyers' financial due diligence processes. Third, because accounting

[1] For a report that restatements of private companies' accounts may affect financiers' decisions, see https://www.thetimes.co.uk/article/can-i-change-filed-accounts-fqrlblfzt (last accessed 13 April 2020). Also see the 2015 court case of Bluefoot Foods Ltd v Greater London Authority, where an expert witness noted that the fact that the company had amended its accounts at Companies House would have affected its valuation.

information fulfils more of a taxation role for private companies (e.g. Ball and Shivakumar, 2005; Burgstahler, Hail and, Leuz, 2006), restatements may also reflect incentives to minimise tax liabilities.[2]

Prior research reports that unaudited companies are around twice as likely to publish defective annual accounts as their audited counterparts, after controlling for differences in characteristics between audited and unaudited companies in a voluntary regime (Clatworthy and Peel, 2013). In this paper, we build on these findings by examining whether the involvement of an outside accountant in the preparation of financial statements is associated with improved financial reporting accuracy for companies opting out of audit. Our analysis is based on a large dataset[3] of over one million private UK companies with financial year ends in 2009/10.

We aim to shed light on whether concerns about the lifting of audit thresholds necessarily reflect uniformly lower accounting quality for unaudited companies. We also contribute to the debate on whether increases in the mandatory audit size threshold could be accompanied by requirements for private companies to face alternative, lower cost and more limited assurance (e.g. Stewart, 2017).[4]

Prior research by Berger, Minnis, and Sutherland (2017) indicates that US banks differentiate between audits and more limited assurance reviews, but they also recognise 'compilations', where no outside audit assurance is provided, but where an external accountant prepares the financial statements. These are classified differently to 'company-prepared' financial statements with no outside assurance or with no involvement from an external accountant. *Prima facie*, such evidence suggests that users perceive outside professional accountants enhance the quality of accounting information. In contrast, Peel (2019) finds that the credit scores of UK small/micro[5] start-up companies with reporting accountants are statistically indistinguishable from their counterparts with no reporting accountant. This

[2] For an example of a case where accounts filed at Companies House understated a company's financial position and thus understated corporation tax charges, see https://www.icaew.com/-/media/corporate/files/about-icaew/what-we-do/protecting-the-public/disciplinary-orders/january-2020.ashx?la=en (accessed 13 April 2020).

[3] The dataset we use is no longer available from FAME. We collected the data from a FAME DVD that permitted unrestricted downloads. This enabled us to assemble a dataset sufficiently large to compute the required variables for the population of UK small, independent private limited companies on FAME. However, the FAME discs have since been discontinued, so the data are only accessible via the internet, which imposes significant restrictions on the amount of data available for download.

[4] In the UK, exemption from audit was introduced in 1994 (SI 1994/1935). A company with sales between £90,000 and £350,000 was given the option of filing an accountant's compilation report, but this was dropped in 1997 when the threshold was raised to £350,000 (SI 1997/936). Under these regulations, the report was to state whether, in the opinion of the reporting accountant making it, the accounts were in agreement with the accounting records kept by the company and were prepared in line with the provisions of the Companies Act.

[5] Recently, for the very smallest companies, the UK introduced a new 'micro-entities' category. Micro companies need only file an unaudited balance sheet containing even less information than is required for small companies.

indicates that, unlike for voluntary audits (Lennox and Pittman, 2011; Kausar, Shroff, and White, 2016), the presence of a reporting accountant does not appear to be valued by credit scorers, even for the most informationally opaque companies.

The limited available evidence on the antecedents and consequences of outside accounting expertise in the preparation of financial statements motivates our study. We provide empirical evidence on the extent of the involvement of the accounting profession in compiling private company financial statements when there are extensive exemptions from audit. We then examine whether companies which have their annual financial statements prepared by reporting accountants file fewer restatements.

Whereas only 3% of small independent private companies voluntarily appoint an auditor (Clatworthy and Peel, 2013), in our sample, over 50% of companies disclose in their financial statements that they appointed a reporting accountant. The relatively high proportion of private companies with reporting accountants emphasises the potential importance of the market for accounting services outside the provision of audit and assurance.

An important barrier to assessing the influence of professional accountants on private companies' financial reporting is the lack of available empirical constructs to measure reporting quality. The vast majority (circa 85%) of small private companies choose not to disclose an income statement, and even fewer voluntarily disclose a cash flow statement, thus prohibiting the use of accruals quality measures. Moreover, using the small proportion of companies which disclose sufficient data for conventional accounting quality measures risks producing biased estimates that are unrepresentative of the broader population of private companies. It may be possible to use survey data, though this is often very difficult to obtain. Using tax compliance data provided by the Norwegian Directorate of Taxes, Downing and Langli (2018) report that Norwegian firms opting out of audit after the lifting of the mandatory threshold suffer a reduction in their tax and accounting compliance scores. However, opt-out companies are able to mitigate the effects of the reduction in compliance scores by engaging external accountants or audit firms to prepare their accounts.

Our chosen measure of financial reporting quality (whether private companies file amended accounts at CH), does not require high levels of voluntary disclosure and is objective in nature, resembling restatement measures used in a variety of studies of US public companies (e.g. DeFond and

Jiambalvo, 1991; Kravet and Shevlin, 2010; Dechow, Ge, Larson and Shrand, 2011). In the UK, all statutory annual accounts filed at CH must comply with Companies Act regulations and provide a true and fair view. Restatements of accounts may be instigated by companies or by CH where the original accounts are defective[6] (Clatworthy and Peel, 2013).

Restatement measures benefit from not requiring the specification of an empirical model to estimate accounting quality (as the dependent variable) because an outside source - in our case, company directors or CH - has identified a problem with the initial filing (e.g., Dechow, Ge and Shrand, 2010). However, an issue with extant auditing research which examines quality in terms of audit qualifications, litigation, SEC actions, fraud cases and accounting restatements, is that in the population, there may be cases where these events should have occurred, but they were not detected, disclosed or pursued (Francis, 2011). Hence, as with these studies, a limitation of our measure is that we only have a limited insight into the process by which restatements are identified, either by CH or company directors. We are therefore unable to ascertain the extent to which companies not recorded as filing amended accounts were truly error free. As Dechow et al. (2011) note in their study of US SEC Accounting and Auditing Enforcement Releases, although restatement measures have low Type I error rates, some companies which should have restated their accounts are likely to go unidentified.

By its nature, the degree of bias associated with this issue cannot be reliably measured. However, it is possible to speculate on the direction any bias will have on the estimated treatment effect. Other things equal, the larger the number of unidentified defective accounts, the more the treatment effect is biased downward (i.e., the smaller will be the significance of the negative impact of reporting accountant appointments on restatements). This is because if such cases were correctly recorded as restatements, model fit would improve, including with respect to the treatment effect. Hence, reported empirical findings may be conservative in this regard.

In an attempt to address this issue, we implement an entropy matching technique to estimate treatment effects in samples with similar corporate attributes and find that treatment estimates are in

[6] Neither FAME nor CH indicates the type of error leading to the filing of restated accounts. However, in studying the effects of voluntary audit on private company restatements, Clatworthy and Peel (2013) examine the amended accounts of a random sample of 80 companies (40 of which were audited), together with the original accounts. Just under 70% of amendments involved changes to financial statement figures, with the remainder being due to compliance errors (such as those related to notes to the accounts and formatting).

line with those estimated with standard logistic regression models.[7] We also posit that companies paying a fee to hire a reporting accountant for their expertise in preparing annual statutory accounts, do so in expectation of filing accounts which meet the requirements of Companies Act provisions (i.e. they are less prone to file restatements). It seems reasonable to assume, therefore, that companies which file accounts containing undetected errors are less likely to have appointed a reporting accountant. Put another way, if a reporting accountant had been appointed, problems with the accounts are more likely to have been detected and corrected. If this is the case, our reported treatment estimates will be understated (i.e., are more conservative), since the proportion of companies filing defective accounts without a reporting accountant would otherwise have increased.

To provide context and background for our main restatement analysis, we firstly provide new evidence on the factors associated with the appointment of reporting accountants, including higher quality (larger) ones. In particular, we examine the impact of variables representing financial reporting 'quality' dimensions on the propensity to appoint reporting accountants. *Inter alia*, in line with the 'confirmation hypothesis' of Ball, Jayaraman, and Shivakumar (2012), we find that that larger companies which file full accounts are more likely to appoint reporting accountants and that this effect is more pronounced for larger (higher quality) reporting accountants.

In our main analysis, we examine the consequences of appointing a reporting accountant. Our principal result is that unaudited accounts without a reporting accountant have a significantly higher likelihood of being restated. Moreover, the effect is substantial, being around 39% (17%) higher than for companies with full (abbreviated) accounts with a reporting accountant. These findings suggest that intermediate levels of assurance short of an audit can have a material effect on restatement propensity and that this may offer an alternative policy response to mandating a statutory audit for private companies. In further analysis, we show that the effect is more pronounced for larger accounting firms.

We next set out the institutional background to our empirical study, together with our main hypothesis. Our data and variables are described in Section 3, while Section 4 contains our examination of the factors associated with the appointment of reporting accountants. Section 5 presents evidence

[7] We thank an anonymous referee for suggesting this analysis.

regarding whether reporting accountants are associated with fewer accounting restatements and Section 6 concludes.

2. Institutional background and research hypothesis

In the UK, all companies are required to file their annual accounts at CH, the UK regulator and repository for official corporate documentation, where they become publicly available. During the period for which we collect data, small private companies meeting the respective size limits[8] were required to file only an unaudited abbreviated balance sheet at CH. However, companies could voluntarily appoint an auditor or a reporting accountant and/or could choose to file full accounts. According to UK law, small private companies are not required to appoint or consult an accountant or auditor for any purpose. Moreover, they have no obligation to appoint an independent accountancy firm to prepare their annual accounts. Nevertheless, CH advises small companies that they 'may wish to consult a professional accountant before [they] prepare accounts' (CH, 2015, p. 28).

