Audit Market Competition, Auditor Independence and Audit Quality: A Theoretical Model and Policy Implications[1]

Dr. Fujiao Xie
City University of New York, Brooklyn College
2900 Bedford Avenue, New York, NY 11210, USA
Email: Fujiao.Xie@brooklyn.cuny.edu

ABSTRACT

This paper reviews and studies the complex impact of audit market competition on audit quality in the auditing industry. Although regulators have severe concerns about whether the lack of competition in the audit market may reduce audit quality, existing research provides conflicting empirical evidence of the direct impact of competition on audit quality. To better understand the interactions among competition, other key auditing factors, and audit quality, I propose a theoretical model incorporating both direct impacts and indirect impacts of audit market competition on audit quality through auditor independence. Based on two different competition theories applied in the audit market, opposing impacts of audit market competition on audit quality may co-exist. In addition, the effect of audit market competition on audit quality depends on the level of auditor independence, as indicated by non-audit services and audit firm tenure. When auditors keep their independence by limiting their economic dependence on non-audit services and audit tenure with their clients, audit quality increases in a competitive audit market. In contrast, if auditors have long tenure and high non-audit fees from their clients that may impair their independence, audit market competition leads to lower audit quality. The paper offers a potential explanation for the mixed results of the impacts of audit market competition found in the academic literature. More importantly, the paper also provides implications for future regulatory policies relating to audit market competition, non-audit services, auditor tenure, and audit quality, which should be of value to regulators, practitioners, audit committees, and academics.

KEYWORDS: Competition, Auditor Independence, Audit Quality, Tenure, Non-audit Services, Regulation.

1. INTRODUCTION

[1] I thank Mark Clatworthy, Shirley J. Daniel, William Kinney, Wayne Landsman, Linda A. Myers, Jian Zhou and those in attendance at the 41st Annual Congress of the European Accounting Association (EAA, 2018) and the 2017 Annual Meeting of the American Accounting Association (AAA, 2017). Support for this project was provided by a PSC-CUNY Award, jointly funded by The Professional Staff Congress and The City University of New York. I also gratefully acknowledge the support from the Center for International Business Education and Research at the University of Hawaii at Manoa.

The audit market has attracted considerable attention globally from policymakers, investors, and practitioners because of its unique characteristics: mandated demand and concentrated supply (Gerakos & Syverson, 2015). Big Four accounting firms - Ernst & Young (EY), Deloitte, KPMG, and PriceWaterhouseCoopers (PwC) - have dominated the audit market across countries, particularly in the audit market for large public companies. (Competition & Markets Authority (CMA), 2019; General Accounting Office (GAO), 2003, 2008). For example, in the US, ninety-seven percent of the total market capitalization is audited by Big Four firms (Public Company Accounting Oversight Board (PCAOB), 2017b). In the UK, the Big Four firms audit ninety-seven percent of the FTSE 350 companies and collect almost a hundred percent of FTSE 350 audit fee revenue (Financial Reporting Council (FRC), 2019a). The lack of competition in the audit market due to the Big Four's domination limits clients' choice of auditors and encourages auditors to take a less-skeptical approach to the audit, resulting in impaired auditor independence and low-quality of audit (GAO, 2008; CMA, 2019). The Big Four firms have been criticized by their domination of the audit market and their poor quality of audit work. Such criticism has been even more exacerbated when recent audit failures coincide with the collapse or near-collapse of high-profile companies, such as Carillion, BHS in the UK and General Electric and Colonial Bank in the US. (Reuters, 2019; The Guardian, 2019; WSJ, 2019).

Policymakers and regulators around the world have raised concerns about the potential adverse effects of inadequate competition in audit services, and have enacted regulatory changes to increase competition in audit markets and improve the quality of auditing services (CMA, 2014; CMA, 2019; GAO, 2003; GAO, 2008; House of Lords Economic Affairs Committee, 2011; the European Commission, 2010). In the US, the Sarbanes-Oxley Act (SOX) was passed by Congress in 2002 and introduced major reforms in accounting practices, including restrictions on providing certain types of non-audit services by auditors to their clients, and audit partner rotation every five years. In 2011, a concept paper proposed mandatory audit firm rotation as a possible remedy to the concentrated audit market. However, the US PCAOB faced fierce resistance to mandatory audit firm rotation and dropped the proposal in 2013 after three years of debate.

