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Who gets all the PIE? Regulation of the statutory audit for private UK companies

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Abstract

Purpose – While recently introduced EU regulation on the Statutory Audit of Public Interest Entities (PIE) aims to improve audit competition and quality, its success and impact depends on the definition of a PIE applied across the various EU Member States. In the UK, even though little is known about their auditing choices, these changes will not apply to most private companies despite their importance to the wider economy. This paper therefore provides an in-depth analysis of the private company audit market and examines the lobbying behaviour of the accounting profession around the definition of a PIE in the UK.

Design/methodology/approach – Using a large panel of independent private company audits in the UK and a textual analysis of submitted comment letters to a government consultation on the new regulation, this paper presents a comprehensive analysis of the audit market for private companies by measuring supplier concentration using four different measures of market share, and of the lobbying behaviour of the accounting profession.

Findings – There are two main findings. First, the private company audit market is characterised by low auditor switching rates along with a tight oligopoly of the largest independent private company audits maintained by the Big Four audit firms. Second, the lobbying behaviour of accounting and audit firms sought, and succeeded, to limit the scope of the definition of a Public Interest Entity in the UK, consistent with the theoretical predictions of monopoly capitalism and the theory of professions.

Originality/value – The paper shows that the definition and scope of a Public Interest Entity needs revisiting both within the UK and across all EU Member States, with a view to including more of these economically important private companies and highlights the policy challenge of increasing competition and choice in a concentrated audit market.

Paper type – research paper.

Keywords

Audit market; audit fees; Big Four; concentration; private companies; Public Interest Entities.

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1. Introduction

"We are an oligopoly - that is undeniable…I can't believe the industry will be the same [in the future]. We have to reduce the level of conflicts and…demonstrate why they are manageable and why the public and all stakeholders should trust us."

Bill Michael, Chairman, KPMG UK[1]

New EU regulation on the Statutory Audit of Public Interest Entities requires the mandatory rotation of audit firms and restricts the non-audit services and fees provided and charged by audit firms to all Public Interest Entities. According to EU legislation, a 'Public Interest Entity' or 'PIE' is defined as: entities whose transferable securities are admitted to trading on a regulated market; credit institutions; insurance undertakings; and entities designated by Member States as public-interest entities[2]. While these regulatory changes aim to reduce concentration and improve audit competition and choice, their success and impact depends on the definition of a Public Interest Entity applied across the various EU Member States. Although their governance and performance is crucial for economic growth[3] (Langli and Svanström, 2013), the majority of private companies within the UK fall outside the narrow scope of the definition of a 'Public Interest Entity' and, therefore, are not covered by these regulatory changes.

The adverse effects of high levels of supplier concentration on audit competition and audit quality is a recurring issue raised by regulators and academics (Francis *et al.*, 2013), with particular attention given to the audit market share held by the Big Four accounting firms. For publicly listed companies, the Big Four audit firms have an average market share of over 90% in most EU member states (ESCP Europe, 2011). Likewise, in the UK, the Big Four increasingly dominate the audit market of large listed companies, where they are responsible for over 95% of audits for the FTSE 350, and all but one of the FTSE 100 companies (Oxera, 2006). In addition to the potential for systemic risk resulting from high concentration levels, such a market is often characterised by an infrequent number of auditor switches and overfamiliarity between clients and their auditors, raising concerns over the quality of individual audits. Consequently, the European Commission implemented a new EU regulatory framework in 2014 in response to an extensive consultation process, which amended the EU Directive on Statutory Audits of Annual and Consolidated Accounts. In conjunction with these changes, the European Commission further introduced new EU-wide Regulation on the Statutory Audit of Public Interest Entities, which were effective from June 2016. This regulation makes significant changes to audit markets as all Public Interest Entities in the EU are subject to a mandatory rotation of their auditor and restrictions placed on the non-audit services and fees provided and charged by audit firms to their clients. However, the success and impact of these regulatory changes depends on the definition of a 'Public Interest Entity' which, while defined at an EU level, has also been expanded by some Member States, leading to considerable variation across the different legal regimes.

In the UK, the Financial Reporting Council (FRC) defined listed companies and certain unlisted banking and insurance companies as Public Interest Entities regardless of their size. Although the governance of these firms and their significant contribution to employment, productivity, and economic growth is important to the UK economy, most private companies within the UK are not covered by the regulatory changes irrespective of their economic importance. Conversely, in Denmark for example, the definition is much broader and includes a size criterion[4], consistent with the view that larger organisations (quoted or unquoted) are systemically important to the Danish economy. Relative to the wider definition applied by some Member States, the narrower definition of a Public Interest Entity for the UK has led to concerns in both Europe and Commonwealth countries that '…UK legislation is being manipulated to suit existing structures, rather than the outcomes sought by the EU legislative framework' (ICAEW, 2015a).

While there are several studies that examine the audit market for private firms, there is no evidence on the lobbying of governments on changes to regulation with respect to private firm audits i.e. the definition of Public Interest Entities. From a theoretical perspective, monopoly capitalism predicts concentration in industries through time such that an oligopolistic structure emerges (Cowling, 1982). This structure has been documented in both the public firm audit market (e.g. Francis *et al.*, 2013) and the private firm audit market (e.g. Peel, 1997). However, monopoly capitalism and the neo-Weberian perspective in the theory of professions predict that firms will seek to protect the interests of the profession rather than the public interest (e.g. Loeb, 1972). Moreover, firms will use their dominant position to maintain or improve their economic power due to regulatory capture (Cowling and Tomlinson, 2012) and, in the context of the audit industry, lobby and use public interest arguments to protect their economic self-interest (Lee, 1995). Our paper, therefore, examines audit concentration in the market for private firm audits and the lobbying around the introduction of the new EU regulation on the Statutory Audit of Public Interest Entities.

To do so, we start by performing a detailed empirical analysis of concentration in the audit market for private firms utilising a large panel of independent private company audits in the UK from 2005 to 2012. We focus on the UK for two reasons. First, concerns have been raised over the UK's narrow definition of a Public Interest Entity and whether UK legislation is being implemented in a way to suit existing structures. Second, because of the difficulties in accessing data, the exact market share of private company audits conducted by the Big Four is often difficult to measure. Supplier concentration in audit markets is best measured using audit fee data, however, audit fee data are not publicly available in many countries (Willekens and Achmadi, 2003). Relative to other EU Member States, UK private company data is more accessible, and we are therefore able to download and analyse proprietary data, including audit fees, for a large sample of independent private companies.

Our initial results confirm the evidence of prior studies that there is a high level of audit market concentration. Moreover, when supplier concentration levels are measured by the number of audit appointments, the market share of larger audit firms is significantly understated compared to when supplier concentration is measured by either audit fees or client-firm size. The Big Four, therefore, appear to audit most private companies that provide them with the greatest economic rents i.e. the largest private firms. Crucially, when we partition our sample by firm size, we find that the market share of the Big Four exceeds economists' 'tight oligopoly' threshold of 60% (Shepherd and Shepherd, 2003) for the largest independent private companies.

Next, we examine the lobbying of the UK government around the time of the regulatory reform to investigate whether lobbying occurred to limit the scope of the new legislation. As predicted by the neo-Weberian perspective of professions, monopoly capitalism as described by Cowling (1982), and evidenced in prior research (e.g. Lee, 1995; Hansen, 2011), the Big Four audit firms, other accounting firms, and professional accountancy bodies, overwhelmingly lobbied in favour of a narrow definition of a Public Interest Entity in the UK. To this end they agreed that the focus of the public interest is shareholders and prudential regulators. Their rationale is simple; the impact of failure of these public, or systemically important, firms would fall on a broad investor base. However, the consequence of this lobbying, and the narrow definition now employed in the UK, is that the audit of large private firms remains outside the definition of a Public Interest Entity, and so the status quo for private firm audit markets remains, despite it being a tight oligopoly.

As a result of our analysis, we believe that further consideration should be given to the risks associated with excluding large private firms from the more stringent audit engagement regulations applicable to other Public Interest Entities. As it stands, these firms have been excluded from the more rigorous audit requirements placed on large listed firms and systemically important institutions such as banks, based on a narrow definition of the public interest. If wider definitions of the public interest, as described by Posner (1974) and Stigler (1971), were to be applied within the UK and other EU Member States, large private firms would be subject to some degree of auditor rotation. It is worth noting that this does not solve fully the problems of concentration, as large private firms by construction require a large auditor. Switching is, therefore, likely to be from one Big Four firm to another Big Four firm. However, the process of switching and mandatory re-tendering of business would be a significant step forward in trying to ensure greater scrutiny and oversight of these economically important entities, and would increase competition and choice, albeit by a small amount.