What is presently not known from existing research is what factors are associated with the appointment of reporting accountants. Because of the lack of directly relevant research on this important issue, we draw on the voluntary audit literature to guide the development of empirical models. The lower expected assurance and signalling value associated with reporting accountants inevitably means that our investigation remains exploratory in nature. As Vanstraelen and Schelleman (2017) note, the demand for voluntary audit of private companies is still not well understood and in the absence of regulation, can be explained in theory by, *inter alia*, information/signalling, agency/monitoring, insurance and organizational control factors.

Based on predictions from agency theory, Dedman, Kausar, and Lennox (2014) find that larger, riskier, more complex private companies, with higher leverage, larger boards and greater ownership dispersion are more likely to voluntarily appoint auditors. We rely on these findings to examine whether similar relationships hold for the determinants of appointing a reporting accountant.

[8] Under the 1985 (2006) Companies Acts, private firms could file abbreviated accounts if they met two of the following criteria: sales must not exceed £5.6m (£6.5m); total assets must not exceed £2.8m (£3.26m); and the number of employees must be 50 or lower. However, mandatory audit could only be avoided if both the sales and total assets criteria were met.

Our main hypothesis relates to the consequences of having a reporting accountant, in particular whether accounts bearing the imprimatur of a reporting accountant[9] are less likely to be restated than those that do not. Consistent with this, the Association of Chartered Certified Accountants states (ACCA, 2017, p.1):

> '*The objective of an account's preparation engagement is for the accountant to use accounting expertise, as opposed to auditing expertise, to collect, classify and summarise financial information. This ordinarily entails reducing detailed data to a manageable and understandable form without a requirement to test the assertions underlying that information. The procedures employed are not designed, and do not enable the accountant, to express any assurance on the financial information. However, users of the information that has been prepared derive some benefit as a result of the accountant's involvement because the service has been performed with professional competence and due care'.*

Hence, relative to unaudited companies without a reporting accountant, we expect that the appointment of outside accountants for the preparation of financial statements will enhance the accuracy of the information. Our hypothesis, expressed in alternative form, is therefore:

> **H1.** The accounts of unaudited companies with a reporting accountant are less likely to be restated than those without a reporting accountant.

Despite our prediction in H1, it is possible that reporting accountants will have no significant bearing on levels of restatements in private companies. Companies preparing their own accounts may be capable of organising their internal accounting functions without external accounting expertise. Consistent with the idea of internal and external auditing and control functions being substitutable, Jensen and Payne (2003) report that large US municipal organizations achieve the same level of control using different mixes of both. However, this may be less likely for resource-constrained small companies, which are typically unaudited.[10]

3. Data and variables

[9] Where an accountant's name appears on the accounts, professional accounting bodies recommend that the accounts should contain an accountant's report stressing that the compilation of accounts does not constitute an audit and that the liability of the accountant is restricted to the company and its directors (ACCA, 2017; ICAEW, 2016).

[10] Note also that membership statistics of UK professional bodies suggest that a high proportion of qualified accountants work inside companies (i.e., in 'industry'), rather than in accounting/audit firms (FRC, 2018). However, small private companies may not have the resources to appoint accountants on a permanent basis.

We obtain data from the FAME 2010 DVD, which contains the population of small UK companies. We focus on independent (i.e., not subsidiary) companies to avoid the possible influence of larger, public holding companies. Our sample comprises 1,033,032 unaudited small, independent companies. The FAME data enable us to identify companies with a reporting accountant, those disclosing full or abbreviated accounts and whether companies submitted amended (i.e., restated) accounts to CH.

Table 1 includes the labels, definitions and comprehensive summary statistics for the variables employed in our analysis.[11] At this stage we note the definitions of our principal variables are: 1 if a company filed amended accounts, 0 otherwise (*RESTATE*) and 1 if accounts disclose a company had appointed a reporting accountant, 0 otherwise (*REPACC*). The average financial position of small private companies is precarious: the mean leverage ratio (*LEV*) exceeds 100%, with the median being 0.786. Furthermore, over 20% (40%) of the companies in our sample report negative equity (negative working capital).[12] As discussed in Section 5, all independent variables are included in the restatement regression models, whereas a subset is employed in estimating the determinants of *REPACC*.

Insert Tables 1 and 2 about here

4. Factors associated with reporting accountant appointments

To provide background and context for our restatement analysis, in this section we examine the factors associated with the appointment of reporting accountants. Table 2 compares the characteristics of subsamples of unaudited companies with and without a reporting accountant. On a univariate basis, other than for the proportion of companies that failed (*FAIL*), all variables differ significantly at $p \leq 0.001$. In particular, on average, companies with a reporting accountant are larger (*LNSIZE*), older (*LNCOAGE*), have a larger board (*LNBRDSIZE*), more shareholders (*TOTSHAR*), a higher proportion of female board members (*PROPFEM*) and exhibit lower risk/higher performance measures (*LEV*,

[11] *LEV, RETPROF*, *DIRAGE* and *TENURE* are winsorized at the 0.01 level to reduce the effects of extreme observations.

[12] We also estimated our main models with maximum values of *LEV* set at 7, 5 and 1 and our inferences are unchanged. We checked the largest value for *LEV* back to the company's original accounts and the data are accurate. For the year ending 30 June 2009, Kniver Web Marketing Limited (registered number 05857129) filed its balance sheet reporting total assets of £2,335, total liabilities of £32,148 and negative equity of (£29,813). This leads to the ratio of 13.768, which is the 99th percentile of the distribution - and hence the maximum of the winsorised variable *LEV*.

NEGEQ, *NEGWC*, *RETPROF* and *COURT*). They are also significantly less likely to file their accounts late (*LATE*). Consistent with Jensen and Payne (2003), the lower incidence of accountants on the board (*ACCBRD*) for firms with a reporting accountant suggests that internal accounting expertise may substitute for external expertise.

On the basis of available theory and evidence on the demand for private company audit (Vanstraelen and Schelleman, 2017), we expect a positive relationship between company size and *REPACC*.[13] On a cost-benefit basis, Dedman et al. (2014) note that the relationship between company risk measures (including company age) and voluntary audits is unclear: higher risk companies benefit (in terms of alleviating information asymmetry) more from audit attestation, but this risk is likely to be reflected in higher audit fees, thus reducing demand for audits. We follow Dedman et al.'s (2014) agency approach by including the following variables in the reporting accountant logit models: company size (*LNSIZE)*, complexity (*SQSUBS* and *ADDCODE*), gearing (*LEV*), board size (*LNBRDSIZE*), risk (*NEGEQ* and *LNCOAGE*) and ownership dispersion (*TOTSHARE*). We include two further board-related variables in the models in the form of *ACCBRD* and *PROPFEM*.

We expect a negative association between *ACCBRD* and *REPACC* in line with the conjecture that such companies are more likely to draw on their own accountancy expertise rather than incurring the cost of appointing a reporting accountant (Jensen and Payne, 2003). We include *PROPFEM* because board gender diversity has been found by some prior studies to be positively associated with earnings quality and compliance with mandatory reporting disclosures (e.g. Barua et al., 2010). However, García Lara, García Osma, Mora and Scapin (2017) report that findings in relation to earnings quality are attributable to discrimination in women's access to directorships and that gender has no discernible affect once this is controlled for. We therefore form no empirical predictions, but we include *PROPFEM* to allow for the possibility that boards with higher female representation are associated with reporting accountant appointments.

We introduce three further novel exploratory variables which focus on financial reporting attributes. First, we investigate whether the voluntary filing of full accounts (*FULL*) is associated with

[13] As well as agency explanations, other things equal, given scale economies in audit costs, larger companies are more likely to able to afford to purchase voluntary audits (Chow, 1982). For similar reasons, this may also hold for reporting accountant appointments.

whether a company has a reporting accountant. Ball et al. (2012, p.136) posit that 'audited financial reporting and disclosure of managers' private information are complements, because independent verification of outcomes disciplines and hence enhances disclosure credibility'. In accordance with this 'confirmation hypothesis', we predict that companies which voluntarily file full accounts are more likely to appoint reporting accountants to enhance disclosure credibility.

Second, based on information available on the FAME database,[14] we study whether or not a charge registered by creditors against a company's assets (*CHARGE*), is related to reporting accountant appointments. Such charges are likely to contain restrictive covenants based on accounting numbers (Chow, 1982). In addition, covenants may stipulate that the company appoints a reporting accountant. Even if this is not the case, reporting accountants may be appointed to signal to secured creditors the credibility of the financial numbers in annual accounts (Haapamäki, 2018). We therefore expect a positive relationship between *CHARGE* and *REPACC*.

Finally, both Luypaert et al. (2016) and Clatworthy and Peel (2016), report that small private companies (in Belgium and the UK respectively) which voluntary appoint auditors are more timely when filing their annual accounts. We therefore include a late filing variable (*LATE*) in our analysis. Given their expertise and competencies, reporting accounts should, *ceteris paribus*, be able to prepare annual accounts from accounting records on a timelier basis. They are also likely to warn clients of the negative consequences of late filing should there be a delay in providing the requisite information to prepare the annual accounts. Hence, we expect a negative relationship between *LATE* and *REPACC*.

Insert Table 3 about here

Model 1 in Table 3 reports logistic regression estimates, with *REPACC* as the dependent variable. It shows that all explanatory variables are statistically significant, though some (as with the univariate results reported in Table 2) do not display their expected signs. In particular, after controlling for company size (*LNSIZE*) and shareholder dispersion (*TOTSHARE*) - which are both positively related to *REPACC* as expected - board size (*LNBRDSIZE*) and company complexity (*SQSUBS* and *ADDCODE*) are negatively related to *REPACC*. Furthermore, after controlling for risk (*NEGEQ*), older companies are more likely to appoint reporting accountants, as are those with higher gearing (*LEV*) as

[14] The FAME database indicates whether or not a charge is registered against a company's assets.

predicted. Also in line with expectations, companies with accounting expertise on the board are less likely to appoint a reporting accountant, whereas companies with higher female board representation are more likely.

The coefficients for *FULL, CHARGE* and *LATE* are in line with our conjectures. We find strong empirical support for the confirmation hypothesis: companies with a reporting accountant are over twice as likely to voluntarily file full accounts as their counterparts without a reporting accountant. However, the odds ratio associated with *CHARGE* is comparatively low, suggesting that the likelihood of a reporting accountant being appointed is 5.4% higher if a company has a registered charge against its assets. Finally, companies without a reporting accountant are substantially (35.7%) more likely to file their accounts late.