Nevertheless, the UK regulators have issued more extensive regulatory changes to increase audit market competition during the last few years. In 2014, the European Parliament passed a new regulatory framework on audit reform: The Audit Directive (2014/56/EU) and the Audit Regulation (537/2014/EU), which was implemented in the UK in 2016. This European Union (EU) audit reform includes major changes in the audit industry, such as mandatory audit firm rotation, prohibited non-audit services, and a non-audit services fee cap. In line with the 2014 EU audit reform, the UK Competition & Markets Authority issued a 2014 order to require mandatory audit firm tendering every ten years for FTSE 350 companies (CMA, 2014). In 2016, the UK Financial Reporting Council issued its Corporate Governance Code updates to require all UK public interest entities (PIE) to rotate their auditors at least every twenty years with a mandatory tender at least every ten years (FRC, 2016b). The UK FRC also issued the 2016 Revised Ethical Standard to prohibit auditors from providing certain non-audit services to PIE clients and introduce a 70% fee cap for PIE auditors, limiting the maximum of non-audit services fees that can be earned by auditors (FRC, 2016a). In response to recent collapses of several major corporates including Carillion, BHS and Thomas Cook, in its 2019 revised Ethical Standard, the UK FRC further banned auditors from providing all recruitment and remuneration services, due diligence, tax advisory services, advocacy and acting in any management role to their PIE clients (FRC, 2019b). In 2019, CMA completed its investigation into the UK audit market and released its final report with four recommendations to address serious competition problems in the UK audit market (CMA, 2019). The CMA's recommendations have been made to the UK Government to consider for future legislation. However, the effectiveness of CMA's recommendations in increasing audit market competition is questioned by the public (Financial Times, 2019).

In light of the collapse of large public companies audited by the Big Four accounting firms, the debates on audit market competition continue to intensify. Advocates state that in an inadequately competitive audit market, auditors could be tempted to conduct fewer audit procedures to reduce audit costs, take on more risky clients to earn risk premium fees, aggressively expand their risky non-audit services, and satisfy management's demand at the expense of their independence, resulting in lower audit quality. However, opponents claim that the less competitive audit market does not reduce audit quality and may even improve audit quality due to knowledge spillover, and is less costly for clients. Is there a trade-off between competition and audit quality? How does the mechanism of audit market competition affect audit services? Does competition have an indirect impact on audit quality and auditor independence? To answer these questions, this study reviews the academic literature and explores the overall impacts of audit market competition on audit quality from different perspectives to contribute to the current regulatory debates as well as to research on audit market competition and audit quality.

This paper first reviews the academic literature on the topic and then develops a theoretical model that addresses the complex relationships among these concepts: competition, audit quality, audit independence, non-audit services, audit firm tenure. The study contributes to advancing the theoretical framework on audit quality by incorporating the overall audit environment, audit market competition, and provides a comprehensive understanding of its roles in the audit. In addition, the study provides insights for policymakers, practitioners, and academics related to several regulatory debates, particularly the debates over increasing audit market competition, audit firm rotation, and the provision of non-audit services. Importantly, the paper discusses the possible co-existence of both negative and positive effects of audit market competition on audit quality, which should be considered when regulators take the "increasing audit market competition" approach to improve audit quality. In addition, the impact of audit market competition on audit quality may rely on the level of auditor independence. Therefore, increasing auditors' liability on impaired independence and audit deficiencies, a restriction on maximum tenure and certain types of non-audit service with reasonable fee cap, may be key factors in reducing the negative effects of competition when regulators consider policy changes to increase competition in the audit market. Overall, the study contributes to a better understanding of both direct and indirect effects of audit market competition in different scenarios to help regulators make appropriate policy decisions, and to encourage academicians to consider these complexities in their research.

1. LITERATURE REVIEW AND THEORETICAL MODEL DEVELOPMENT

The literature has explored the mechanism of competition in product markets which are also relevant to services. In general, there are two opposing views on the role of competition. On the one hand, greater competition would reduce agency costs by aligning the interests of the agent (e.g., manager) and the principal (e.g., shareholder), and thus decrease manager slack and improve efficiency, which is referred to the *competition-monitoring proposition* (Griffiths, 2001; Hart, 1983; K. M. Schmidt, 1997). On the other hand, the *competition-impairment proposition* argues that greater competition would reduce the profit margins of the company and thus encourage management to take more risks in order to increase market share and maintain profitability (Allen & Gale, 2000; Keeley, 1990).