The remainder of our paper is organised as follows. The next section presents our theoretical framework. Section 3 outlines the recent audit reform by the European Union and discusses prior literature. Section 4 discusses our sample selection process and provides descriptive statistics, and Section 5 measures audit market concentration and examines the lobbying of the UK government around the scope of the definition of a PIE. We end with a discussion of our results and conclusions in Section 6 and Section 7.

2. Theoretical Framework

To analyse concentration in private firm audits and to understand if the current regulatory regime is appropriate, we bring together three important areas of theory. First, we view the existence or need for regulation through public interest theory, whereby regulation is used to maximize welfare and to limit market failure. Second, we look at both the role of professions and the need for regulation. Third, and related to the role of professions, we look at monopoly capitalism and its predictions for the structure of the audit market and the consequences of this.

2.1 Public Interest Theory of Regulation

The public interest theory of regulation explains the existence of regulation as a response to market failure that seeks to protect the public at large. This theory of regulation has its origins in the work of Posner (1974) and Stigler (1971). Posner (1974) recognises that regulation is motived by two key drivers. First, markets are susceptible to failure, and second, that regulation has zero transaction costs. Prior to this characterization, Stigler (1971) developed the Economic Theory of Regulation, whereby regulation exists not to protect the interest of the public at large but the interests of groups.

Regulation, under public interest theory as developed from the positions of Posner (1974) and Stigler (1971), predicts that interventions seek to protect the public interest, as there is some form of market failure. Since then, the definition of public interest theory has been expanded to incorporate a broader view, whereby public interest theory is a system of ideas, which takes the normative position that when market failure occurs, regulation should be imposed to maximise social welfare (Hantke-Domas, 2003).

2.2 Public Interest and the Professions

Freidson (1989) argues that professions should be concerned with the public interest and not on personal gain. This position, as set out in the theoretical tenets from the sociology of the professions, states that professions are conferred the privileged status of a profession, as they work in the public interest. The classic view as set out by Freidson (1989) is based on the work of Durkheim whom, from a functionalist position, views society as a complex system made up of parts that work in tandem to promote solidarity and stability. A key part of functionalist theory is different parts of society are composed of social institutions. As such, each is designed to meet a particular need, and so the evolution of these social institutions has consequences for the form and shape of society.

A key outcome of this position is that if professions work in the public interest in the way described above, then there is no need for regulation. Regulation in the public interest is therefore only necessary when market failure occurs. However, there are long debates as to whether the conferment of the status of a profession is a signal of an institution that works in the public interest or whether it is simply a signifier of prestige. Whereby, underneath the designation of being a profession, such institutions are no different from any other profit-seeking organisation (Larson, 1977). Such a view is consistent with the neo-Weberian perspective, whereby professions exist to serve their own private interests and obtain monopolistic positions to provide services.

In the context of the accounting literature, there is a substantive body of work that supports the view that the audit profession does not work in the public interest. Consequently, the audit profession seeks to protect the interests of the profession rather than the public (See for example, Loeb, 1972; Montagna, 1974; Parker, 1994; Canning and O'Dwyer, 2001; Sikka, 2001; Baker, 2005). To this end, there is evidence that lobbying is used by the accounting profession to influence accounting regulation (Meier *et al.*, 1993; Lee, 1995; McLeay *et al.*, 2000; Hansen, 2011; Reuter and Messner, 2015). Given this, and as evidenced by the proposed aims of the changes to the regulatory regime across Europe, audit firms may well require regulation to ensure that they work in the public rather than private interest.

2.3 Monopoly Capitalism

The monopoly capitalism model of Cowling (1982) has its foundations in the work of Kalecki (1939) and Baran and Sweezy (1966). The key prediction of models of monopoly capitalism is that developed economies are dominated by firms that operate in oligopolistic industries (Sawyer, 1988). Despite the empirical evidence to support markets being structured in this manner, the dominant narrative is that markets are competitive (Cowling and Tomlinson, 2012). However, the model of Cowling (1982) makes a number of predictions regarding, concentration, collusion, and elasticity of demand, whereby firms manipulate these factors to increase profits, which is the measure of the degree of monopoly. In the context of the audit industry, firms will seek to increase concentration for example through mergers, as this will increase profits (Owen, 2003). The consequence of which will be a small number of very large audit firms and a large number of very small audit firms.

Implicit in the model of monopoly capitalism is the view that firms seek to maximize profits rather that to work in the public interest. Concentration, therefore, puts increasing amounts of economic power in the hands of a small number of very large market actors and increases the barriers to entry for new firms to emerge. Moreover, markets can appear to be competitive as there are a large number of firms present. However, a natural consequence of the concentration of economic power in a few large actors is that regulation and intervention by the state do not always mitigate the consequences of concentration. Rather, large firms maintain their dominant position through a process of regulatory capture (Cowling and Tomlinson, 2012), a practise of which the large audit firms are certainly capable (Sikka and Willmott, 1995; Cooper and Robson, 2006; Humphrey *et al.*, 2009).

2.4 Predictions

From the above theories, there are two predictions that emerge about the structure of the audit market for private firms. First, and has been well documented in the accounting literature previously, the market is dominated by the Big Four auditors. Second, current regulation is narrow and unlikely to impact on the dominant position of the largest market actors and lobbying on any proposed regulatory changes to the current regime will be to protect the profession and not the public interest, and to ensure a narrow definition of a Public Interest Entity.

3. Regulatory Background and Prior Literature

For a number of years, academic studies have raised awareness of the high levels of audit market concentration in a number of countries, such as the US (Wolk *et al.*, 2001), Germany (Quick and Wolz, 1999), UK (Beattie and Fearnley, 1994; Pong, 1999b; Beattie *et al.*, 2003; Arnold, 2009; Abidin *et al.*, 2010), across the EU (Ballas and Fafaliou, 2008), and internationally (Francis *et al.*, 2013). Moreover, regulators, market participants and academics have raised concerns that a high level of supplier concentration within audit markets by the dominant audit firms, coupled with low levels of auditor switching, may impair independence and audit quality (e.g., Beattie *et al.*, 2003; Oxera, 2006; Ballas and Fafaliou, 2008; Abidin *et al.*, 2010; Francis *et al.*, 2011; Francis *et al.*, 2013). More recently, auditors have been criticised for their failure to identify the 2007-2008 Global Financial Crisis (Hopwood, 2009; Sikka, 2009), and alert investors to the high risk assets held by banks (Arnold, 2009; House of Lords, 2010). Post-crisis, inspection reports by Member States revealed that the lengthy relationships between auditors and their clients had resulted in the auditors exercising low levels of professional scepticism and performing inadequate procedures for the audits of major companies (EC, 2013).

3.1 Reform of the EU Statutory Audit Market (2014)

The European Commission (EC), therefore, embarked upon an extensive consultation process, culminating in the release of the Green Paper on Audit Policy in October 2010 which raised concerns over the Big Four dominance of audit markets (EC, 2010). Consequently, in 2011, the EC proposed significant audit regulatory changes (EC, 2011a; EC, 2011b) and, in 2013, the European Parliament and EU Member States reached agreement on a number of audit reforms (EC, 2013). These reforms were then approved by the European Parliament in 2014, who issued a revised Statutory Audit Directive[5] and a new EU Regulation on the Statutory Audit of Public Interest Entities, which became effective from June 2016 (EC, 2014a).

The Statutory Audit Directive sets out the auditor's duties and regulates all statutory audits in the EU, regardless of whether the audited entity is a Public Interest Entity. However, the new EU Regulation only enforces stricter legal requirements for the statutory audits of 'Public Interest Entities' (PIEs). The stricter legal requirements for Public Interest Entities include the mandatory rotation of the auditor for Public Interest Entities after a period of ten years, joint audit and tendering incentives, a list of non-audit services that audit firms may not provide to their clients and a cap on the fees charged for non-audit services that are provided[6]. Justifying their decision for stricter audit regulation of Public Interest Entities, the EC argue that undetected material misstatements have disproportionally greater consequences for society, the shareholders and investors of these firms than for other undertakings (EC, 2014b, p.4). Any costs associated with complying with the new EU Regulation should, therefore, be outweighed by the greater audit assurance resulting from reducing the overfamiliarity between auditors and their clients, increasing the choice between audit firms, and lowering the levels of concentration in the top-end of the audit market (EC, 2014a).

3.2 Defining a Public Interest Entity

However, the imprecise definition of a Public Interest Entity provided by the EC has led to a variety of interpretations across EU Member States, which could limit the intended impact and success of these reforms (FEE, 2014). For example, Table 1, which summarises the definitions of Public Interest Entities across EU Member States, shows France, Germany, Hungary, Ireland, Norway, Slovenia, and Sweden applying the minimum requirements while Denmark, Italy and Spain expand the definition to include other entities such as investment companies, large non-listed companies, state owned companies, and pension funds. Table 1, further, shows that the definition of a Public Interest Entity has not been widely extended within the UK.