We build on the literature on the demand for voluntary audit (Vanstraelen and Schelleman, 2017) by assessing the factors associated with reporting accountant quality (size) tiers. Specifically, we compute four outcomes for employment in a multilogit regression model. These are *BIG4*: if a company has a big 4 reporting accountant (n = 256);[15] *SECONDTIER*: if a company has appointed one of the next 10 (second-tier) largest reporting accountants after the big 4 (n = 6,958), based on audit fees, as published by the Financial Reporting Council in 2009 (FRC, 2009); *SMALLREPACC*: if a company has appointed a reporting accountant other than a big 4 or second-tier one (n = 535,456); and companies without reporting accountants (n = 490,362), which is the base case. Perhaps unsurprisingly given our focus on small private companies, we note that only 0.05% of all reporting accountants are from the big 4 firms, with second-tier reporting accountants representing 1.28% of all reporting accountants.

Model 2 in Table 3 presents multilogit simultaneous estimates for these four outcomes. For *SMALLREPACC*, the results show that other than for *LEV*, which loses statistical significance, all variables exhibit similar coefficients and significance levels as their *REPACC* logit model counterparts. This demonstrates that for the *SMALLREPACC* outcome (which represents 98.7% of all reporting accountants), the logit estimates are not driven by companies that appointed larger reporting accountants.

[15] The results in Model 2 in Table 3 do not change if we employ a bootstrap estimator for the standard errors with 200 replications.

The estimates for *SECONDTIER* in Table 3 reveal a number of differences from those for *SMALLREPACC*. Firstly, *SQSUBS, LEV* and *NEGEQ* are all positively and significantly related to *SMALLREPACC*, while *ADDCODE* is statistically insignificant. Noteworthy is that the coefficient of *LNSIZE* (0.375) is almost six times the size of that estimated for *SMALLREPACC* (0.064). Moreover, although the coefficient on *LATE* is marginally smaller than for *SMALLREPACC*, companies with a charge against their assets (filing full accounts) are 11.4% (2.8 times) more likely to have appointed a second-tier reporting accountant, compared to corresponding figures of 5.4% and 2.3 times for those with smaller reporting accountants. In line with the study of voluntary audits by Dedman et al. (2014), relative to companies with smaller reporting accountants, those which appointed mid-tier accountants are substantially larger, older, more complex, have larger boards, and higher leverage.[16]

As noted above, the appointment of big 4 reporting accountants is rare (n = 256), representing only 0.025% of all small private companies and 0.047% of those with a reporting accountant. As shown in Model 2 in Table 3, the multilogit estimates for this small group provide very strong support for the confirmation hypothesis. The odds ratio indicates that companies with a big 4 reporting accountant are no less than 17 times more likely to file full accounts than those without reporting accountants. Also noteworthy is that big 4 appointments are associated with substantially larger companies, with the coefficient for *LNSIZE* being around twice (12 times) as large as those estimated for the *SECONDTIER* (*SMALLREPACC*) outcomes.

Companies with a big 4 reporting accountant are also significantly older, more complex, have higher leverage, larger boards and are riskier. Given the findings for *SECONDTIER*, the estimates for *LATE* and *CHARGE* are unexpected, with the former attracting a positive (but statistically insignificant) coefficient and the latter a negative and statistically significant one. What is clear, however, is that company size and the filing of full accounts are key determinants of the reporting accountant quality tiers, with the coefficients for *LNSIZE* and *FULL* rising steeply as reporting accountant quality increases. Overall, this confirms that large companies disclosing more information are not just more

[16] In Dedman et al. (2014), the results for *LEV* are statistically insignificant for their main sample and for a size truncated sample, but significant for a size-matched sample.

likely to appoint a reporting accountant, they are also more likely to appoint a larger accounting firm in this role.

5. Restatement analysis

To test our main hypothesis, we estimate the following multivariate logistic regression model:

$$RESTATE = \alpha_0 + \beta_1 REPACC + \sum \beta_i Controls + \varepsilon \quad (1)$$

As recorded by CH, the dependent variable (*RESTATE*) indicates whether or not a company filed amended annual accounts to correct the accounts originally filed. Overall, 6,428 companies (0.62%) in our sample filed amended accounts. This proportion is around 25%-30% lower than the estimates obtained from prior research using public company restatements by Kravet and Shevlin (2009) and Dechow et al. (2011), which are in the vicinity of 0.8%-0.9%.[17] We expect the proportion to be higher for public firms due to the closer scrutiny by regulators and outside investors and stronger internal controls (e.g. Blankley et al., 2012). We note, however that the restatement rate for companies filing full accounts in our sample is more comparable to public companies at 0.74%.

Users of accounts can easily identify restatements because the amendment is publicly recorded and disclosed in companies' list of filings.[18] Regulatory penalties may be imposed for filing inaccurate information.[19] In particular, it is an offence for company directors not to keep adequate accounting records, and they should not approve the annual accounts unless they believe they constitute a true and fair view.

In equation (1), *REPACC* is our main independent variable of interest, indicating whether the accounts of unaudited companies disclose they have a reporting accountant.[20] In contrast to the low

[17] Kravet and Shevlin (2009) report an average of around 100 restatements per year, which represents around 0.8% of the population of firms on Compustat for their sample period. Dechow et al. (2011) study 2,190 SEC Accounting and Auditing Enforcement Releases (AAERs) from between 1982 and 2005, representing around 0.9% of the population of firm-years on Compustat over this period. Following the implementation of the Sarbanes Oxley Act, the incidence of restatements in US public firms increased sharply (and, according to some, excessively) due to the associated enhanced reporting and internal control requirements and increased vigilance of auditors and managers post-Enron (e.g. Burks, 2011).

[18] Anyone can freely access online the filing record of any company at CH. In the case of an amendment, this includes a statement in bold type that 'amended accounts' for the year end in question have been filed.

[19] Under, directors may be subject to a fine and/or imprisonment when they knowingly or recklessly deliver to the registrar at CH a document that is misleading, false or deceptive in a material particular.

[20] FAME only records the name of the accountancy firm and not the professional status of the accountant preparing the accounts. However, we examined the annual accounts filed at CH of a random sample of 500

proportion (3%) of companies voluntarily choosing to have their financial statements audited (Clatworthy and Peel, 2013), over half (52.5%) of the companies in our sample disclosed that a reporting accountant prepared their accounts. A limitation of our data is that it is cross-sectional, which prohibits an exploration of potential dynamic relationships.[21] However, our cross-sectional dataset enables us to include a comprehensive vector of control variables and contains a particularly large sample (n = 1,033,032) of unaudited small UK private companies.

We expect larger (*LNSIZE*), more complex (*SQSUBS* and *ADDCODE*) companies to have a higher incidence of accounting restatements. We also control for the impact of a variety of measures of board characteristics and directors' experience (*LNBRDSIZE*, *TOTSHAR*, *LNCOAGE*, *LNDIRAGE*, *LNTENURE*, *PROPFEM* and *ACCBRD*). The latter variable is designed to capture the level of internal accounting expertise as evidenced by disclosure of accounting qualifications by directors on FAME (and originally from CH records).[22]

We include companies' industry classification in the form of 8 binary variables to account for potential systematic variation in particular industries, together with financial leverage (*LEV*) to control for the possibility that riskier companies are more likely to file amended accounts (Ettredge, Scholz, Smith, and Sun, 2010). In our regressions estimated for the full sample, we employ a variable denoting whether a company voluntarily filed full accounts (*FULL*), as opposed to abbreviated ones.

Prior research indicates that it is important to control for the financial condition of companies when modelling accounting restatements (e.g., Duke and Hunt, 1990; DeFond and Jiambalvo, 1991). For instance, Scholz (2008) reports that US public companies which restate their accounts are typically unprofitable. Ettredge et al. (2010, p. 338) also stress that 'managers of companies in poor financial

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companies with reporting accountants for the years 2010/2011. Based on information in the accounts, or via follow-up searches on the internet, we were able to determine that at least 63% of accountants were professionally qualified as chartered or certified accountants (as evidenced by their membership of such bodies as as the Institute of Chartered Accountants in England and Wales, Institute of Chartered Accountants of Scotland, the Association of Chartered Certified Accountants, or Chartered Institute of Management Accountants). This is likely to be a conservative estimate as in most other cases the accountant was simply designated as 'Reporting Accountants' or 'Accountants' in the accounts.

[21] We note that much of the heavily referenced auditing literature is based on cross-sectional data or pooled cross-sectional data, but does not examine dynamic relationships. More recently, with the steep increase in time series data availability via archival databases, an expanding number of studies are using panel data to investigate dynamic relationships using lagged dependent variable models and models incorporating changes (differences) in variables.

[22] However, we are unable to ascertain whether directors with accounting qualifications are involved with the internal accounting function.

condition have more incentives to manipulate results and fewer resources to devote to high quality financial reporting'. As well as *LEV*, we therefore include a number of measures (*NEGEQ*, *NEGWCAP*, *RETPROF*, *LATE*, *COURT* and *FAIL*), which aim to control for companies' financial position and performance.

5.1 Logistic regression estimates

Our main multivariate results are presented in Table 4. Model 1 reports parameter estimates (including odds ratios) from a logistic regression model for the full sample of 1,033,032 companies, with *RESTATE* as the dependent variable. Because the mean restatement rate (0.75%) associated with companies filing full accounts is significantly (22%) higher than for those filing abbreviated ones (0.60%), Model 2 (3) reports separate estimates for companies filing full (abbreviated) accounts.[23] This partition also facilitates an analysis of the robustness of our findings to potential observed and unobserved bias as discussed below

Insert table 4 about here

Importantly, and as hypothesised, Model 1 shows that the coefficient of *REPACC* is negative and highly significant. The associated odds ratio of 0.831 indicates that, relative to those without a reporting accountant, companies with a reporting accountant are 16.9% (1 - 0.831) less likely to file restated accounts. Equivalently, companies without a reporting accountant are 20.3% (1/0.831) more likely to file defective accounts than their counterparts with a reporting accountant.