Empirical research provides inconclusive evidence on the impact of audit market competition on audit quality, arguably reflecting challenges in insufficient knowledge of the overall (both direct and indirect) impacts of audit market competition. While a few studies examine the direct impact of competition on audit quality and find mixed results, less is known about the indirect effects of competition in the audit market. Auditor independence is the cornerstone of the value and credibility of an external audit and thus is perceived as an indicator of the quality of the audit. Both auditor independence and market competition are linked to audit quality individually in the literature (Frankel, Johnson, & Nelson, 2002; Numan & Willekens, 2012). Therefore, as represented in the overall market environment, audit market competition may also have important potential indirect effects on audit quality through auditor independence. However, the possible indirect impacts of audit market competition on audit quality and independence remain unexplored in the extant literature.

2.1 Agency Theory and the Role of the Audit

2.1.1 Definition of Audit Quality and Auditor Independence

Audit quality was described by DeAngelo (1981) as the joint probability that an auditor will both discover and report material misstatements in the client's financial statements. In their review paper in 2014, M. DeFond and Zhang (2014, p. 281) emphasized the continuous attribute of audit quality and defined higher audit quality as "greater assurance that the financial statements faithfully reflect the firm's underlying economics, conditioned on its financial reporting system and innate characteristics.” Many definitions of audit quality are proposed in the literature or issued by regulators, but there is no consensus as to which audit quality definition is best and no one definition has been widely accepted or applied across the world.

In 2000, the US Security and Exchange Commission (SEC) issued an auditor independence framework that defined auditor independence as independence including both in fact and in appearance (SEC, 2000). Most recently, on December 30, 2019, the SEC issued a press release proposing amendments to modernize certain aspects of its auditor independence framework, stating “relationships and services that would not pose threats to an auditor’s objectivity and impartiality do not trigger non-substantive rule breaches or potentially time consuming audit committee review of non-substantive matters” (SEC, 2019). Therefore, the definition of auditor independence by regulators is evolving.

2.1.2 Agency Theory and the Demand for Audit Quality and Auditor Independence

Agency theory describes that while the agent performs some service on the principal's behalf, agents may pursue their own self-interest at the expense of principals due to the misalignment of interests between principals and agents and information asymmetries (Jensen & Meckling, 1976). To resolve agency problems, principals place mechanisms to align the interests of agents with those of principals and reduce information asymmetry and the opportunistic behavior of the agent. Auditing service is one common monitoring mechanism placed to reduce agency problems. Shareholders in companies with greater agency problems are more likely to demand independent and high-quality audits to reduce agency costs, resulting in increased company value and reduced cost of capital (Firth, 1997; Watts & Zimmerman, 1983).

Audit firms as the suppliers in the audit market have incentives to be independent and produce a high-quality audit since reputation loss and litigation liabilities could negatively impact auditors' future profits. The company with higher agency costs wants to hire reputable auditors who are independent with high audit quality to reduce agency problems. Thus, auditors are willing to maintain independence and achieve high audit quality to protect their reputation capital in order to keep and win clients and generate revenues (M. L. Defond, Raghunandan, & Subramanyam, 2002; Krishnamurthy, Jian, & Nan, 2006). In addition, auditors face regulatory sanctions by the SEC, PCAOB, and other regulators in the US. Litigation risk may prevent auditors from opportunistic behaviors and make auditors more likely to provide a high audit quality (J. J. Schmidt, 2012).

2.1.3 Agency Problems relating to Auditor Independence and Audit Quality

The external audit is a crucial monitoring mechanism designed to reduce information asymmetry and agency costs due to its independent verification of agents’ work (Jensen & Meckling, 1976). However, auditors, as an expected utility maximizer, have their own interests and may pursue their profitability at the expense of principals, which generates another agency problem between auditors (the agent) and shareholders of the client (the principal) relating to auditor independence and audit quality (Antle, 1982). Consistent with agency problems relating to auditors, audit firms have been criticized for their culture of profit maximization, inadequate time budgets, irregular auditing practices, audit work outsourcing, and conflicts of interests by providing non-audit services (Sikka et al., 2018; Tepalagul & Lin, 2015). The profit-driven audit firms put pressure on auditors to keep current clients, bring in new clients, and sell non-audit services, resulting in impaired auditor independence and lower audit quality. Therefore, given the agency problems in the audits, auditors' economic dependence on their clients and their too-close relationship with clients may impair independence and reduce audit quality.