[Insert: Table 1. Overview of the definition of a 'Public Interest Entity' (PIE) applicable across Europe]

When deciding the scope of the Public Interest Entity definition in the UK, the Department of Business Innovation and Skills (BIS) and FRC launched parallel consultation documents. While the BIS did not propose to widen the definition, the FRC suggested including entities, currently outside the scope of the Public Interest Entity definition, but which may be of sufficient public interest to warrant applying some, but not all, of the more stringent requirements applicable to Public Interest Entities (FRC, 2014b, p.25). Nevertheless, the idea of extending the Public Interest Entity definition was opposed due to the perceived additional costs and risk of placing these firms at a relative disadvantage to their European counterparts. However, since the FRC's definition of a 'listed entity'[7] is broader than the EU's, the focus of the discussion was aimed towards the application of the definition to smaller companies listed on the Alternative Investment Market (AIM), rather than the effect of extending this regulation to larger private firms. Therefore, in its current form, the Regulation does not apply to the majority of private companies in the UK, despite their overall importance to the wider economy and the market for audit services.

As a result, the European Commission has raised concerns over the UK's definition of a Public Interest Entity, suggesting that UK legislation was manipulated to suit existing structures rather than the intended outcomes of the EU legislative framework (ICAEW, 2015a, p.7). Moreover, the ICAEW has questioned the sense of using the new Public Interest Entity definition alongside the existing classification of a 'major audit'[8] within the UK, which will lead to some large private entities being classed as major audits for an Audit Quality Review (AQR), while being excluded from the regulatory requirements applicable to Public Interest Entities. The ICAEW has, therefore, recommended the FRC re-examine the regulatory framework for corporate entities in the UK with a view to incorporating certain non-quoted firms within the definition of a Public Interest Entity given the risk to the UK economy in light of their financial failure (ICAEW, 2015a, p.7).

Alternatively, the FRC may consider adopting a tiered approach which could see some of the new regulatory requirements, currently only applicable to Public Interest Entities, being applied to larger private entities (ICAEW, 2015b, p.7). Given the limited understanding and knowledge of the private company audit market, excluding all private companies from the more stringent audit regulations applicable to Public Interest Entities seems premature, particularly given the substantial size of some of these firms[9].

3.3 Private Company Audit Market

Despite their often substantial size and economic importance little is known about the auditing choices of private firms (Francis et al., 2011, p.489). To date only one paper focuses solely on supplier concentration in the private company audit market. Peel (1997) finds 28.6% of his large sample of private firms were audited by the Big Six between 1994 and 1995, and when dividing the sample by company turnover, the Big Six market share rose from 15.9% for the subdivision of the smallest to 94.1% for the subdivision of the largest private companies. However, due to data collection problems Peel (1997) is unable to go further in his analysis and provide a measure of supplier concentration based on audit fees, nor is he able to make comparisons to additional measures of concentration and thus only provides a limited picture of the UK private firm audit market.

While a small number of studies have examined the private company audit market share of the larger audit firms, their data collection methods and sample compositions vary greatly (Moizer and Turley, 1987; Abidin *et al.*, 2010). For example, in a study on audit pricing, Chaney *et al.* (2004) finds around half their sample of 15,484 private firms use a Big Five auditor between 1994 and 1998 and, similar to Peel (1997), reports the Big Five audit 87% of the largest private companies, compared to 28% of the smallest audit firms. However, Ball and Shivakumar (2005) reports the Big Five audit only 19% of their sample of 54,778 private companies between 1990-2000 when investigating the earnings quality of private UK firms. Moreover, Clatworthy *et al.* (2009) reports an even lower Big Four market share of 8.3% when studying whether a Big Four premium exists in the private firm audit market in 1994 and suggests that the difference between their findings and Chaney *et al.* (2004) may be attributable to the different data collection methods from the *Bureau van Dijk* 'Financial Analysis Made Easy' (FAME) database.

These studies may, further, be misstating the real market share of the large audit firms since they measure market share primarily using the number of clients audited by each firm rather than the audit fees earned from these clients, which provides a better measure of the output required by each auditor (Moizer and Turley, 1989). Moreover, the reported audit market share of the large audit firms may be misrepresented due to the sample of private companies used. For example, Lennox and Pittman (2011) finds the Big Four audit between 6% and 7% of their sample of 5,139 private companies in 2003 and 2004, yet their sample is only comprised of smaller private companies which were recently exempt from a statutory audit. Finally, the reported private company audit market share will depend on the independence of the private companies within the sample since auditor hiring decisions are routinely made by the holding company rather than the subsidiary (Lennox and Pittman, 2011).

This limited, and often mixed, evidence for the private company audit market, therefore, suggests that the decision to preclude most private companies from the definition of a Public Interest Entity, effectively excluding them from the new audit reforms, may be hasty, particularly since these reforms were introduced to improve both audit competition and quality. The greater heterogeneity and wide-ranging size of private firms makes the role of auditing less obvious and a constant market share across all sub-sectors by the large audit firms less likely. Consequently, the audit market for large private companies may exhibit concentration levels and systemic risks similar to those observed in the public company audit market, yet there is no planned regulatory intervention to address this. Therefore, given the recent audit reforms for 'Public Interest Entities', an in-depth review of the audit market for private firms is timely and necessary to determine whether economically important private companies should be subject to similar audit requirements as applicable to Public Interest Entities.

4. Data

4.1 Sample Selection

Consistent with prior studies examining the audit market for private UK companies, our data is extracted from the 'Financial Analysis Made Easy' (FAME) database published by *Bureau van Dijk*, a major publisher of business information who specialise in private company data in addition to software for searching and analysing companies. FAME is the most extensive publicly available source of UK corporate data and provides comprehensive financial and non-financial information on over 8 million private and public companies within the UK and Ireland. The information available on FAME includes: adverse filings, directors and managers, financial strength metrics including credit scores, credit ratings, county court judgements (on non-payment), shareholders and subsidiaries, corporate structures, family firms, M&A deals and rumours, industry descriptions, SIC codes, and research, news, and company accounts and documents. The data used in this study focuses on company accounts, and come from original filings at Companies House, which is an executive agency, sponsored by the Department for Business, Energy & Industrial Strategy of the UK Government. In the UK, Companies House incorporate and dissolves limited companies, registers the information companies are legally required to supply, and makes that information available to the public.

To ensure that no firms in our sample have an individual shareholder with sole power to influence the choice of auditor, we start by selecting all active independent, private companies with audited financial statements for the period 2005-2012[10]. Next, we remove any firms identified as switching status from a private to public or public to private company during the sample period. Further, to identify and remove firms within the financial or utilities sectors (e.g., Firth, 1997; Lennox and Pittman, 2011; Dedman and Kausar, 2012) we retain only those companies with a valid SIC (2007) code. Firms in these industries have unique operating reporting requirements and include unlisted credit institutions and insurance undertakings, which are already classified as Public Interest Entities. From this sample, we then remove all firms without the necessary annual accounting data such as total assets, a minimum turnover of £1,000, a disclosed profit or loss figure, a minimum audit fee of £1,000[11], and a registered office location for a minimum period of two consecutive years. A firm's registered office location is taken into consideration because audit fees of firms located in particular regions, for example London, are expected to reflect the higher cost of living differentials (Peel, 2013) which may affect market share when based on fees. Following Ball and Shivakumar (2005) we then exclude all firm-years where either the key accounting or audit information is missing or internally inconsistent.[12] Finally, we trim all key accounting variables[13] at the 1% and 99% levels leaving a final sample of 8,314 independent companies and 36,118 observations.

We classify the audit firms within our sample into Big Four and Non-Big Four, since the Big Four audit firms compete, to a large extent, with non-Big Four audit suppliers in the market for private company audits (Dutillieux *et al.*, 2013, p.962). However, the traditional distinction between Big Four and non-Big Four audit firms may be inadequate for an audit market study which focuses on private independent company audits (Van Tendeloo and Vanstraelen, 2008). Therefore, we further divide our sample of non-Big Four audit firms into three groups of Mid Four, Small-Tier, and non-major audit firms using the FRC's 'Key Facts and Trends in the Accountancy Profession' reports for the relevant years covered by our sample period.