Model 1 also reveals that larger, younger, more complex and riskier companies have a greater likelihood of restating accounts, with higher female board representation being associated with fewer restatements. Interestingly, *ACCBRD* is statistically insignificant in all models. This result is perplexing, in that professional accounting expertise on boards might be expected to result in a lower incidence of restatements.[24] However, companies with larger boards are less likely to restate accounts,

[23] In additional (unreported) analysis, we included audited private companies in the analyses in Table 4, with an indicator dummy variable to capture audited status, and our inferences are unchanged. We are unable to determine whether audited companies also had an accountant compile their accounts.

[24] Given that our empirical estimates show that companies with an accountant on their board are less likely to appoint a reporting accountant (implying that internal accounting expertise substitutes for external expertise), our finding that *ACCBRD* is statistically insignificant in all reported models is worthy of further research in a wider context (see e.g. McDaniel, Martin, and Maines, 2002).

suggesting that it is larger overall director capacity, more than the presence of internal accounting expertise, that reduces the likelihood of accounting restatements.

Also noteworthy is the positive and highly significant coefficient for *FULL*. Its odds ratio (1.344) implies that, relative to companies filing abbreviated accounts, those filling full accounts are 34.4% more likely to restate their accounts. This is likely to be attributable to the increased potential for restatements where there is more information being produced and reported. Models 2 and 3 (for full and abbreviated financial statements, respectively) show that the impact of a reporting accountant is largest for companies filing full accounts. The estimates in Table 4 imply that companies without a reporting accountant filing full (abbreviated) accounts are 39.1% (16.6%) more likely to restate their accounts.

Importantly, Wald chi-square tests indicate that the addition of *REPACC* to each of the 3 models reported in Table 4 significantly improves the model fit of each specification. For Models 1 to 3, the chi-square values are 52.5, 29.0 and 30.2 respectively, and all values are highly significant at $p<$ 0.001. In summary, and consistent with H1, Table 4 shows that the coefficient for *REPACC* is negative and significant in all three models and that the effect of *REPACC* on companies' propensity to restate accounts is substantial. Moreover, the effect is around twice as large where companies file full accounts.

5.2 Out of sample predictive accuracy

In addition to Wald goodness of fit tests (above), predictive ability can be used as a further measure of model fit, particularly when predicting out of sample. In this section we report on the out of sample predictive accuracy of the logit models, together with comparative results where *REPACC* is excluded from the models (see Ohlson, 2015). In gauging predictive accuracy, the appropriate cut off point to use is the prior probability of the event (in this case *RESTATE*) occurring in the population.[25] This is equivalent to a constant only model (the base case), where the predicted probability for all cases is the mean of *RESTATE*. Hence, the cut off points we employ are 0.0062, 0.0074 and 0.0060 for Models 1 to 3 respectively in Table 4.

[25] Put another way, the mean of the predicted probabilities from logit/probit models (whatever the number of explanatory variables) is equal to the mean of the binary dependent variable.

Our approach involves selecting random samples of 90% of the main sample (and the subsamples for companies disclosing full and abbreviated accounts), estimating our main logistic regression models (i.e., Models 1, 2 and 3 for the total, full and abbreviated samples, respectively), and then using the estimated coefficients to predict *RESTATE* in the remaining 10% of the sample. We perform this analysis 1,000 times for each sample, with our main model excluding and including *REPACC*. We report the results for the mean predictive accuracy for each sample with and without *REPACC* in Table 5.

Insert Table 5 about here

For the total sample and for abbreviated accounts (which form the majority of the total sample), the average level of improvement in predictive accuracy arising from including *REPACC* is positive, but negligible. In the case of full accounts, however, the increase is more significant, shifting the model approximately one percentage point in overall classification accuracy: from 58.64% to 59.65% (a 1.72% increase in predictive accuracy). The improvement is evident in predicting both *RESTATE* =1 and *RESTATE* = 0. Overall, our main inferences from this analysis are that the appointment of a reporting accountant can result in modest improvements in the out of sample predictive accuracy for companies disclosing full accounts.[26]

5.3 Entropy matching analysis

A potential limitation of the logistic analysis reported in Table 4 is that it does not take account of the possibility that different types of companies select reporting accountants, which can lead to biased treatment estimates. Matching methods aim to control for this potential observed (but not unobserved) selection bias (e.g. Tucker, 2011; Lawrence, Minutti-Meza, and Zhang, 2011). Propensity score matching (PSM) methods have been widely used in accounting studies to estimate treatment effects. However, King and Nielsen (2019) state that PSM should not be employed in treatment effect research.[27] In a nutshell, they posit that PSM fails in its goal of approximating a completely randomized

[26] Though the Wald tests reported in Section 5.1 indicate that *REPACC* adds significantly to the model fit of the 3 logit models, the results in Table 5 show that this is not sufficient to change the predicted probability distributions enough to significantly improve the out of sample predictive accuracy in the case of Models 1 and 3.
[27] We are grateful to a reviewer for drawing attention to this paper, together with the entropy matching method.

experiment, which may lead to an increase in model dependence; and which may actually increase covariate imbalance, relative to the unmatched data.[28]

Given this, we implement Hainmueller's (2012) entropy matching (EM) method, using Stata's *ebalance* command. The EM method is not subject to King and Nielsen's (2019) critique of PSM. More specifically, Hainmueller's (2012) EM method employs 'a maximum entropy reweighting scheme' such that the mean, variance and skewness moments of each control variable for untreated cases are typically exactly (or very nearly exactly) matched to the moments of each of the treated control variables (see Atsushi 2020 for a recent application of the method). Because of this, *t*-tests for covariate mean differences are unnecessary.[29] The weights are then applied in subsequent regression (in our case logit) models to each of the untreated control variables when estimating treatment effects. As well as leading to covariate balance, EM has the advantage of retaining full information in the data, in that no observations are lost, which usually occurs with other matching methods.[30]

Insert Table 6 about here

Table A1 in the Appendix reports the EM covariate balance statistics, separately estimated for the abbreviated and full accounts samples. For the abbreviated accounts sample, it shows that, compared to differences across all three covariate moments for treated (with a reporting accountant) and untreated cases prior to EM, after EM they are perfectly balanced, with the mean, variance and skewness of each covariate being identical. As the table reveals, other than for a couple of variables where there are some minor differences, the covariates for the full accounts sample are exactly balanced across the three moments for treated and untreated cases.

[28] We also employed PSM to estimate treatment effects (available from the authors on request) for the abbreviated and full samples, using nearest neighbour matching with fine callipers (0.0005 in both cases). After matching, only the mean for *LATE* differed significantly in both samples. The logit models for the full (abbreviated) samples reported in Table 4, were estimated in the matched samples, with the odds ratios associated with the coefficients of *REPACC* being 0.700 (0.857). These imply that companies without a reporting filing full (abbreviated) accounts are 42.9% (16.7%) more likely to restate their accounts, consistent with (though a little higher than) those associated with their EM weighted logit regression model counterparts.

[29] For example, after EM there are some minor differences in the full sample for the variable *ACCBRD*. A *t*-test for the mean difference of this variable between treated and untreated cases produces a *t*-value of -0.02, with an associated *p*-value of 0.99. Note that the *ebalance* module does not support *t*-tests, but identical results can obtained by regressing a control variable (in this case *ACCBRD*) on the treatment variable (in this case *REPACC*) using the *ebalance* weighted OLS command.

[30] This feature may be particularly attractive for accounting treatment effect studies with small samples.

Using the same specifications as Models 2 and 3 in Table 4, Table 6 reports EM weighted logit models for the full and abbreviated samples. As reported, the coefficients of -0.318 (-0.140) for *REPACC* for the full (abbreviated) samples are highly significant, with their associated odds ratios of 0.728 (0.869) indicating that companies without a reporting accountant are 37.4% (15.1%) more likely to file restated accounts. These figures are in line with (though marginally lower than) those associated with the standard logit estimates in Table 4, suggesting that treatment estimates are robust to potential observed bias.[31]

5.4 Endogenous probit selection models

The Heckman treatment two-step method addresses endogeneity bias by including the residuals (inverse Mills ratios) from a first step probit selection into treatment model as a surrogate for omitted variables in a second step OLS regression model (e.g. Leuz and Verrecchia, 2000). However, as in the current study, where the outcome variable is also binary in nature, consistent estimates can only be achieved by maximum likelihood simultaneous estimation of a probit selection model (for *REPACC*) and a probit outcome model (for *RESTATE*) - which accounts for correlated model residuals as per the Heckman treatment model (Maddala and Lee, 1976, p. 526; Roodman, 2011, p.173).

Insert Table 7 about here

We implement this methodology using the Stata *eprobit* command via joint estimation of the selection into treatment probit models shown in Table A2 in the Appendix, and their associated outcome models as reported in Table 7. We employ *ACCBRD* as an instrumental variable since, as shown in Table A2 and Table 4, it meets the empirical requirements of being a highly significant determinant[32] of *REPACC*, but is not significantly related to *RESTATE*.

For comparison with the endogenous probit selection specifications, Models 1 and 3 in Table 7 report standard probit parameters for companies filing full and abbreviated accounts. As can be seen,

[31] We also applied EM to the total sample (Model 1 in Table 4). As for the abbreviated sample, after EM there was perfect covariate balance across the 3 moments for treated and untreated cases. The highly significant (p <0.001) coefficient (odds ratio) for *REPACC* from a weighted logit regression are -0.185 (0.831). These are identical, to 3 decimal places, to those reported for *REPACC* for Model 1 in Table 4, confirming the robustness of treatment estimates to potential observed bias. The full results are available from the authors on request.

[32] Wald chi-squared tests also indicate that *ACCBRD* significantly improved model fit for the probit models reported in Table A2 (at $p < 0.001$ in both cases).

and consistent with their logit model counterparts, the coefficients for *REPACC* are highly significant and negative in both samples, with their marginal effects[33] indicating that, after controlling for other variables, companies filing full (abbreviated) accounts without a reporting accountant are 38.6% (17.1%) more likely to file restatements.