Given that auditors are hired and paid by their clients, the question of auditor independence is inevitable. To address this conflict of interest issue, Sikka et al. (2018) in their report to the UK Labour Party suggest that an independent body to appoint and remunerate auditors is a possible regulatory solution. The literature provides supporting evidence that auditors have economic incentives to please their clients at the expense of their independence, both in fact and in appearance (Brandon, Crabtree, & Maher, 2004; Krishnan, Sami, & Yinqi, 2005; Sikka, 2009; Simunic, 1984). For example, an auditor will often use a low-balling strategy to win a new client. As the auditor continues to audit the client, the incumbent auditor gains a "quasi-rent", where the production cost of the audit decreases and audit fees usually increase. The "quasi-rent" created from auditors' long tenure with their clients strengthens the economic bond between auditors, which makes auditors more likely to have a less-skeptical auditing process and issue an inappropriate audit opinion to accommodate their clients (DeAngelo, 1981). Therefore, auditors' financial dependence on their clients through long auditor tenure and the provision of audit and non-audit services undermines auditor independence, resulting in poor audit quality.

2.2 Auditor Independence and Audit Quality

Auditor independence is perceived as the crucial and direct factor in achieving a high quality of the audit. The direct association between auditor independence and audit quality has been well-documented in the literature. The provision of non-audit services and long auditor-client tenure are commonly used as proxy measures for auditor independence since they have been perceived as great threats to auditor independence. In line with audit quality indicators issued by regulators (FRC, 2020; PCAOB, 2015), there are many proxies to measure audit quality in the literature and most of them are output indicators, such as material misstatements, going-concern opinions, litigation suits, discretionary accruals, and internal control weaknesses. However, there is a need for academic researchers to evaluate these proxies of audit quality and provide guidance on which proxy captures audit quality well (DeFond and Zhang, 2014).

2.2.1 The Impact of Non-Audit Services on Audit Quality

The provision of non-audit services by auditors is perceived as a great threat to auditor independence due to the underlying conflicts of interests between audit and non-audit services. When conducting the audit service, auditors should align with shareholder's interest to provide independent verification on clients' management in the audit, while auditors providing non-audit services aim to provide advice in the client's management interests.

Using non-audit fee data from the Audit Analytics database, Table 1 reports non-audit fees and non-audit fee ratios earned by accounting firms from their publicly listed companies in the US during 2012-2018. As shown in Panel A of Table 1, the Big Four have steadily increased their shares in total non-audit fees in the US from 67% in 2012 to 71% in 2018. In addition, Panel B of Table 1 reports that about 38% of the Big Four firms' total revenue comes from non-audit services each year and this pattern remains during 2012-2018.

Table 1. The US Non-Audit Fee and Non-audit Fee Ratio during 2012-2018 (Data Source: Audit Analytics)
Panel A: The US non-audit fee in US dollar and as a percentage of the total non-audit fee in the year during 2012-2018

	PwC		E&Y		Deloitte		KPMG		Big 4		Non-Big 4	
	Non-Audit Fee ($)	%	Non-Audit Fee ($)	%	Non-Audit Fee ($)	%	Non-Audit Fee ($)	%	Non-Audit Fee ($)	%	Non-Audit Fee ($)	%
2012	22,449,004	20%	22,349,020	20%	17,811,204	16%	14,782,540	13%	77,391,768	68%	36,999,420	32%
2013	21,797,030	19%	23,143,252	20%	18,068,852	16%	14,473,129	13%	77,482,263	68%	36,538,460	32%
2014	21,552,240	20%	21,996,264	20%	18,800,384	17%	13,817,864	13%	76,166,752	69%	33,830,816	31%
2015	21,048,160	20%	20,681,810	19%	18,652,546	17%	14,374,140	13%	74,756,656	70%	32,119,844	30%
2016	21,341,340	21%	19,331,188	19%	17,584,680	17%	14,087,971	14%	72,345,179	70%	30,677,156	30%
2017	21,272,272	21%	19,161,532	19%	16,173,489	16%	13,512,337	14%	70,119,630	71%	29,175,604	29%
2018	20,674,498	22%	19,096,032	20%	15,825,734	17%	12,602,076	13%	68,198,340	71%	27,457,196	29%

Panel B: The US non-audit fee ratio* in US dollar during 2012-2018

	PwC	E&Y	Deloitte	KPMG	Big 4	Non-Big 4
2012	39.2%	37%	38.1%	38%	38.0%	27.1%
2013	38.6%	38%	37.8%	37%	38.0%	27.6%
2014	39.1%	39%	38.6%	35%	38.0%	26.9%
2015	38.7%	39%	39.5%	36%	38.5%	27.4%
2016	38.9%	39%	38.7%	36%	38.3%	28.1%
2017	39.3%	38%	37.9%	35%	37.7%	27.8%
2018	39.3%	40%	38.6%	35%	38.6%	28.7%

(**Non-audit fee ratio is calculated by dividing the audit firm's non-audit fee by its total fee.*)

Based on the data source from the FRC audit report in the UK (FRC, 2019a), Table 2 shows that about 80% of the Big Four revenue comes from non-audit services in the UK in 2018, which is even higher than its US counterpart. Given that non-audit service fees continue to be the main revenue source for accounting firms in the UK, regulators are concerned that accounting firms have gradually shifted their focus from audit business to non-audit business, which may negatively affect the quality of audit services (CMA, 2019; FRC, 2019a).