[Insert: Table 2. Classification of the major UK audit firms and key characteristics]

Table 2 reports the categorisation of the Big Four, Mid Four, and Small-Tier audit firms, along with their average annual audit fee income, number of UK offices and number of UK partners for our sample period. In total, these firms report a combined average annual audit fee income of £2.2 billion of which the Big Four firms earn 78% (£1.7 billion). By comparison, the Mid Four earn 13% (£288 million) of the total audit fee income, with the remaining 9% (£195 million) being shared between the Small-Tier firms. In terms of audit fee income, therefore, the Big Four are the market leaders. However, there are still significant differences between these four individual firms. For example, PricewaterhouseCoopers average annual audit fee income is £560.8 million, over 1.7 times greater than Ernst & Young's average income of £315.8 million. Compared to the Big Four, the Mid Four firms earn a far lower average income from audit fees with Grant Thornton earning the highest income of £93.4 million while, at £52.7 million, PKF (UK) earned the lowest. Finally, for a Small-Tier audit firm, their average audit fee income ranges between £6.8 million and £38.3 million, substantially lower than the lowest Mid-Four income and confirming the importance of expanding the classification of non-Big Four audit firms.

4.2 Descriptive Statistics by Year: 2005-2012

Table 3 reports our descriptive statistics by audit firm group presenting the mean of each variable on both an annual and aggregate basis. Consistent with prior research (e.g., Peel, 1997; Clatworthy *et al.*, 2009) companies audited by the Big Four are significantly larger than clients of the non-Big Four audit firms. For example, in Panel A, Big Four audit clients generate an average turnover of £75 million[14], while, in Panel B, Mid-Four clients generate a significantly lower turnover of £25.1 million. Further, the average turnover of a Small-Tier or Non-major audit client is lower still at £16.4 million and £10 million respectively. Other measures of client firm size, such as total assets and number of employees, continue to highlight the significant differences between the audit clients of each group of audit firms. For example, an average Big Four audit client employs just over 500 staff, while an average client of a Non-major audit firm employs less than 130 people.

[Insert: Table 3. Descriptive statistics by year 2005-2012]

The size of the audit client is an important determinant of audit fees as this reflects the amount of audit effort required (Pong and Whittington, 1994; Chi, 2004; Feldman, 2006; Oxera, 2006; McMeeking *et al.*, 2007). Consistent with this, Table 3 shows the Big Four audit firms receive an average audit fee of £49,992[15], almost five times the average fee of £10,219 paid to a Non-major audit firm. In addition to audit services, clients may purchase non-audit services from their auditor[16] which, while relatively similar across all audit groups, shows the average non-audit fees paid by private companies are either close to or above the 70% limit to be applied to Public Interest Entities (EC, 2014b, p.8). Moreover, as the type of non-audit services provided cannot be determined, it may be possible that some of these non-audit services will be prohibited for audit clients qualifying as Public Interest Entities.

In addition to concerns about concentration, both EU and UK investigations raised concerns about the low levels of auditor switching and the lengthy auditor tenures for listed companies. Auditor switches are infrequent events with only 2% of FTSE 100 companies and 4% of all listed companies switching auditor between 1995 and 2004 (Oxera, 2006) while 31% (67%) of FTSE 100 companies and 20% (52%) of FTSE 250 companies employed the same auditor for more than 20 (10) years (Competition Commission, 2013). Our findings in Table 3 show that the audit switching rates for private companies are just as low with an average of between 3.05% to 4.46% switches across our four groups of audit firms[17]. Moreover, while the exact length of the auditor-client relationship cannot be determined from FAME, the low switching rate implies that the auditor tenures for these private companies could be similar to those already documented for listed companies, which is unlikely to change without similar regulatory intervention applicable to Public Interest Entities.

4.3 Descriptive Statistics by Company Size

Given the importance of auditee size in determining the choice of auditor, we partition our sample into deciles based on each company's total assets and report further statistics in Table 4[18]. Panel A shows average total assets (turnover) increase from £313,000 (£848,000) in the first decile rising up to £196 million (£120 million) in the largest decile, nearly ten times larger than the average total assets of a private company in the ninth decile. Further, highlighting the significant size of the average private company in our largest decile, in untabulated results, we find that, collectively, in 2012, companies in this decile employed approximately 430,000 people and contributed more than 5% of the UK GDP based on sales revenue[19].

[Insert: Table 4. Descriptive statistics by company size]

Consistent with fees being determined by size, Panel B reports average audit fees rising from £2,799 for the smallest private companies up to £76,931 for the largest, comparable to the £84,900 average audit fees paid by FTSE Fledgling companies in 2004, but notably lower than the audit fees paid in the FTSE Small Cap or FTSE 100 (Oxera, 2006). Given audit fees relate closely to the size of the auditee, the audit fees-to-sales ratio allows a better comparison between the audit fees of listed and non-listed firms. Panel B, therefore, reports our fee-to-sales ratio for each decile, which shows a steady fall from 1.32% in the first decile to 0.17% in the tenth, most likely due to fixed costs and audit scale economies (Abidin *et al.*, 2010). By comparison, in 2004, audit fees represented 0.05% of the median turnover of FTSE 100 companies, 0.13% of the FTSE Small Cap, and 0.20% of the FTSE Fledgling (Oxera, 2006), similar to the fees-to-sales ratio of 0.17% for the largest private companies. Client size, therefore, appears to drive audit fees irrespective of listing status. Further, Panel B shows private companies purchase a large proportion of non-audit services, regardless of their size. Together with the low switching rates, this raises concerns regarding the overfamiliarity of auditors and their clients and highlights the need for regulators to re-examine the audit regulatory requirements applicable to these companies.

In summary, the audit market for private independent companies appears to share many characteristics found in the audit market for listed companies. Consequently, given the substantial size and subsequent economic importance of these entities, the audit market for private companies may require similar reforms to the auditing regulations for Public Interest Entities. To provide a more detailed understanding of the audit market for private companies we, therefore, proceed by examining the audit choice of private firms and audit market concentration levels in more detail.

5. Analysis

5.1 Measuring Audit Market Concentration

Audit market concentration has traditionally been measured using the k-firm concentration ratio (C_n) and the Hirschman-Herfindahl index (HHI) (e.g., McMeeking *et al.*, 2007; Abidin *et al.*, 2010). More recently, the Gini-coefficient, which is traditionally used in economic analyses to measure wealth inequality has been used (e.g., Quick and Wolz, 1999; Abidin *et al.*, 2010). Therefore, since the C_n is the most widely used method, we define our first measure of audit market share as follows:

$$CR_k = \frac{\sum_1^k x_i}{\sum_1^n x_i} \qquad (1)$$

Where *CR* is the concentration ratio calculated for *k* audit firms, *n* is the total size of the market, and x_i is the size of the audit firm measured by a proxy e.g., number of clients or total audit fees. Modern industrial economics use the level of concentration present in a market to classify it into one of four categories[20]. However, this is not a perfect measure of market concentration since it only accounts for the market share of the largest *n* firms, ignoring all others (Pong, 1999a). In spite of it not being a perfect measure, because of its frequent use in prior studies, it enables us to compare supplier concentration in the private company audit market with the levels of supplier concentration found in listed firm markets.

The HHI is argued to be a better measure of market concentration as it accounts for all active firms and provides a better indication of the relative market control of the largest audit firms (Wootton *et al.*, 1994; Pong, 1999a; Wolk *et al.*, 2001), which we define as follows:

$$HHI = \frac{\sum_1^n x_i^2}{\left(\sum_1^n x_i\right)^2} \qquad (2)$$

Where *HHI* is the Hirschman-Herfindahl Index, *n* is total size of the market, and x_i is the size of the audit firm. The HHI can range from 0, for an industry with many active firms of equal size, to 10,000, for an industry with only one active firm. However, there are different interpretations of what threshold indicates a highly concentrated market. For example, the US Department of Justice classify markets as competitive if the HHI is below 1,000, moderately concentrated from 1,500 to 2,500, and highly concentrated if above 2,500. Conversely, Europe considers a market with a HHI exceeding 1,000 as concentrated, and highly concentrated when greater than 2,000 (Barty and Ricketts, 2014). Moreover, the HHI still gives greater weight to large firms and, despite the differences which exist between the C_n and HHI, the two measures can be highly correlated (Pong, 1999a). For our third measure of concentration we, therefore, use the Gini coefficient, which is a market wide measure of concentration that does not place greater weight on larger audit firms, nor is it easily affected by changes in population size, as follows:

$$Gini = \frac{2}{n^2\bar{x}} \sum_{i=1}^{n} \left[\left(i - \frac{n+1}{2}\right) x_i\right] \quad (3)$$

Where *Gini* is the Gini coefficient, $\bar{x} = \frac{1}{n} \sum_{i=1}^{n} x_i$, n is the total size of the market, and x_i is the size of the audit firm. The Gini coefficient can range from 0, for a market with perfect equality, to 100 for a market with perfect inequality.