Models 2 and 4 report the endogenous probit selection *RESTATE* models for companies filing full and abbreviated accounts respectively. In both cases, the statistically significant correlations (rho) between model residuals indicate that the standard probit treatment estimates are prone to unobserved bias. The positive correlations lead to an enhancement of the treatment effect - as evidenced by the larger (negative) significant coefficients for *REPACC* in Models 2 and 4 (with the relative size of these coefficients being consistent with prior results). However, the estimated coefficients for companies filing full (abbreviated) accounts at -0.840 (-0.571) are some 6.8 (10.4) times larger than those of their standard probit model counterparts at -0.123 (-0.055).

The *REPACC* coefficients in Models 2 and 4 therefore seem implausibly large. It is difficult to envisage an omitted variable that would have such a large impact on *RESTATE*. However, prior accounting studies have shown that the Heckman approach (i.e., those estimating correlated model residuals) can lack robustness in respect of the precision of the estimated treatment variable coefficients, even when employing an instrumental variable[34] (e.g. Clatworthy, Makepeace and Peel, 2009; Lennox, Francis and Wang, 2012). Based on the positively correlated model residuals, however, it seems reasonable to posit that any omitted variable bias is likely to enhance the treatment estimates, so that the standard probit estimates for *REPACC* (Models 1 and 3) are likely to be conservative.

5.5 The relationship between large reporting accountants and restatements

[33] We employ the Stata *margins* command to compute the marginal effects of the *REPACC* coefficients. For companies filing full accounts, in percentage terms, the errors in the accounts of companies with (without) a reporting accountant are 0.5881(0.8153): 0.8153/0.5881 = 38.6%. For companies filing abbreviated accounts, the corresponding figures are 0.5964/0.5094 = 17.1%.

[34] It is often difficult to find a suitable instrumental variable in accounting research (e.g. Ittonen, Johnstone and Myllymäki, 2015, p. 629).

An extensive prior auditing literature examines audit 'quality' regarding large (i.e., 'big N') auditors in the context of various 'quality' outcomes, including audit qualifications, restatements, accruals-based earnings management and conservatism (see DeFond and Zhang, 2014 for a review). In light of this literature, we expect large (higher quality) reporting accountants to be associated with fewer restatements because of their greater expertise/competence in detecting and correcting errors[35] (e.g. Abdullah et al., 2010). In addition, DeFond and Jiambalvo (1991, p. 646), comment that the rationale for associating large audit firms with higher quality audits is that 'larger audit firms have greater economic interest in assuring that financial statements are free from undetected errors'. In particular, failure to detect errors may result in loss of reputation, though on the other hand, the auditor may lose the client if they require the auditee to disclose errors (Kinney and McDaniel, 1989).[36]

Building on this literature, we examine whether large accountancy firms acting as reporting accountants are associated with fewer restatements than their counterparts appointed from smaller accountancy firms.[37] Though for smaller private companies, we would not expect the economic or reputational factors associated with audits of listed companies to be as influential, we do expect large reporting accountants to be associated with the filing of fewer defective accounts.[38]

We have already commented that few companies (256) in our sample appointed big 4 reporting accountants (0.05% of all reporting accountants), with 62% of these filing full accounts. Only one company with a big 4 accountant (which had submitted abbreviated accounts) filed restated accounts. Of the 6,958 companies with second-tier reporting accountants (the next 10 largest reporting accountants described above), 19 filed defective accounts, with 14 (5) of these relating to abbreviated (full) accounts. Because there is only one restatement associated with big 4 reporting accountants, as shown in Table 8, the variables we employ in the regression models are *LARGEREPACC* (1 = the

[35] In discussing quality metrics proposed in a U.S. treasury report, Francis (2011, p.140) notes that it relates audit quality inputs to quality outputs. These include auditor 'experience, competence, and technical resources (education and training)' as inputs and 'restatement and inspection results (number of client restatements and the firm's regulatory inspection report)' as outputs.

[36] Both DeFond and Jiambalvo (1991) and Abdullah et al. (2010) report an insignificant negative association between large auditors and restatements, although their results are based on small samples. More recently, using a large sample, Lobo and Zhao (2013) report that large auditors are associated with significantly fewer restatements.

[37] We thank an anonymous reviewer for suggesting we conduct this analysis.

[38] We also acknowledge the alternative possibility that smaller accounting firms may be better attuned to the needs and particular characteristics of small private clients than the larger firms.

largest 14 reporting accountants including the big 4, 0 otherwise) and *SMALLREPACC* (1 = all other reporting accountants, zero otherwise).

Insert Table 8 about here

Table 8 reports regression models mirroring those in Table 4. In all cases, the coefficients for *SMALLREPACC* and *LARGEREPACC* are negative and statistically significant at the 1% level.[39] Importantly, across all models, the *LARGEREPACC* coefficients are substantially larger (in absolute terms) than those for *SMALLREPACC* - the latter coefficients being similar (though marginally smaller) than those associated with *REPACC* in Table 4. For example, the odds ratios for *LARGEREPACC* in Model 1 (all companies) and Model 2 (those filing full accounts) indicate that companies without reporting accountants are some 2.6 (3.3) times more likely to restate accounts than companies which appointed a larger reporting accountant, whereas the equivalent figures for *SMALLREPACC* are 19.5% and 37.7% respectively. If companies with big 4 reporting accountants are excluded from the sample, coefficients and significance levels for *LARGEREPACC* are similar to those reported in Table 8.[40]

Because of the relatively small number of restatements associated with large reporting accountants (especially in Model 2), we test the robustness of our findings by employing a bootstrap method to calculate standard errors and significance levels for the *LARGEREPACC* and *SMALLREPACC* coefficients. Rather than relying on parametric (normal/standard normal) distributions to calculate test statistics, the bootstrap approach generates (in this case for regression coefficients) the standard errors/significance levels via random resampling with replacement for the data in question (see e.g. Mooney, 1996). We estimate standard errors based on 2,000 random samples.[41]

For all models reported in Table 8, the bootstrapped standard errors/test statistics for *SMALLREPACC* and *LARGEREPACC* confirm that their coefficients are highly significant (at $p < 0.01$

[39] Wald chi-squared tests for each of the three models indicated that adding *LARGEREPACC* to the other explanatory variables (including *SMALLREPACC*) significantly improved model fits (at $p \leq 0.01$ for all models). Similarly, Wald chi-squared tests for each of the three models indicated that adding *SMALLREPACC* to the other explanatory variables (including *LARGEREPACC*) significantly improved model fits (at $p \leq 0.001$ for all models).
[40] The coefficients for Models 1, 2 and 3 are -0.955, -1.048 and -0.945 respectively. For Models 1 and 3 the coefficients are significant at $p < 0.01$. For Model 2 the coefficient is significant at $p = 0.020$.
[41] We set the number of replications to 2,000 for each regression using the bootstrap option for logistic regression in Stata. For the total sample, one or more parameters in 10 regressions could not be estimated. Standard error estimates are therefore based on 1,990 replications. For the subsamples of companies with full and abbreviated accounts, standard errors were based on 1,069 and 1,970 replications, respectively.

in all cases). In summary, the analysis presented in this section indicates that the clients of 'higher quality' (large) reporting accountants are substantially less likely to file restated accounts.

6. Conclusion

Prior research into the effects of assurance on accounting in private companies has principally focused on the effects of voluntary audit on companies filing full accounts. The substantial increase in company size thresholds over recent years has lifted a large number of firms out of the mandatory audit regime, such that the sector is now predominantly audit-free. Despite this, the involvement of the accounting profession in preparing financial statements for the vast majority of small companies who file unaudited accounts remains largely unexplored.

Over half the companies in our sample appointed a reporting accountant. Our exploratory analysis reveals that, *inter alia*, larger companies, older companies, those filing full accounts, and those having a charge registered against their assets are more likely to appoint a reporting accountant. Our multilogit results also indicate that company size increases steeply with the rise in quality (size) of the appointed reporting accountant. Similarly, we find that the voluntarily disclosure of more financial accounting information (i.e. an income statement) rises sharply as reporting accountant quality escalates. These results offer empirical support for the confirmation hypothesis of Ball et al. (2012).

In our main analysis, in line with professional pronouncements suggesting that the appointment of reporting accountants enhance the credibility of financial accounting information, we find that the appointment of a reporting accountant is associated with a significant reduction in the filing of defective accounts: the likelihood of companies without a reporting accountant filing full (abbreviated) accounts with restatements is around 39% (17%) higher than their counterparts with a reporting accountant. The positive effect of reporting accountants being associated with fewer restatements is especially pronounced for larger (higher quality) accounting firms.

Overall, our findings support the idea that outside involvement in the preparation of accounts can significantly enhance the quality of the information - results which are robust to the application of estimators which address both potential observed and unobserved bias.[42]

An important limitation of our study is that we are unable to ascertain what level of outside accountancy assistance (if any) companies access where no reporting accountant is appointed. However, even if we were to assume that all such companies receive some degree of outside accounting input,[43] our results are still consistent with our hypothesis that the appointment of reporting accountants is associated with an incremental improvement in financial reporting quality. In any event, and given the shrinking market for voluntary audits, further qualitative and/or survey research is warranted into the role and impact of professional reporting accountants in the small company sector. A dynamic analysis which examines whether companies that previously appointed an auditor are more likely to use a reporting accountant would also shed more light on the wider impact of regulatory changes. Since we are limited in the extent to which we can say the restatements themselves have economic or legal consequences for the firms involved, the repercussions of restatements for private firms is also an area worthy of further investigation.

[42] As described above, we use the term unobserved bias in the sense of the direction of causation of the treatment effects associated with the endogenous probit selection models, as opposed to the precision (in terms of size) of the *REPACC* coefficients.

[43] Despite the professional bodies' advice discussed above, it is also possible that an outside accountancy firm compiles (or helps compile) the annual accounts, but refuses to allow their name to be associated with the financial statements if their veracity appears questionable.