Table 2: The UK Audit Fee and Non-audit Fee in the Year 2018

	Audit Fee (£ million)	Audit Fee (%)	Non-audit Fee (£ million)	Non-audit Fee Ratio (%)	Total Fee (£ million)
PwC	676	21.7%	2,437	78.4%	3,110
KPMG	548	23.4%	1,766	75.5%	2,338
E&Y	442	18.3%	1,954	81.0%	2,412
Deloitte	418	13.5%	2,674	86.5%	3,091
Big 4	2084	19.0%	8831	80.6%	10951
Non-Big 4	590	29.0%	1476	72.5%	2036
Big 4 : Non-Big 4	77:22		85:14		84:16

(*Source: "Key Fact and Trends in Accountancy Professional" published by the UK FRC on October 2019*)

As accounting firms aggressively expand their non-audit services, regulators have raised their concerns that auditors are reluctant to jeopardize the significant revenue source from providing non-audit services to their clients, and are more likely to compromise their independence to please their clients resulting in poor audit quality. In response to the collapse of big public companies due to scandal, new regulations have been imposed to enhance auditor independence by restricting non-audit services (CMA, 2019; FRC, 2016a; FRC, 2019b). For example, partly in light to the extensive non-audit services revenue earned by Arthur Andersen from its audit client Enron, the US Sarbanes-Oxley Act (SOX) passed in 2002 reduced the scope of non-audit services that auditors can provide and requires pre-approval by the audit committee of the Board as well as annual disclosure of non-audit and audit fees separately (SOX, 2002). In the UK, regulators intend to strengthen auditor independence and issued the 2016 Revised Ethical Standard to prohibit auditors from providing certain non-audit services to PIE clients and introduce a 70% fee cap for PIE auditors. After the failure of several large UK companies in 2019, FRC issued another revision to its Ethical Standard to strengthen auditor independence by further restrictions on non-audit services. The 2019 revised Ethical Standard bans auditors from more types of non-audit services, prohibits auditor involvement in clients' decision making and requires auditors to get non-audit services approved by clients' audit committee. Moreover, in 2019, the UK CMA recommended to operationally split the audit and non-audit business of the Big Four accounting firms to ensure auditors' primary focus on audit quality.

A great number of academic studies have documented the impact of non-audit services on audit quality but provided conflicting evidence. A majority of studies state that the provision of non-audit services by auditors impairs auditor independence and reduces audit quality since the strong economic bond makes auditors more likely to acquiesce to client pressure and issue client's preferred audit opinions to gain economic rent and maximize profits, reflecting agency problems in the audit. For example, Frankel et al. (2002), with other papers, provide evidence supporting that non-audit services provided by auditors undermine auditor independence and reduce audit quality. The negative impacts of non-audit services on audit quality are indicated by negative market returns, a higher cost of debt, a higher possibility of being sanctioned by the SEC for fraud, and increased litigation risk and large settlements faced by auditors (Dhaliwal et al., 2008; Eilifsen & Knivsfla, 2013; Krishnamurthy et al., 2006; J. J. Schmidt, 2012). However, a few studies argue that the joint provision of audit and non-audit services by auditors may create knowledge spillovers resulting in fewer engagement risks and increased audit quality. These studies report the benefits of provision of non-audit services by auditors, such as increased audit efficiency, improved earnings quality, and shorter audit reporting lag, lower information risk, and better prediction of future cash flows (Knechel & Sharma, 2012; Koh, Rajgopal, & Srinivasan, 2013; Nam & Ronen, 2012).

In summary, the literature provides inconclusive results on the association between non-audit services and audit quality due to two different propositions. On one hand, non-audit services provided by auditors may decrease audit quality because of their high economic dependence on clients, which is in line with agency theory. On the other hand, the provision of non-audit services may improve audit quality as a result of the auditor's deeper knowledge of the clients' business, which refers to the knowledge spillover proposition.