For all three models of market concentration, different measures of market share can be used. While prior audit studies generally use the number of audits as their main proxy, largely due to the minimal data required, this may understate an audit firm's real value of their market share (Moizer and Turley, 1989). Using audit fees as an alternative measure, therefore, is less likely to understate a firm's market share and should provide a more accurate representation of an audit firm's output since the measure is not sensitive to the overall population size (Pong, 1999a).

Using Equations (1) to (3), Table 5 reports the levels of auditor concentration based on the number of audits and total audit fees, for our pooled sample, and across size deciles[21] based on total assets[22]. Our findings in Panel A, which estimates market share based on the number of audits, shows audit market concentration levels for the pooled sample are relatively low. Specifically, 13% of private company audits are performed by the Big Four audit firms, which is comparable to the 8.3% reported by Clatworthy *et al.* (2009) in their cross-sectional study of private UK firms. Further, when combined, the Big Four and Mid Four audit firms (Big Eight) account for only 24% of all private company audits, implying these two groups each audit similar numbers of clients. The low levels of market concentration are further supported by a HHI market share measure of 108, well below the European threshold of 1,000 for a concentrated market, and a Gini coefficient of 55.82, which is much lower than the 86.12 to 96.09 reported by Abidin *et al.* (2010) for listed UK companies. On the surface, therefore, the pooled results imply a competitive audit market for private UK companies, thereby supporting the view that further regulatory intervention in this market may be unnecessary.

[Insert: Table 5. Auditor concentration in the UK private company market]

However, in reality, the notion of a competitive audit market for all private companies disappears if market concentration is reported by size deciles and, as we do in Panel B, estimated using audit fees, rather than the number of audits. This is particularly evident for the largest 10% of private UK companies where the market share of the Big Four rises to 62% in Panel B, exceeding the 60% threshold of a 'tight oligopoly' (Shepherd and Shepherd, 2003). The Big Four, therefore, dominate the audits of larger private companies which provide them with the greatest economic rents. Moreover, while the HHI is below the Competition and Markets Authority (CMA) standard for a concentrated market in the first nine deciles, the HHI of 1,095 for the largest firm decile exceeds the CMA threshold for concentration. To put this into context with the listed company audit market, the HHI based on audit fees was 2,561 for the FTSE 100 and 1,739 for the FTSE Fledgling for the year 2004 (Oxera, 2006). This again raise concerns about the level of competition and choice in the audit market for the largest private companies. In such a concentrated market, firms will seek to maintain their oligopolistic position (Cowling, 1982), and protect the interests of the profession rather than the public (See for example, Loeb, 1972; Montagna, 1974; Parker, 1994; Canning and O'Dwyer, 2001; Sikka, 2001; Baker, 2005). To this end, we next examine the lobbying on the scope of the definition of a Public Interest Entity in the UK. Consistent with the neo-Weberian perspective, we use the theories of professions and monopoly capitalism and predict audit firms will lobby to protect the profession and by extension the current market structure, by limiting the scope of the definition.

5.2 Lobbying and Defining the Scope of Public Interest Entities

To test whether this behaviour is observed, we collect and examine the lobbying of BIS, the government department that ran the consultation on the reforms to the regulatory framework for statutory audit within the context of the new European Union Audit Reforms (Directive 2014/56/EU and Regulation No 537/2014)[23]. First, we categorize all respondents to this consultation according to their organization type e.g. Big Four, non-Big Four, Regulator, etc., as presented in Table 6. Next, we follow McLeay *et al.* (2000) and read through and analyse each individual response. In our case we identify whether a respondent was for, against, or did not respond to the question on expanding the definition of a Public Interest Entity. In addition, to triangulate our results, and ensure that our interpretation was correct, we engaged three other accounting academics, who are also qualified Chartered Accountants, to independently categorize the responses[24]. Finally, we compared our summary of responses to the summary statistics of the responses compiled by BIS in their final report. In looking at the breakdown of the responses, once those who did not comment on the specific question on the expansion of the definition are removed, one telling fact is that over two thirds (21 out of 31) of the responses come from accountancy and audit firms, including all Big Four firms, professional accountancy bodies, and accounting trade bodies.

[Insert: Table 6. Lobbying responses by organization type]

Before examining these responses in more detail. There are two responses that must first be considered. One is from Association of Accounting Technicians (AAT) who responded that the definition should be expanded, and the other is from the National Audit Office (NAO). In looking to expand the definition of a Public Interest Entity, one way in which this could be done would be to include public sector bodies. Here, the AAT felt that the definition should be expanded such that,

"...entities substantially dependent upon public moneys...such as providers of public utilities and services, as well as charities. In addition, commercial entities which are dependent upon publicly funded contracts or grants should fall within the definition of a PIE, as well as listed entities." [25]

While the NAO concluded,

"...the NAO already adopts an audit approach that encompasses many of the more stringent requirements for listed entities and the EU Directive and Regulation for PIEs for all of our client base." [26]

From Table 6 the first key finding is that outside of the issue of public sector funding discussed above, not one of the responses was in favour of expanding the definition of a Public Interest Entity. Specifically, the government asked,

"Do you agree that the Government should not expand the definition of a PIE beyond the EU minimum requirement – that is listed companies, banks, building societies and insurers? Please provide further information in support of your answer?" [27]

By examining the submitted responses, and through investigation of the government's own conclusions, a common theme occurs. First, any expansion of the definition of a Public Interest Entity is seen as 'gold plating' of the regulation; a description that is common in many of the responses (9 out of 31). Second, the most common reasons for applying a narrower definition (14 out of 31) are that any expansion would result in a significant increase in the costs, administrative burden, and complexity for companies that would be classified as a Public Interest Entity for the first time. In looking at the submissions from the Big Four, the comment from Deloitte below is most telling,

"We welcome the Government's decisions made as a result of the earlier Discussion Document on the implications of the EU and wider reforms. We believe that your proposed approach has correctly balanced the interests of investors, the public and audited entities, and in particular prioritised the public interest by focussing on the interests of shareholders and prudential regulators of entities with the biggest impact on a broad base of investors or which could give rise to systemic risk."[28]

It is very clear that the definition of the public interest here is restricted to investors and that the public interest is confined to those firms where shareholder losses are the key concern. In agreeing to this view, which is consistent with the earlier lobbying that occurred, the government is restricting the definition of what is in the public interest to systemically important financial firms and large listed companies. The market for private firm audits is therefore left firmly outside the scope of a Public Interest Entity.

Similarly, PWC stated that,

"We agree that the definition of a PIE should not be expanded beyond the EU minimum requirement. This definition was agreed following negotiations in Europe and reflects the underlying aim of the Regulation and the Directive which is to focus on entities where there is a public interest, and which could give rise to systemic risk."[29]

6. Discussion of Results

Having examined concentration in the private firm audit market and the lobbying carried out around the consultation on the scope of the definition of a Public Interest Entity, we now discuss the predictions of our theoretical framework and the implications of our results.

Our first prediction was that the market is dominated by the Big Four auditors. Consistent with prior research, our results show private firm audit markets are segmented with Big Four dominance among the largest private firms. Moreover, our analysis shows that this market meets the economic definition for a tight oligopoly, which raises concerns about competition and choice in the market for large private firm audits. Our second prediction was that the lobbying to the consultation on the scope of the definition of Public Interest Entities would seek to limit the scope of the definition. Based on the results of the analysis of the lobbying that occurred, it is clear the accounting and audit firms, including all Big Four firms, as well as professional accounting bodies, did not seek to expand the definition to include economically important private firms.

In looking at these two findings together, there are several issues that emerge. First, and as predicted by monopoly capitalism, there is a significant concentration in the private firm audit market. Second, and as predicted by the theory of the professions and the public interest, the lobbying that was observed was to limit the scope of the definition of what constitutes a Public Interest Entity. Such a result is also consistent with the substantive evidence found in the literatures that examine lobbying behaviour and self-interest of the accounting profession (Meier *et al.*, 1993; Lee, 1995; McLeay *et al.*, 2000; Hansen, 2011; Reuter and Messner, 2015). To resist any regulatory changes that would result in mandatory rotation requirements is also rational within the context of recent evidence that shows a tenure linked audit fee premium for Big Four firms (Ghosh and Siriviriyakul, 2018). The consequence of successfully lobbying to restrict the definition of a Public Interest Entity however, is to allow the oligopolistic market structure to remain, and the rent seeking by the largest auditors to continue. Consequently, competition and choice in the market for economically important private firm audits remains limited at best.

While concentration does not necessarily lead to poor audit quality (Francis *et al.*, 2013), a lack of competition and choice in a market is wholly undesirable as it leads to potential conflicts and uncompetitive pricing. We, therefore, believe that further consideration should be given to the risks associated with excluding large private firms from the more stringent audit regulations applicable to other Public Interest Entities. If wider definitions of the public interest were to be included, such as those described by Posner (1974), large private firms would be subject to some degree of audit rotation within the UK and potentially within other EU Member States.