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Table 1

Variables labels, definitions and summary statistics

Label	Definition†	Mean	Std. dev.	Min.	p. 25	Median	p. 75	Max.
RESTATE	1 if company filed amended accounts	0.006	0.079	0.000	0.000	0.000	0.000	1.000
REPACC	1 if accounts disclose firm name of accountants (reporting accountant)	0.525	0.499	0.000	0.000	1.000	1.000	1.000
FULL	1 if company voluntarily filed full accounts (0 indicating filed abbreviated accounts)	0.151	0.358	0.000	0.000	0.000	0.000	1.000
LNSIZE	Natural log of total assets (£)	10.811	1.782	6.215	9.569	10.769	12.085	20.041
LEV	Ratio of total liabilities to total assets	1.072	1.707	0.012	0.433	0.786	0.994	13.768
LNBRDSIZE	Natural log of the number of directors	0.886	0.364	0.000	0.693	0.693	1.099	4.511
TOTSHARE	Number of shareholders	2.167	2.220	1.000	1.000	2.000	2.000	44.000
LNCOAGE	Natural log of the company's age	1.808	0.890	0.000	1.099	1.792	2.398	5.004
LNDIRAGE	Natural log of the average age of directors	3.857	0.219	2.996	3.714	3.871	4.019	4.500
LNTENURE	Natural log of directors' average tenure on the board (in years)	1.413	0.883	-6.999	0.729	1.520	2.056	2.891
ACCBRD	1 if company has a qualified accountant on the board	0.006	0.077	0.000	0.000	0.000	0.000	1.000
PROPFEM	Proportion of female directors on the board	0.350	0.289	0.000	0.000	0.500	0.500	1.000
SQSUBS	Square root of the number of subsidiaries	0.044	0.234	0.000	0.000	0.000	0.000	21.679
ADDCODE	Number of additional industrial SIC codes (0 indicating no additional SIC code)	0.108	0.380	0.000	0.000	0.000	0.000	7.000
NEGEQ	1 if company has negative equity	0.220	0.415	0.000	0.000	0.000	0.000	1.000
NEGWCAP	1 if company has negative working capital	0.417	0.493	0.000	0.000	0.000	1.000	1.000
RETPROF	Retained profit (change in retained earnings) scaled by current year total assets	-0.141	0.758	-5.205	-0.132	0.002	0.111	0.874
LATE	1 if company filed accounts after the statutory deadline	0.095	0.293	0.000	0.000	0.000	0.000	1.000
COURT	1 if county court judgement for debt obtained against company in preceding 2 years	0.023	0.151	0.000	0.000	0.000	0.000	1.000
FAIL	1 if company failed in the year after accounts were filed	0.022	0.147	0.000	0.000	0.000	0.000	1.000
AGRIC	1 if company is in agriculture sector	0.013	0.111	0.000	0.000	0.000	0.000	1.000
MINING	1 if company is in mining sector	0.002	0.048	0.000	0.000	0.000	0.000	1.000
CONSTR	1 if company is in construction sector	0.120	0.325	0.000	0.000	0.000	0.000	1.000
UTIL	1 if company is in utilities sector	0.001	0.032	0.000	0.000	0.000	0.000	1.000
RETAIL	1 if company is in retail or wholesale sector	0.115	0.319	0.000	0.000	0.000	0.000	1.000
SERVICE	1 if company is in the service sector (other than financial sector)	0.675	0.468	0.000	0.000	1.000	1.000	1.000
FINANCE	1 if company is in financial sector	0.015	0.123	0.000	0.000	0.000	0.000	1.000
MANUF	1 if company is in manufacturing sector	0.058	0.234	0.000	0.000	0.000	0.000	1.000

Notes

This table reports variable labels, definitions and descriptive statistics for 1,033,032 UK small private unaudited companies.

RETPROF, LEV, DIRAGE and *TENURE* (i.e., *LNDIRAGE* and *LNTENURE* before log transformation) are winsorised at the 0.01 level.

†For binary variables, zero is coded for remaining observations.

Table 2
Differences between companies with and without reporting accountants

	Reporting Accountant (*n* = 542,670)					*No Reporting Accountant* (*n* = 490,362)					
	Mean	*Std. dev.*	*p25*	*p50*	*p75*	*Mean*	*Std. dev.*	*p25*	*p50*	*p75*	
RESTATE	0.006	0.075	0.000	0.000	0.000	0.007	0.082	0.000	0.000	0.000	♯♯
FULL	0.197	0.398	0.000	0.000	0.000	0.101	0.301	0.000	0.000	0.000	♯♯
LNSIZE	10.903	1.757	9.678	10.856	12.170	10.709	1.803	9.448	10.669	11.987	♯♯
LEV	1.025	1.607	0.426	0.771	0.990	1.124	1.809	0.441	0.803	0.997	♯♯
LNBRDSIZE	0.894	0.366	0.693	0.693	1.099	0.877	0.360	0.693	0.693	1.099	♯♯
TOTSHARE	2.222	2.319	1.000	2.000	2.000	2.108	2.103	1.000	2.000	2.000	♯♯
LNCOAGE	1.836	0.901	1.099	1.792	2.398	1.776	0.876	1.099	1.792	2.303	♯♯
LNDIRAGE	3.864	0.215	3.726	3.878	4.025	3.849	0.222	3.714	3.864	4.011	♯♯
LNTENURE	1.450	0.872	0.753	1.594	2.084	1.372	0.893	0.722	1.445	2.001	♯♯
ACCBRD	0.004	0.067	0.000	0.000	0.000	0.008	0.087	0.000	0.000	0.000	♯♯
PROPFEM	0.358	0.287	0.000	0.500	0.500	0.341	0.292	0.000	0.500	0.500	♯♯
SQSUBS	0.043	0.228	0.000	0.000	0.000	0.045	0.239	0.000	0.000	0.000	♯♯
ADDCODE	0.107	0.376	0.000	0.000	0.000	0.109	0.384	0.000	0.000	0.000	♯♯
NEGEQ	0.207	0.405	0.000	0.000	0.000	0.236	0.424	0.000	0.000	0.000	♯♯
NEGWCAP	0.414	0.493	0.000	0.000	1.000	0.421	0.494	0.000	0.000	1.000	♯♯
RETPROF	-0.131	0.728	-0.128	0.003	0.110	-0.153	0.789	-0.137	0.001	0.111	♯♯
LATE	0.083	0.276	0.000	0.000	0.000	0.108	0.310	0.000	0.000	0.000	♯♯
COURT	0.021	0.144	0.000	0.000	0.000	0.026	0.159	0.000	0.000	0.000	♯♯
FAIL	0.022	0.147	0.000	0.000	0.000	0.022	0.147	0.000	0.000	0.000	

Notes
This table presents descriptive statistics for subsamples of unaudited small private companies with and without a reporting accountant. Variable definitions are provided in Table 1.
♯♯ indicates significant differences between means at the 0.01 level.

Table 3

Factors associated with reporting accountant appointments

	1. Logit model: dep. var. = *REPACC*		**2. Multilogit model: base case = no reporting accountant**					
			SMALLREPACC		*SECONDTIER*		*BIG4*	
	Coef.	Odds ratio	Coef.	Odds ratio	Coef.	Odds ratio	Coef.	Odds ratio
LNSIZE	0.067***	1.070***	0.064***	1.066***	0.375***	1.456***	0.783***	2.187***
	(46.26)		(43.54)		(39.07)		(16.72)	
LEV	0.003**	1.003**	0.002	1.002	0.106***	1.112***	0.228***	1.257***
	(1.99)		(1.10)		(12.80)		(6.82)	
LNBRDSIZE	-0.021***	0.979***	-0.029***	0.971***	0.591***	1.806***	0.839***	2.313***
	(-3.35)		(-4.60)		(15.11)		(4.04)	
TOTSHARE	0.011***	1.011***	0.011***	1.011***	0.012**	1.012**	-0.030	0.970
	(10.69)		(10.53)		(2.46)		(-1.11)	
LNCOAGE	0.013***	1.013***	0.010***	1.010***	0.269***	1.309***	0.505***	1.657***
	(5.11)		(3.78)		(17.02)		(5.88)	
ACCBRD	-0.586***	0.556***	-0.590***	0.555***	-0.441***	0.643***	-0.808	0.446
	(-21.77)		(-21.76)		(-3.03)		(-1.12)	
PROPFEM	0.232***	1.261***	0.234***	1.264***	0.114***	1.120***	-0.445*	0.641*
	(33.08)		(33.33)		(2.59)		(-1.89)	
SQSUBS	-0.121***	0.886***	-0.132***	0.876***	0.105***	1.111***	0.221***	1.247***
	(-13.78)		(-14.88)		(3.32)		(2.65)	
ADDCODE	-0.040***	0.960***	-0.042***	0.959***	0.020	1.020	-0.061	0.941
	(-7.57)		(-7.78)		(0.72)		(-0.39)	
NEGEQ	-0.090***	0.914***	-0.091***	0.913***	0.029	1.029	0.311*	1.365*
	(-15.71)		(-15.83)		(0.80)		(1.86)	
LATE	-0.305***	0.737***	-0.305***	0.737***	-0.289***	0.749***	0.256	1.292
	(-44.32)		(-44.20)		(-6.65)		(1.53)	
CHARGE	0.055***	1.057***	0.053***	1.054***	0.108***	1.114***	-0.441***	0.644***
	(9.67)		(9.25)		(3.50)		(-3.16)	
FULL	0.831***	2.297***	0.828***	2.288***	1.036***	2.817***	2.845***	17.196***
	(140.64)		(139.68)		(33.83)		(21.68)	
Industry dummies	Yes		Yes					
Observations	1,033,032		1,033,032					
Chi-squared	27,263***		45,835***					

Notes

Other than *CHARGE*, variable definitions are provided in Table 1. *CHARGE* = 1 where a company has a charge registered against its assets, zero otherwise. Constant terms are not reported. For Model 2, no reporting accountant (n = 490,362) is the base case; smaller reporting accountants (*SMALLERREPACC*, n = 535,456), represents companies with a reporting accountant, other than those with a big 4 or a second-tier one; *SECONDTIER* (n = 6,958), represents the next 10 largest reporting accountants after the big 4 (source: FRC, 2009); and *BIG4* represents big 4 reporting accountants (n = 256). ***, **, * Indicate statistical significance at the 0.01, 0.05 and 0.1 levels respectively (two-tailed tests).