2.2.2 The Impact of Audit Firm Tenure on Audit Quality

Long audit firm tenure develops strong economic and social bonds between auditors and their clients and makes auditors more likely to act in their clients' interests, resulting in impaired auditor independence and a less-rigorous audit. Table 3 and Table 4 shows the average audit firm tenure in the US and in the UK, respectively. Using the US auditing data from the Audit Analytics database, Table 3 shows that 85% of auditors had five years tenure or less with their publicly listed clients in the US in 2017, an increase from 81% in 2012. The percentage of auditor tenure for public companies in the US in the range of 6-10 years is also decreased in 2017, compared to 2012. As shown in Table 4, the UK FRC reported that the percentage of five years or less auditor tenure for FTSE 350 companies in the UK also increased significantly from 22% in 2012 to 54% in 2018 (FRC, 2019a). It is also notable that the percentage of 21-30 years long audit tenure dropped dramatically from 15% in 2012 to 5% in 2018. The sharp decreases in audit tenure during the period between 2012 and 2018 in the UK demonstrate that the UK regulation for mandatory audit firm rotation has helped to reduce long audit firm tenure.

Table 3: A comparison of auditor tenure of all public companies in the US between the Year 2012 and Year 2017

Audit Tenure	Year 2012	Year 2017
5 years or less	80.9%	85.1%
6-10 years	12.7%	7.2%
11-15 years	3.4%	4.5%
16-20 years	1.4%	1.5%
21-30 years	1.0%	1.0%
31-40 years	0.1%	0.4%
> 40 years	0.5%	0.4%

(Data Source: Audit Analytics)

Table 4: Auditor Tenure of FTSE 350 in the UK

Audit Tenure	Year 2012	Year 2017	Year 2018
5 years or less	22%	47%	54%
6-10 years	28%	18%	17%
11-15 years	19%	11%	9%
16-20 years	8%	10%	11%
21-30 years	15%	9%	5%
31-40 years	4%	3%	2%
> 40 years	4%	3%	2%

(*Source: "Developments in Audit reports" published by the UK FRC in the Year 2019*)

Regulators have long had concerns about the negative impacts of long auditor tenure on audit quality and imposed tight regulations relating to audit firm tenure. In 2011, the US PCAOB proposed mandatory audit firm rotation, but it was dropped by Congress in 2013. In 2017, the PCAOB released Auditing Standards (AS) 3101 requiring auditor tenure disclosure when the auditor expresses an unqualified Opinion (PCAOB, 2017a). Other countries introduced more strict regulations on audit firm tenure. For example, in the UK, all public interest entities are required to rotate their audit firms at least every twenty years with a mandatory tender at least every ten years since 2016 (CMA, 2014; FRC, 2016b).

Academic studies have investigated the relationship between audit firm tenure and audit quality, which provides indirect evidence to address the mandatory firm rotation question. Several studies support regulators' concerns for the adverse effects of long audit firm tenure on audit quality. Long auditor tenure is associated with a higher probability that shareholders vote against auditor ratification for long tenure auditors, a lower propensity to issue a Going Concern opinion, and poor earnings quality (Carey & Simnett, 2006; Dao, Mishra, & Raghunandan, 2008; Davis, Soo, & Trompeter, 2009). Moreover, Singer and Zhang (2018) find that the negative association between auditor tenure and timely discovery of misstatements in the first ten years of engagement and longer audit tenure may result in greater magnitudes of misstatement. This suggests that long audit firm tenure develops close economic bonds between auditors and their clients and makes auditors less skeptical in the audits, resulting in a high possibility of audit failures and lower audit quality.

However, other research documents that long audit firm tenure does not impair audit quality and even improve it. Legal risk increases and audit failures are more likely to occur when the auditor tenure is short. For example, in the early stage of auditor tenure, more audit failures happen and auditors are more likely to receive an SEC Accounting and Auditing Enforcement Action/Release (AAER) (Carcello & Nagy, 2004; Geiger & Raghunandan, 2002). Moreover, a few studies documented that long auditor tenure may even improve audit quality due to auditors' client-specific knowledge accumulated over time. Specifically, these studies find that companies audited by long-tenured auditors have lower audit risk, higher earnings response coefficients, lower cost of capital in the bond market, a higher level of conservatism, and better earnings quality (Davis et al., 2009; Gul, Fung, & Jaggi, 2009; Jenkins & Velury, 2008; Mansi et al., 2004; Patterson, Smith, & Tiras, 2019). Thus, long auditor tenure allows auditors to increase their client-specific knowledge and develop their expertise, which gives them more bargaining power and more ability to resist client pressure, and thus provide more efficient and higher quality audits with less cost (Beck & Wu, 2006).