It is worth noting, however, that such a solution does not solve fully the problems of concentration. Large private firms by construction require a large auditor given the size and complexity of these firms. Consequently, switching is likely to be from a Big Four firm to another Big Four firm. In debating the rules for public firms, Lord Hodgson said that,

"There are only four major firms in the PIE space – all other auditing practices are at present effectively also-rans – so there are only four entrants in the race, one of which must be ruled out because it will be the current auditor, and another may be ruled out because it is providing corporate finance or other services. We have a race of only two horses. This is what we call competition. There is bound to be the effect of taking in each other's dirty washing or passing the buck around when you have that limited number of participants."[30]

The dominance of the Big Four firms in public firm audit is therefore unlikely to be impacted by the current regulation for the reasons above. However, large private firms that are economically important but currently outside the definition of a Public Interest Entity are subject to even less scrutiny due to concentration and long tenure. As such, while imperfect, the process of switching and mandatory re-tendering of business would be a significant step forward in trying to ensure greater competition and choice in the market for private sector audits.

7. Summary

New regulation on the Statutory Audit of Public Interest Entities came into effect in June 2016 and required the mandatory rotation of company's auditors every ten years, prohibiting the provision of certain non-audit services by audit firms to their clients and capping the fees charged for non-audit services that are provided. These reforms should result in greater levels of audit assurance by reducing the overfamiliarity between auditors and their clients, increasing the choice between audit firms, and lowering the levels of concentration at the top-end of the audit market. However, rather than affecting all companies, these changes only apply to those firms defined as 'Public Interest Entities' which, according to the European Commission, are companies where undetected material misstatement would have disproportionally greater consequences for society, shareholders, and investors, compared to any other firms.

The imprecise nature of this definition has therefore led to a variety of interpretations across EU Member States, which may limit the intended impact and success of these reforms. Moreover, the narrow definition of a Public Interest Entity applied in the UK has been met with unease from the European Commission and questions have been raised as to whether UK legislation is being implemented to suit existing structures (ICAEW, 2015a). This leads to the question as to whether the definition of a Public Interest Entity in the UK is justified or whether, by excluding private companies by applying a narrow definition of a Public Interest Entity, the result is the exclusion firms that many would consider to be in the public interest from the more stringent audit regulation observed for firms that are currently considered Public Interest Entities.

Using a large panel of independent private company audits in the UK from 2005 to 2012 we first provide a comprehensive analysis of the private company audit market. The results of this analysis, consistent with prior research and the predictions of monopoly capitalism Cowling (1982), show that larger audit firms, and most notably the Big Four, audit the majority of large private companies in the UK. Moreover, by partitioning our sample by auditee size, we show that the Big Four maintain a tight oligopoly of the largest independent private company audits, which is of significant concern in looking at competition and choice in this market.

We next examine the lobbying of the Department for Business Innovation and Skills in the UK, the government department that ran the consultation on the reforms to the regulatory framework for statutory audit. Consistent with a neo-Weberian view, theories of the professions and monopoly capitalism (Cowling (1982), and extant research that examines lobbying by the accounting profession (e.g. Meier *et al.*, 1993; Lee, 1995; McLeay *et al.*, 2000; Hansen, 2011; Reuter and Messner, 2015), we find that accounting and audit firms lobby to protect the profession. The observed lobbying was successful in maintaining a narrow definition of a Public Interest Entity. Consequently, the oligopolistic structure we observe in the market for large private firm audits, which is arguably not in the public interest, remains. It is worth noting that Francis *et al.* (2013) state that concentration does not necessarily result in a poor quality audit. However, considering the economic impact of mandatory rotation on fee premiums, especially in the largest firms (Ghosh and Siriviriyakul, 2018), concentration of this nature has implications for competition and choice in the market for private firm audits. The structure of the market should, therefore, be examined carefully, especially as lobbying around the definition of a Public Interest Entity sought to limit the scope of the definition and by extension, maintain the status quo.

In looking at potential remedies to the issue of choice and competition in the audit market for large private firms, there are no easy solutions. Given the complex nature of many large private firms, it would be difficult for a smaller auditor to provide an equivalent audit to one provided by a Big Four firm and hold a portfolio of clients. However, if large private firms were to be included in the definition of a Public Interest Entity, while imperfect, the process of switching and mandatory re-tendering of business would help ensure increased competition and choice in this sector of the audit market. That said, although switching rates would increase, the segmentation in the market would continue, as switches would be mostly occur laterally between the Big Four. From a policy perspective, this therefore creates a significant challenge to generate real competition and choice for which there are no easy answers.

Notes

1 Source: Big Four accountancy firms plan for forced break-up, Financial Times, 16th May 2018.

2 According to the Statutory Audit Directive 2014/56/EU (Article 2, point 13) the definition of a 'public-interest entity' is as follows: (a) entities governed by the law of a Member State whose transferable securities are admitted to trading on a regulated market of any Member State within the meaning of point 14 of Article

4(1) of Directive 2004/39/EC; (b) credit institutions as defined in point 1 of Article 3(1) of Directive 2013/36/EU of the European Parliament and of the Council (16), other than those referred to in Article 2 of that Directive; (c) insurance undertakings within the meaning of Article 2(1) of Directive 91/674/EEC; or (d) entities designated by Member States as public-interest entities, for instance undertakings that are of significant public relevance because of the nature of their business, their size or the number of their employees.

3 In January 2015 private companies accounted for just over 99.7% of the effective Companies House register.

4 Any firm exceeding 2 out of 3 criteria concerning number of employees, asset values, and turnover are considered Public Interest Entities.

5 Statutory Audit Directive 2014/56/EU amends the Directive 2006/43/EC.

6 Member States can allow Public Interest Entities to extend the audit engagement (1) by an additional 10 years upon tender; (2) or by an additional 14 years in case of joint audit (EC, 2014b); prohibited non-audit services includes: tax, consultancy and advisory services; if an firm provides non-audit services for three of more years fees are limited to no more than 70% of the average fees paid in the last three years by the audited entity.

7 The FRC defines a listed entity as 'an entity whose shares, stock or debt are quoted or listed on a recognized stock exchange, or are marketed under the regulations of a recognized stock exchange or other equivalent body (FRC, 2014b, p.21)

8 A 'major audit' is an audit conducted under UK law in respect of a Public Interest Entity; or any other person in whose financial condition there is a major public interest. This includes UK unquoted companies, groups of companies, limited liability partnerships or industrial and provident societies with Group turnover in excess of £500million (FRC, 2014a).

9 In the UK, the 'Top Track 100' ranks Britain's largest private companies by sales, a typical Top Track 100 company has sales ranging between £700 million and £3 billion and has between 500 and 20,000 employees. In 2012, the Top Track 100 included private companies with turnover ranging from £617 million to £25,400 million (Fast Track, 2014), of which the Big Four were responsible for auditing just over 80%, with the remainder of firms mostly being audited by the Mid Four.

10 The FAME database characterises the degree of independence of a company with regard to the ownership of shareholders and included in the download are companies that do not possess a single shareholder with enough power to influence auditor choice.

11 Oxera (2006) reports median audit fees, as a percentage of company turnover, for FTSE 100 firms to be 0.05%, increasing to 0.20% for the smaller FTSE fledgling companies. In a sample of smaller private firms, audit fees as a percentage of sales is expected to be higher than those for listed firms and a fees to sales ratio of 10% would provide us with a minimum fee threshold of £1,000 (based on the minimum turnover in the final sample being £13,000).

12 These data filters mostly result in a number of smaller private companies being excluded and, while this may limit out insights of the audit market for the smallest private companies, it does not impact our findings and discussion of whether the audit market for large independent private companies may require similar reforms to those applicable to PIEs.

13 For example, profit to sales ratio, fees to sales ratio, return on assets and percentage change in audit fees.

14 Clatworthy *et al.* (2009) report average turnover (total assets) of £39.41 million (£35.62 million) for Big Four auditees. Although similar steps were taken during downloads there are differences between the average size of the companies which likely results from the higher audit fee threshold used in the current paper (£1,000) in comparison to the smaller threshold (£100) used by Clatworthy *et al.* (2009) which will result in the exclusion

of smaller client-firms. The nature and timing of each sample will also affect the firm composition due the requirement in the current paper for firms to possess consecutive years of accounting data.

15 In comparison, Clatworthy *et al.* (2009) report average audit fees of £29,050 for Big Four clients.

16 Small and medium sized companies are not required to disclose the fees received by auditors in respect of non-audit services, the proportion of companies reporting non-audit fees is reported in Table 3.

17 Audit switches are identified by comparing current and prior year auditors for each company in our sample, and classifying a change (no change) in audit firm, or both audit firms in the case of a joint audit, as 1 (0), but excluding changes resulting from audit firm mergers.