Table 4

Logistic regression models for accounting restatements

	Total sample		*Full accounts*		*Abbreviated accounts*	
	Model 1		*Model 2*		*Model 3*	
	Coef.	*Odds ratio*	*Coef.*	*Odds ratio*	*Coef.*	*Odds ratio*
REPACC	-0.185***	0.831***	-0.330***	0.719***	-0.154***	0.858***
	(-7.23)		(-5.44)		(-5.51)	
FULL	0.296***	1.344***	-	-	-	-
	(8.83)		-	-	-	-
LNSIZE	0.159***	1.173***	0.168***	1.183***	0.157***	1.170***
	(18.89)		(8.43)		(16.75)	
LEV	0.033***	1.034***	0.066***	1.068***	0.022*	1.022*
	(3.46)		(3.72)		(1.89)	
LNBRDSIZE	-0.160***	0.852***	-0.204**	0.816**	-0.151***	0.860***
	(-4.19)		(-2.29)		(-3.55)	
TOTSHARE	-0.032***	0.968***	-0.026*	0.974*	-0.034***	0.967***
	(-3.87)		(-1.72)		(-3.36)	
LNCOAGE	-0.061**	0.941**	-0.136**	0.873**	-0.043*	0.958*
	(-2.56)		(-2.34)		(-1.67)	
LNDIRAGE	-0.473***	0.623***	-0.299**	0.741**	-0.514***	0.598***
	(-7.60)		(-2.12)		(-7.42)	
LNTENURE	-0.206***	0.814***	-0.168***	0.846***	-0.215***	0.806***
	(-9.81)		(-3.22)		(-9.45)	
ACCBRD	0.060	1.062	-0.171	0.843	0.121	1.129
	(0.38)		(-0.48)		(0.69)	
PROPFEM	-0.307***	0.736***	-0.322***	0.724***	-0.303***	0.739***
	(-6.85)		(-3.08)		(-6.11)	
SQSUBS	0.127***	1.136***	0.130	1.139	0.125***	1.134***
	(2.64)		(0.72)		(2.70)	
ADDCODE	0.103***	1.109***	0.181***	1.198***	0.079**	1.082**
	(3.27)		(2.79)		(2.19)	
NEGEQ	0.092**	1.097**	0.082	1.085	0.099**	1.104**
	(2.50)		(0.91)		(2.43)	
NEGWCAP	0.116***	1.123***	0.007	1.007	0.139***	1.149***
	(3.91)		(0.10)		(4.30)	
RETEARN	-0.003	0.997	0.009	1.010	-0.009	0.991
	(-0.13)		(0.22)		(-0.35)	
LATE	0.280***	1.323***	0.146*	1.157*	0.314***	1.368***
	(7.41)		(1.73)		(7.43)	
COURT	0.355***	1.426***	0.429***	1.536***	0.336***	1.400***
	(5.62)		(3.17)		(4.71)	
FAIL	0.245***	1.277***	0.405***	1.499***	0.195**	1.215**
	(3.39)		(2.79)		(2.34)	
Industry dummies	Yes		Yes		Yes	
Observations	1,033,032		156,345		876,687	
Chi-squared	1,550***		341***		1,221***	

Notes

Coefficients and odds ratios are unbracketed, with robust *z* values shown in parentheses.
Variable definitions are provided in Table 1. Constant terms are not reported.
***, **, * Indicate statistical significance at the 0.01, 0.05 and 0.1 levels respectively (two-tailed tests).

Table 5
Out of sample predictive accuracy of models with and without *REPACC*

	Results are based on 1,000 iterations for each model		
Classification accuracy (%)	*Total sample Model 1*	*Full accounts Model 2*	*Abbreviated accounts Model 3*
Accuracy predicting *RESTATE* = 1 without *REPACC*	57.80	58.30	57.59
Accuracy predicting *RESTATE* = 1 with *REPACC*	57.95	59.60	57.66
Accuracy predicting *RESTATE* = 0 without *REPACC*	59.15	58.64	59.58
Accuracy predicting *RESTATE* = 0 with *REPACC*	59.23	59.65	59.68
Overall accuracy without *REPACC*	59.14	58.64	59.57
Overall accuracy with *REPACC*	59.22	59.65	59.67

Notes
This table reports the results from out of sample predictions for the models reported in Table 4 with and without *REPACC*. The statistics are the mean correct classifications for 1,000 iterations where a random 90% of the sample of companies is chosen to estimate the logit model and used to predict into the remaining random 10% of companies.

Table 6

Logit entropy weighted regression models

	Dependent variable = ERROR†	
	Full Accounts	*Abbreviated Accounts*
REPACC	-0.318***	-0.140***
	(5.04)	(4.99)
LNSIZE	0.148***	0.162***
	(6.82)	(16.80)
LEV	0.069***	0.022*
	(3.71)	(1.87)
LNBRDSIZE	-0.214**	-0.168***
	(2.18)	(3.88)
TOTSHARE	-0.018	-0.033***
	(0.96)	(3.34)
LNCOAGE	-0.131**	-0.030
	(1.96)	(1.16)
LNDIRAGE	-0.340**	-0.505***
	(2.22)	(7.18)
LNTENURE	-0.154**	-0.233***
	(2.51)	(10.01)
ACCBRD	-0.116	0.227
	(0.32)	(1.25)
PROPFEM	-0.339***	-0.292***
	(2.97)	(5.81)
SQSUBS	0.470**	0.119**
	(2.43)	(2.15)
ADDCODE	0.178**	0.085**
	(2.53)	(2.32)
NEGEQ	0.134	0.108***
	(1.40)	(2.64)
NEGWCAP	-0.061	0.143***
	(0.74)	(4.34)
RETEARN	0.019	-0.013
	(0.41)	(0.49)
LATE	0.201**	0.327***
	(2.24)	(7.64)
COURT	0.454***	0.364***
	(3.12)	(5.01)
FAIL	0.407**	0.186**
	(2.52)	(2.21)
Industry dummies	Yes	Yes
Observations	156,345	876,687

Notes

† Coefficients are reported, with *t*-values (based on linearized standard errors) in parentheses. Constant terms are not reported. Variable definitions are provided in Table 1.

***, **, * Indicate statistical significance at the 0.01, 0.05 and 0.10 levels respectively (two-tailed tests).

Table 7

Standard probit and endogenous probit selection model estimates for restatements of accounts

	Full accounts		*Abbreviated accounts*	
	(1)	*(2)*	*(3)*	*(4)*
	Probit	*Endprobit*	*Probit*	*Endprobit*
REPACC	-0.123***	-0.840***	-0.055***	-0.571***
	(-5.53)	(-3.13)	(-5.60)	(-2.71)
LNSIZE	0.061***	0.073***	0.056***	0.062***
	(8.63)	(10.37)	(16.77)	(17.09)
LEV	0.024***	0.021***	0.008*	0.007*
	(3.55)	(3.02)	(1.85)	(1.64)
LNBRDSIZE	-0.079**	-0.108***	-0.055***	-0.052***
	(-2.45)	(-3.35)	(-3.63)	(-3.52)
TOTSHARE	-0.008	-0.003	-0.012***	-0.010***
	(-1.61)	(-0.66)	(-3.45)	(-2.92)
LNCOAGE	-0.049**	-0.060***	-0.012	-0.023**
	(-2.30)	(-2.87)	(-1.21)	(-2.09)
LNDIRAGE	-0.109**	-0.129**	-0.181***	-0.147***
	(-2.11)	(-2.56)	(-7.32)	(-5.21)
LNTENURE	-0.062***	-0.048**	-0.082***	-0.064***
	(-3.17)	(-2.48)	(-9.26)	(-5.26)
PROPFEM	-0.120***	-0.071*	-0.107***	-0.079***
	(-3.19)	(-1.79)	(-6.11)	(-3.87)
SQSUBS	0.047	0.020	0.048**	0.032*
	(0.85)	(0.52)	(2.57)	(1.66)
ADDCODE	0.067***	0.043*	0.030**	0.026**
	(2.72)	(1.77)	(2.34)	(2.140)
NEGEQ	0.034	0.011	0.037**	0.019
	(1.02)	(0.34)	(2.52)	(1.20)
NEGWCAP	0.003	0.039	0.050***	0.058***
	(0.11)	(1.41)	(4.35)	(5.09)
RETPROF	0.003	-0.007	-0.003	-0.006
	(0.19)	(-0.44)	(-0.38)	(-0.75)
LATE	0.056*	0.008	0.118***	0.080***
	(1.79)	(0.23)	(7.65)	(3.69)
COURT	0.165***	0.159***	0.130***	0.101***
	(3.11)	(3.10)	(4.84)	(3.52)
FAIL	0.155***	0.149***	0.070**	0.078***
	(2.76)	(2.75)	(2.31)	(2.64)
Rho	-	0.399***	-	0.316***
		(3.02)		(2.57)
Industry dummies	Yes	Yes	Yes	Yes
Observations	156,345	156,345	876,687	876,687

Notes

Models (1) and (3) are standard probit (*PROBIT*) estimates. Models (2) and (4) are endogenous probit (*ENDPROBIT*) selection estimates.

Using the Stata *eprobit* command, the estimates in Models (2) and (4) are obtained by jointly estimating, via maximum likelihood, the probit selection models reported in Table A2 in the Appendix and the models reported in this table. Variable definitions are provided in Table 1. Constant terms are not reported. Coefficients are unbracketed, with *z* values shown in parentheses.