While the majority of the literature finds a linear relationship between audit firm tenure and audit quality, it is notable that the nonlinearity of this relationship is possible. For example, Davis et al. (2009) find that discretionary accruals are higher when audit tenure is as short as three years or less, decrease over time, and then increase again when tenure is fourteen years or more. The possible nonlinear relationship between audit firm tenure and audit quality implies that regulators may need to use caution when prescribing a specific number of years to require auditor rotation.

The literature on the impacts of audit firm tenure on audit quality provides mixed evidence mainly due to two different perspectives. The positive perspective states that long auditor-client tenure may increase the quality of the audit because of client-specific knowledge and development of auditors' expertise. The negative perspective argues that a stronger economic bond developed through long audit firm tenure may impair auditor independence and be a detriment to audit quality.

2.3 Audit Market Competition and Audit Quality

Big Four accounting firms have dominated the audit market globally over a decade, particularly in large public companies' audits. Using the US audit fee data from Audit

Analytics, Table 5 shows the concentrated audit market in the US during 2012-2018. Panel A of Table 5 reports the US audit market concentration measured by the audit client ratio and audit fee ratio. While the audit client ratio is calculated by dividing the audit firm’s number of audit clients by the total number of audit clients in the audit market, the audit fee ratio is the audit firm’s audit fee as a percentage of total audit fees in the audit market. In the US, the four large accounting firms in the 2018 audit 60% of all publicly traded companies and earned more than 60% of audit fees. Audit fee ratio and audit client ratio has been constant for each of the Big Four firms. However, the total market share of the Big Four has gradually increased in the US from 56% to 62% over the last few years.

Table 5: The US Audit Market Concentration during 2012-2018 (Data Source: Audit Analytics)

Panel A: Measured by audit client ratio and audit fee ratio in the year

	PwC		E&Y		Deloitte		KPMG		Big 4		Non-Big 4	
	# of Audit Client %	Audit Fee%	# of Audit Client %	Audit Fee%	# of Audit Client %	Audit Fee%	# of Audit Client %	Audit Fee%	# of Audit Client %	Audit Fee%	# of Audit Client %	Audit Fee%
2012	15%	15%	17%	17%	13%	13%	11%	11%	56%	56%	44%	44%
2013	16%	16%	17%	17%	13%	13%	11%	11%	57%	57%	43%	43%
2014	16%	16%	16%	16%	14%	14%	12%	12%	58%	57%	42%	43%
2015	16%	16%	16%	15%	14%	14%	13%	13%	59%	58%	41%	42%
2016	17%	17%	16%	16%	14%	14%	13%	13%	60%	60%	40%	40%
2017	17%	17%	16%	16%	14%	14%	13%	13%	60%	60%	40%	40%
2018	18%	18%	17%	16%	14%	14%	13%	13%	62%	61%	38%	39%

Panel B: The US audit market concentration in different regions during 2012-2018 (measured by audit client ratio)

	Mid Atlantic		Midwest		New England		Southeast		Southwest		West		Total	
	Big 4	Non-Big 4	Big 4	Non-Big 4	Big 4	Non-Big 4	Big 4	Non-Big 4	Big 4	Non-Big 4	Big 4	Non-Big 4	Big 4	Non-Big 4
2012	54%	46%	62%	38%	88%	12%	50%	50%	44%	56%	47%	53%	56%	44%
2013	53%	47%	60%	40%	87%	13%	47%	53%	43%	57%	47%	53%	57%	43%
2014	57%	43%	62%	38%	90%	10%	49%	51%	45%	55%	48%	52%	58%	42%
2015	60%	40%	62%	38%	92%	8%	57%	43%	48%	52%	51%	49%	59%	41%
2016	60%	40%	63%	37%	92%	8%	58%	42%	49%	51%	51%	49%	60%	40%
2017	59%	41%	63%	37%	93%	7%	59%	41%	48%	52%	52%	48%	60%	40%
2018	63%	37%	63%	37%	94%	6%	61%	39%	56%	44%	57%	43%	62%	38%