18 The number of companies present in each size decile vary for each year of the sample (i.e. one decile always contains 10% of the sample for that year) with the same firm potentially appearing in different deciles depending on yearly sample composition. To control for this, when reporting results by decile, the figures in the table are calculated on both a yearly and an aggregate basis, with the average of the yearly figures being compared with the aggregate figures. As the results are similar, we reported the aggregate figures for brevity. Our annual results are available on request.

19 In 2012 real GDP for the UK was £1.5 trillion (Office of National Statistics, 2013) and the total turnover of the sample firms included in decile ten for the year 2012 totalled £75.4 billion.

20 The research field defines four main categories of market: (1) monopoly – one firm has a market share of 100%, (2) a dominant firm – one firm has a market share between 40% and 99%, (3) a tight oligopoly – four firms possess a 60% market share, and (4) effective competition - four firms have less than 40% market share and entry into the market is free (Shepherd and Shepherd, 2003, p.13).

21 The number of companies present in each size decile vary for each year of the sample (i.e. one decile always contains 10% of the sample for that year) with the same firm potentially appearing in different deciles depending on yearly sample composition. To control for this, when reporting results by decile, the figures in the table are calculated on both a yearly and an aggregate basis, with the average of the yearly figures being compared with the aggregate figures. As the results are similar we reported the aggregate figures for brevity. Our annual results are available on request.

22 Our results remain robust to partitioning our sample over time and to estimating our market concentration measures using total assets or total sales. So, for brevity, we only report the average statistics for our main concentration measures and partition our sample by size deciles.

23 Source: https://www.gov.uk/government/consultations/auditor-regulation-effects-of-the-eu-and-wider-reforms [Accessed 30 May 2018]

24 Here if there was disagreement we would have iterated and discussed differences in interpretation until agreement was reached. However, there was only one dissenting submission that wished to see an expanded definition. All other responses were explicit in stating that the definition of a Public Interest Entity should not be expanded.

25 Source: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/473633/BIS-15-610-summary-of-responses.pdf [Accessed 30 May 2018]

26 Source: *Ibid*

27 Source: *Ibid*

28 Source: *Ibid*

29 Source: *Ibid*

30 Source: http://economia.icaew.com/en/news/june-2016/big-four-will-take-in-each-others-dirty-washing-under-new-audit-law [Accessed 30 May 2018]

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Tables

Table 1. Overview of the definition of a 'Public Interest Entity' (PIE) applicable across Europe

Country	Expand on 2014 EU PIE definition?	Other designated entities on a national level (if applicable)	Total number of PIEs	Total number of listed companies
Austria	No	-		
Belgium	No	-	900	-
Bulgaria	Yes	Pension funds; State owned companies; Other.	500	174
Croatia	Yes	Pension funds; UCITS[1]/Investment companies; Size criterion; State owned companies; Asset management companies; Electronic money institutions.	350	104
Cyprus	Yes	Size criterion.	321	64
Czech Republic	Yes	Pension funds; UCITS/Investment companies; Size criterion.	900	200
Denmark	Yes	UCITS/Investment companies; Size criterion; State owned companies; Government.	900	-
Estonia	Yes	Size criterion; State owned companies; Government.	149	13
Finland	Yes	Pension funds; UCITS/Investment companies.	600	120
France	Yes	Other.	2,533	498
Germany	No	-	1,600	800
Greece	No	The option to expand the definition of a PIE to other designated entities is available but not currently used.	342	250
Hungary	No	-	102	55
Iceland	Yes	Pension funds.	-	-
Ireland	No	-	2,000	55
Italy	Yes	Pension funds; UCITS/Investment companies; Size criterion; Asset management companies; Electronic money institutions; Other.	1,430	260
Latvia	Yes	Pension funds; UCITS/Investment companies; Asset management companies.	75	33
Lithuania	Yes	Pension funds; UCITS/Investment companies; Other.	154	20
Luxembourg	No	The option to expand the definition of a PIE to other designated entities is available but not currently used.	-	23
Malta	No	The option to expand the definition of a PIE to other designated entities is available but not currently used.	94	22
Netherlands	No	The option to expand the definition of a PIE to other designated entities is available but not currently used.	1,200	125
Norway	No	-	414	218
Poland	Yes	Pension funds; UCITS/Investment companies; Electronic money institutions; Other.	500	450
Portugal	Yes	Pension funds; UCITS/Investment companies; State owned companies; Other.	1,300	77
Romania	Yes	Pension funds; UCITS/Investment companies; State owned companies; Government; Electronic money institutions; Other.	500	198
Slovakia	Yes	Pension funds; UCITS/Investment companies; Size criterion; State owned companies; Asset management companies; Other.	600	60
Slovenia	No	* At the time of the study no single definition had been put in place when implementing the 2006 Statutory Audit Directive and the rules set for PIEs were applicable to listed entities only.	70	70
Spain	Yes	Pension funds; UCITS/Investment companies; Size criterion; Electronic money institutions; Other.	8,000	150
Sweden	No	* At the time of the study no single definition had been put in place when implementing the 2006 Statutory Audit Directive and the rules set for PIEs were applicable to listed entities only.	450-500	450-500
UK	No	-	2,300	2,300

Source: The information in the table is taken from the FEE Survey on the Definition of Public Interest Entities (PIEs) in Europe (FEE, 2014). The FEE collected data from FEE Member Bodies from EU Member States, Iceland and Norway. The number of PIEs and listed entities were originally provided to the FEE by Member Bodies and may therefore represent an approximate estimation.

[1] Undertakings for Collective Investments in Transferable Securities (UCITS).

Table 2. Classification of the major UK audit firms and key characteristics

Audit firms	UK audit fee income (£ millions)	Number of UK offices	Number of UK partners
Big Four			
Deloitte	381.6	23	991
Ernst & Young	315.8	20	549
KPMG	414.3	22	602
PricewaterhouseCoopers	560.8	40	863
Mid Four [a]			
Baker Tilly	55.7	28	107
BDO	86.4	13	196
Grant Thornton	93.4	25	203
PKF (UK)	52.7	23	70
Small-Tier [b]			
Buzzacott	6.9	1	23
Chantrey Vellacott DFK	8.0	10	46
Crowe Clark Whitehill [c]	21.3	9	72
Haysmacintyre	7.9	1	23
HLB Vantis Plc [d]	5.5	19	143
HW Group	9.4	51	117
Kingston Smith	10.4	6	60
Littlejohn	6.4	1	31
Mazars	38.3	16	115
MHA Macintyre Hudson	10.1	10	42
Moore Stephens	12.6	34	156
RSM + Tenon Group [e]	30.1	42	244
Saffery Champness	6.0	10	59
Smith & Williamson	12.8	11	254
UHY Hacker Young	9.6	22	83

Source: The UK audit fee income is the average of the yearly fee income from audit for the period 2005 - 2012 according to figures from the FRC's Key Facts and Trends in the Accountancy Profession. The number of UK offices and number of partners are correct as at 2012.

[a] The cut-off point for leading mid-tier audit firms is subjective (Peel, 2013) so the definition of this group changes within the literature. Over the sample period the four largest Mid-tier audit firms do not change and in descending order of size are: Grant Thornton, BDO, PKF (UK) and Baker Tilly (correct at 2012, the final year of the panel). As well as being differentiated in terms of income, the Mid Four and the Big Four are the only audit firms covered by the ICAEW Audit Firm Governance Code at the time of the study.

[b] Audit firms which have appeared in the top 20 of the FRC's list of the major auditing firms at any point throughout the sample period. Also included in the group but not individually listed was RSM Robson Rhodes prior to its merger with Grant Thornton on 29th April 2007.

[c] Horwath Clark Whitehill prior to rebrand on 1 October 2010.

[d] HLB Vantis - number of UK offices and number of partners prior to entering administration on 29th June 2010.

[e] RSM + Tenon Group - resulting from a merger between RSM Bentley Jennison and Tenon Audit on 29th December 2010, therefore the top 20 group also includes RSM Bentley Jennsion and Tenon Audit. On the 22 August 2013 the operating companies in the RSM Tenon group were acquired by Baker Tilly; the number of UK offices and number of partners listed is for RSM Tenon 2012 (most recent form of group).