***, **,* Indicate statistical significance at the 0.01, 0.05 and 0.1 levels respectively (two-tailed tests).

Table 8

Logistic regression models for restatements of accounts including large accountants

	Total sample		*Full accounts*		*Abbreviated accounts*	
	Model 1		*Model 2*		*Model 3*	
	Coef.	Odds ratio	Coef.	Odds ratio	Coef.	Odds ratio
LARGERREPACC	-0.955***	0.385***	-1.184***	0.306***	-0.894***	0.409***
	(-4.24)		(-2.63)		(-3.45)	
SMALLERREPACC	-0.178***	0.837***	-0.320***	0.726***	-0.147***	0.863***
	(-6.94)		(-5.27)		(-5.26)	
FULL	0.297***	1.346***				
	(8.87)					
LNSIZE	0.160***	1.174***	0.171***	1.186***	0.158***	1.171***
	(19.01)		(8.52)		(16.83)	
LEV	0.034***	1.034***	0.067***	1.069***	0.022*	1.022*
	(3.49)		(3.77)		(1.91)	
LNBRDSIZE	-0.158***	0.854***	-0.199**	0.820**	-0.149***	0.861***
	(-4.13)		(-2.24)		(-3.51)	
TOTSHARE	-0.032***	0.968***	-0.026*	0.974*	-0.033***	0.967***
	(-3.86)		(-1.72)		(-3.35)	
LNCOAGE	-0.059**	0.943**	-0.133**	0.875**	-0.042	0.959
	(-2.50)		(-2.29)		(-1.62)	
LNDIRAGE	-0.470***	0.625***	-0.295**	0.745**	-0.513***	0.599***
	(-7.57)		(-2.08)		(-7.40)	
LNTENURE	-0.207***	0.813***	-0.170***	0.844***	-0.216***	0.806***
	(-9.86)		(-3.26)		(-9.49)	
ACCBRD	0.061	1.063	-0.171	0.843	0.123	1.131
	(0.39)		(-0.48)		(0.70)	
PROPFEM	-0.308***	0.735***	-0.325***	0.722***	-0.303***	0.738***
	(-6.87)		(-3.10)		(-6.12)	
SQSUBS	0.130***	1.139***	0.140	1.150	0.127***	1.135***
	(2.71)		(0.77)		(2.74)	
ADDCODE	0.104***	1.109***	0.182***	1.199***	0.079**	1.082**
	(3.29)		(2.80)		(2.20)	
NEGEQ	0.093**	1.098**	0.083	1.086	0.099**	1.105**
	(2.52)		(0.93)		(2.44)	
NEGWCAP	0.115***	1.122***	0.006	1.006	0.139***	1.149***
	(3.88)		(0.08)		(4.28)	
RETEARN	-0.003	0.997	0.009	1.009	-0.009	0.991
	(-0.16)		(0.20)		(-0.37)	
LATE	0.280***	1.323***	0.146*	1.157*	0.314***	1.368***
	(7.41)		(1.73)		(7.43)	
COURT	0.353***	1.423***	0.426***	1.530***	0.335***	1.398***
	(5.59)		(3.14)		(4.69)	
FAIL	0.244***	1.277***	0.406***	1.500***	0.195**	1.215**
	(3.39)		(2.80)		(2.34)	
Industry dummies	Yes		Yes		Yes	
Observations	1,033,032***		156,345***		876,687***	
Chi-squared	1,568		344		1,231	

Notes

Control variable definitions are provided in Table 1. Constant terms are not reported.

†*LARGERREPACC* are the largest 14 (including the big 4) accountants based on audit fee income (source: FRC, 2009).

SMALLERREPACC are all other reporting accountants less the largest 14 accountants.

***, **,* Indicate statistical significance at the 0.01, 0.05 and 0.1 levels respectively (two-tailed tests).

Appendix

Table A1

Entropy matched covariate balance

Panel A	Control sample before			Control sample after			Treatment sample		
Full accounts	Mean	Variance	Skewness	Mean	Variance	Skewness	Mean	Variance	Skewness
LNSIZE	10.240	3.300	0.222	10.540	3.037	0.147	10.540	3.036	0.147
LEV	1.179	4.584	4.458	1.069	3.230	5.265	1.069	3.229	5.265
LNBRDSIZE	0.916	0.148	0.386	0.899	0.146	0.457	0.899	0.146	0.457
TOTSHARE	2.489	9.671	3.974	2.560	10.630	3.953	2.560	10.630	3.953
LNCOAGE	1.857	0.820	0.179	1.847	0.842	0.222	1.847	0.842	0.222
LNDIRAGE	3.862	0.056	-0.428	3.856	0.053	-0.360	3.856	0.053	-0.360
LNTENURE	1.380	0.870	-0.650	1.404	0.801	-0.582	1.404	0.801	-0.582
ACCBRD	0.013	0.013	8.464	0.006	0.006	12.690	0.006	0.006	12.700
PROPFEM	0.322	0.086	0.335	0.347	0.084	0.169	0.347	0.084	0.169
SQSUBS	0.043	0.057	6.781	0.037	0.049	8.632	0.037	0.049	8.632
ADDCODE	0.129	0.182	4.005	0.106	0.144	4.389	0.106	0.144	4.389
NEGEQ	0.240	0.182	1.217	0.222	0.173	1.340	0.222	0.173	1.340
NEGWCAP	0.353	0.228	0.615	0.389	0.238	0.456	0.389	0.238	0.456
RETPROF	-0.167	0.744	-3.918	-0.157	0.660	-4.070	-0.157	0.660	-4.070
LATE	0.141	0.121	2.068	0.105	0.094	2.582	0.105	0.094	2.582
COURT	0.025	0.024	6.087	0.025	0.025	6.037	0.025	0.025	6.037
FAIL	0.026	0.025	6.006	0.025	0.024	6.088	0.025	0.024	6.089
AGRIC	0.008	0.008	11.260	0.009	0.009	10.150	0.009	0.009	10.150
MINING	0.002	0.002	20.420	0.004	0.004	16.700	0.004	0.004	16.700
CONSTR	0.082	0.075	3.045	0.113	0.100	2.453	0.113	0.100	2.453
UTIL	0.001	0.001	33.140	0.001	0.001	29.780	0.001	0.001	29.780
RETAIL	0.093	0.084	2.811	0.099	0.089	2.689	0.099	0.089	2.689
FINANCE	0.019	0.018	7.104	0.016	0.016	7.603	0.016	0.016	7.603
SERVICE	0.756	0.185	-1.189	0.715	0.204	-0.954	0.715	0.204	-0.954

Panel B	Control sample before			Control sample after			Treatment sample		
Abbreviated accounts	Mean	Variance	Skewness	Mean	Variance	Skewness	Mean	Variance	Skewness
LNSIZE	10.760	3.218	-0.003	10.990	3.059	-0.055	10.990	3.059	-0.055
LEV	1.118	3.124	5.282	1.014	2.424	5.953	1.014	2.424	5.953
LNBRDSIZE	0.873	0.127	-0.043	0.893	0.132	-0.102	0.893	0.132	-0.102
TOTSHARE	2.065	3.814	5.595	2.139	4.057	5.552	2.139	4.057	5.552
LNCOAGE	1.767	0.761	0.287	1.833	0.804	0.237	1.833	0.804	0.237
LNDIRAGE	3.848	0.049	-0.402	3.866	0.045	-0.396	3.866	0.045	-0.396
LNTENURE	1.371	0.790	-0.539	1.461	0.750	-0.529	1.461	0.750	-0.529
ACCBRD	0.007	0.007	11.850	0.004	0.004	15.550	0.004	0.004	15.550
PROPFEM	0.343	0.085	0.173	0.361	0.082	0.049	0.361	0.082	0.049
SQSUBS	0.045	0.057	8.190	0.044	0.053	5.774	0.044	0.053	5.705
ADDCODE	0.107	0.143	4.275	0.108	0.141	4.218	0.108	0.141	4.218
NEGEQ	0.235	0.180	1.248	0.203	0.162	1.477	0.203	0.162	1.477
NEGWCAP	0.428	0.245	0.289	0.420	0.244	0.324	0.420	0.244	0.324
RETPROF	-0.151	0.610	-4.266	-0.124	0.499	-4.666	-0.124	0.499	-4.666
LATE	0.104	0.093	2.593	0.078	0.072	3.148	0.078	0.072	3.148
COURT	0.026	0.025	5.969	0.020	0.020	6.853	0.020	0.020	6.853
FAIL	0.022	0.021	6.589	0.021	0.021	6.620	0.021	0.021	6.620
AGRIC	0.012	0.011	9.153	0.015	0.015	8.003	0.015	0.015	8.003
MINING	0.002	0.002	23.420	0.002	0.002	19.970	0.002	0.002	19.970
CONSTR	0.118	0.104	2.364	0.128	0.111	2.230	0.128	0.111	2.230
UTIL	0.001	0.001	31.290	0.001	0.001	30.600	0.001	0.001	30.600
RETAIL	0.118	0.104	2.372	0.119	0.105	2.352	0.119	0.105	2.352
FINANCE	0.015	0.015	7.879	0.015	0.015	8.039	0.015	0.015	8.039
SERVICE	0.676	0.219	-0.754	0.655	0.226	-0.653	0.655	0.226	-0.653

Notes
This table presents the results for covariate balance for treatment and control samples, before and after entropy balance matching, for companies reporting full accounts (Panel A) and abbreviated accounts (Panel B).

Table A2
Probit selection models

	Probit selection models: dep. var. = REPACC†	
	Full Accounts	*Abbreviated Accounts*
LNSIZE	0.070***	0.041***
	(32.16)	(46.25)
LEV	-0.009***	-0.003***
	(3.78)	(2.86)
LNBRDSIZE	-0.135***	0.008*
	(13.25)	(1.79)
TOTSHARE	0.020***	0.008***
	(15.69)	(10.49)
LNCOAGE	-0.056***	-0.058***
	(8.16)	(18.88)
LNDIRAGE	-0.116***	0.141***
	(6.97)	(20.33)
LNTENURE	0.051***	0.074***
	(7.92)	(24.87)
ACCBRD	-0.465***	-0.332***
	(13.24)	(17.90)
PROPFEM	0.202***	0.119***
	(17.23)	(25.14)
SQSUBS	-0.118***	-0.069***
	(7.72)	(11.71)
ADDCODE	-0.092***	-0.013***
	(11.07)	(3.72)
NEGEQ	-0.108***	-0.083***
	(9.98)	(19.54)
NEGWCAP	0.179***	0.046***
	(20.75)	(14.43)
RETEARN	-0.042***	-0.014***
	(8.72)	(6.56)
LATE	-0.206***	-0.166***
	(19.87)	(34.77)
COURT	-0.003	-0.123***
	(0.13)	(13.37)
FAIL	0.001	0.050***
	(0.03)	(5.38)
Industry dummies	Yes	Yes
Observations	156,345	876,687
Chi-squared	3,223***	9,487***

Notes
† Coefficients are reported, with *z*-statistics in parentheses. Constant terms are not reported. Variable definitions are provided in Table 1.
***,* Indicate statistical significance at the 0.01 and 0.10 levels respectively (two-tailed tests).