Table 3. Descriptive statistics by year 2005-2012

	Year 2005	2006	2007	2008	2009	2010	2011	2012	Average
Panel A: Big Four clients									
Obs.	444	471	496	494	570	629	690	655	556
Turnover (£'000)	47,900	53,200	64,400	81,300	75,200	80,100	86,800	94,600	75,000
Total Assets (£'000)	52,500	70,600	125,000	145,000	142,000	138,000	141,000	147,000	124,000
Employees	410	408	466	528	525	534	570	636	520
Audit Fees	30,491	35,923	44,184	53,008	51,113	54,023	59,215	60,889	49,992
Co.'s reporting non-audit fees	57.43%	56.48%	59.07%	63.77%	64.74%	65.66%	66.67%	68.85%	63.43%
Non-audit fees proportion	88.61%	82.75%	88.02%	94.79%	99.39%	71.83%	73.34%	68.13%	81.93%
Switches		2.55%	2.82%	2.63%	3.51%	3.97%	4.64%	4.12%	3.21%
Panel B: Mid Four clients									
Obs.	372	404	453	474	568	624	672	636	525
Turnover (£'000)	18,800	18,700	22,000	26,700	25,400	25,900	27,800	30,000	25,100
Total Assets (£'000)	16,200	16,800	21,900	23,000	22,200	22,600	23,100	26,700	22,100
Employees	199	198	222	246	224	218	221	233	222
Audit Fees	17,253	17,832	20,491	23,191	23,887	24,283	24,952	27,084	22,986
Co.'s reporting non-audit fees	41.40%	45.30%	50.33%	51.90%	54.05%	52.40%	55.36%	60.22%	52.34%
Non-audit fees proportion	89.16%	72.35%	72.45%	65.44%	65.80%	59.71%	62.16%	64.59%	66.87%
Switches		3.47%	3.97%	4.64%	3.52%	2.56%	4.32%	5.35%	3.64%
Panel C: Small-Tier clients									
Obs.	309	368	377	395	491	572	616	574	463
Turnover (£'000)	10,500	13,200	15,100	17,500	16,600	15,800	18,100	20,100	16,400
Total Assets (£'000)	9,207	10,700	12,900	14,900	16,800	16,100	17,600	19,500	15,400
Employees	152	154	159	164	142	127	145	155	148
Audit Fees	12,523	13,721	14,882	16,512	16,918	16,292	16,508	17,520	15,911
Co.'s reporting non-audit fees	26.21%	25.54%	31.83%	38.23%	39.92%	39.86%	40.10%	40.94%	36.52%
Non-audit fees proportion	108.24%	102.81%	90.36%	100.09%	102.12%	90.86%	85.82%	88.80%	94.02%
Switches		6.25%	5.04%	4.30%	2.65%	4.02%	6.66%	5.05%	4.46%
Panel D: Non-major clients									
Obs.	2,488	2,985	2,925	2,854	3,297	3,029	3,203	2,983	2,971
Turnover (£'000)	6,092	5,800	6,659	7,822	9,614	13,000	14,300	15,500	9,992
Total Assets (£'000)	5,050	5,294	6,100	7,080	7,816	10,100	10,800	11,500	8,058
Employees	111	120	118	129	118	119	122	129	122
Audit Fees	7,167	7,054	7,650	8,401	10,242	12,799	13,467	14,057	10,219
Co.'s reporting non-audit fees	12.66%	13.03%	14.26%	16.29%	21.60%	28.10%	31.38%	32.52%	21.56%
Non-audit fees proportion	97.58%	100.01%	95.11%	104.97%	111.72%	106.59%	109.27%	105.90%	105.60%
Switches		3.35%	3.11%	3.08%	2.67%	3.07%	3.62%	4.96%	3.05%

Variable definitions: *Obs.*, number of observations per year; *Turnover*, average turnover in thousands; *Total assets*, average total assets in thousands; *Employees*, average number of employees; *Audit fees*, average total audit fees; *Co.'s reporting non-audit fees*, the proportion of companies reporting non-audit fees; *Non-audit fees proportion*, average of non-audit fees as a percentage of audit fees; *Switches*, the proportion of companies switching into each audit firm group. The final column shows averages for the entire eight year panel.

Table 4: Descriptive statistics by company size

	Size Decile									
	Small									**Large**
	1 *(n= 3,516)*	**2** *(n= 3,588)*	**3** *(n = 3,602)*	**4** *(n = 3,560)*	**5** *(n= 3,561)*	**6** *(n = 3,657)*	**7** *(n= 3,659)*	**8** *(n = 3,656)*	**9** *(n= 3,661)*	**10** *(n= 3,658)*
Panel A: Company size										
Total Assets (£'000)	313	1,092	1,763	2,502	3,432	4,804	6,822	10,700	20,200	196,000
Turnover (£'000)	848	2,922	4,087	5,352	6,779	8,637	11,100	16,400	27,900	120,000
Employees	31	74	64	67	79	86	109	140	230	774
Panel B: Audit related variables										
Audit Fees (£)	3,126	5,208	6,086	7,534	8,847	10,341	12,888	16,472	24,519	76,931
Fees-to-sales ratio	1.32%	0.70%	0.58%	0.43%	0.39%	0.32%	0.29%	0.25%	0.20%	0.17%
Co.'s reporting non-audit fees	9.43%	13.93%	17.64%	21.71%	23.66%	28.51%	32.06%	41.22%	58.36%	71.90%
Non-audit fees proportion	118.02%	109.66%	108.87%	107.50%	92.75%	102.73%	84.57%	81.48%	78.53%	88.56%
Proportion of companies switching auditor	2.16%	2.77%	2.63%	3.07%	2.94%	3.54%	3.57%	4.18%	4.32%	3.63%

Variable definitions: for variable definitions see Table 3. In addition: *Fees-to-sales ratio*, average audit fees expressed as a proportion of sales as a percentage. Audit switches are identified by comparing current and prior year auditors for each company in our sample, and classifying a change (no change) in audit firm, or both audit firms in the case of a joint audit, as 1 (0), but excluding changes resulting from audit firm mergers. All averages are the aggregate means for each decile.

Table 5. Auditor concentration in the UK private company market

		Size decile									
		Small									Large
	Pooled	1	2	3	4	5	6	7	8	9	10
	(n=36,118)	*(n= 3,516)*	*(n= 3,588)*	*(n = 3,602)*	*(n = 3,560)*	*(n= 3,561)*	*(n = 3,657)*	*(n= 3,659)*	*(n = 3,656)*	*(n= 3,661)*	*(n= 3,658)*
Panel A: Market share based on number of audits											
CR4	12.27	4.95	4.49	6.06	6.01	7.09	9.16	11.02	12.76	18.99	42.68
CR8	23.80	10.20	10.27	11.57	13.90	17.10	21.23	24.89	30.40	38.23	61.81
CR20	33.92	18.39	17.69	19.93	23.50	28.29	33.10	35.35	43.36	50.78	71.70
HHI	108	117	69	48	47	65	88	113	173	245	586
Gini	55.82	55.18	51.43	49.81	50.78	55.10	57.93	60.01	64.82	68.22	77.42
Panel B: Market share based on audit fees											
CR4	35.58	8.93	7.34	6.66	7.27	8.61	10.30	13.14	15.01	24.37	62.46
CR8	51.10	18.61	18.98	15.78	18.87	22.30	25.22	30.07	33.70	44.61	77.33
CR20	60.63	31.01	29.58	26.18	29.32	34.40	38.35	41.50	48.10	55.91	83.71
HHI	418	103	82	63	76	99	122	162	215	316	1,095
Gini	83.63	64.79	66.29	62.76	64.22	66.79	67.71	70.60	72.80	75.06	89.10

Variable definitions: *CR4*, k-firm concentration ratio calculated for the Big Four audit firms; *CR8*, k-firm concentration ratio calculated for the Big Eight (Big Four and Mid Four) audit firms; *CR20*, k-firm concentration ratio calculated for the top 20 audit firms (Big Eight and Small-Tier firms); HHI, the Hirschman-Herfindahl Index; *Gini*, Gini-coefficient. All averages are the aggregate means for each decile.

Table 6. Lobbying responses by organization type

	N	Expand definition (No)	Expand definition (Yes)	No comment made
Accountancy and audit firm (Big Four)	4	4	0	0
Accountancy and audit firm (Non-Big Four)	8	8	0	0
Accounting trade body	1	1	0	0
Asset manager or pension fund	5	3	0	2
Business representative/Non-accounting trade body	7	5	0	2
Governmental organisation	2	1	0	1
Individuals	1	0	0	1
Large company	2	1	0	1
Professional accountancy body	8	7	1	0
Total	**38**	**30**	**1**	**7**

Source: Data is collated from the responses to the Department for Business Innovation and Skills consultation on the European Union audit reforms (Directive 2014/56/EU and Regulation No 537/2014). The above data is collected from the publically available individual responses from each organisation and the categorizations are the author's own. Specifically, the above data refers to consultation question No. 5 "Do you agree that the Government should not expand the definition of a PIE beyond the EU minimum requirement – that is listed companies, banks, building societies and insurers? Please provide further information in support of your answer?"