Further, Panel B of Table 5 shows the US audit market concentration in-depth by six different regions: The Middle Atlantic, Midwest, New England, Southeast, Southwest, and West region. In 2018, the most competitive regions in audit business are the US Southwest and West regions, about 56% domination by the Big Four, while the least competitive region is the US New England region, which has as high as 94% market share earned by the Big Four. Given one-third of audit clients in the New England region are in the pharmaceutical and medical industry (untabulated), the highest domination by the Big Four may be partly because such industry may require special industry expertise that many non-Big Four firms do not have. Moreover, it is interesting to note that the Big Four increased their market share dramatically to dominate the audit market with 57% market share in both the Southwest and the West region in 2018, from non-domination status (45% market share) in 2012. In both the Southwest and the West regions, 35% of audit clients are listed in the Over-The-Counter (OTC) market and over 95% of OTC audit clients are audited by non-Big Four firms (untabulated), resulting in a relatively high market share for non-Big Four firms. Overall, in the US audit market, the Big Four has been steadily increasing its market shares since 2012, reaching over 60% market share in 2018. However, there is an imbalanced level of audit market competition across regions in the US. Some regions are more dominated by the Big Four, while others have a more equally shared market between the Big Four and non-Big Four firms.

A similar pattern of the concentrated audit market also exists in the UK, as shown in Table 6. In 2018, the Big Four firms in the UK had 61% of total audit clients, and over 97% of FTSE 350 firms as their clients (FRC, 2019a). The UK Big Four firms earned 78% of total audit fees in 2018, even higher than its US counterpart. Therefore, the lack of sufficient competition due to the highly concentrated audit market provides Big Four audit firms with strong market power to have large market shares and thus earn high profits.

Table 6: The UK Audit Market Concentration in the Year 2018

UK Audit Market Concentration in the Year 2018						
	Measured by Numbers of Audit Clients				Measured by Audit Fee	
	# of Audit Client	%	# of FTSE 350 Clients	%	Total Audit Fee (£ million)	%
PwC	264	16.3%	93	28.3%	676	25.3%
Deloitte	261	16.1%	89	27.1%	418	15.6%
KPMG	296	18.2%	84	25.5%	548	20.5%
E&Y	171	10.5%	54	16.4%	442	16.5%
Big 4 (subtotal)	992	61.1%	320	97.3%	2084	77.9%
Non-Big 4 (subtotal)	631	38.9%	9	2.7%	590	22.1%

(*Source: "Key Fact and Trends in Accountancy Professional report" published by the UK FRC in 2019*)

Although the Big Four generate high revenue due to the lack of competition in the audit market, they do not always provide high-quality audits. In its 2019 report, the UK FRC criticizes that Big Four firms in the UK do not meet the audit quality expectation since only 75% of FTSE350 audits inspected in 2019 had an acceptable quality (FRC, 2019a). In the US, the PCAOB also reported many audit deficiencies from audits conducted by the Big Four. Several high-profile corporate failures in conjunction with audit failures by the Big Four have resulted in a loss of public confidence and stronger regulatory reform in the audit market, particularly in Europe. Mandatory auditor rotation is proposed as a possible regulatory remedy to increase competition in the audit market. For instance, the 2014 EU Audit Directive and Regulation (2014/56/EU; 537/2014/EU), the CMA's 2014 order and FRC's 2016 updates to Corporate Governance Code in UK that requires all UK public interest entities to rotate their auditors at least every twenty years with a mandatory tender at least every ten years. Nevertheless, three years after mandatory auditor rotation was effective in the UK, the FRC in its 2019 audit report finds the limited impact of mandatory auditor rotation on increasing audit market competition since "Big Four audits have almost exclusively moved to other Big Four firms" (FRC, 2019a, page 34.). However, in the US, while the GAO conducted two mandatory studies on concentration in the audit market in 2003 and 2008, they did not call for immediate action, and the PCAOB's proposed mandatory auditor rotation was dropped in 2013. Therefore, the debate on the lack of competition in the audit market and how to properly address the issue via regulatory reform continues.

Audit market competition has changed significantly over the last decade, and only a few academic studies examine the mechanism of competition in the audit market, with inconclusive results. Spatial competition theory has been widely applied in audit research to extend our understanding of competition in the audit market (Chan, 1999; Numan & Willekens, 2012). Hotelling (1929) illustrates spatial competition theory that sellers may choose to minimize customers' transportation costs in order to compete. Thus, the optimal location in the marketplace, in addition to price, enables companies to gain market power and charge premiums.

Due to mergers of large accounting firms and the demise of Arthur Andersen in 2001, today only 4 major accounting firms in the market make the audit market much more concentrated. Comparing pre- with post-merger data when four of the Big 8 accounting firms merged to become Big 6 firms during the period 1988-1999 in the US, Wolk, Michelson, and Wootton (2001) studies find that the mergers resulted in increased concentration (i.e. less competition) and the audit market appears to be more balanced among Big 6 firms while the distinction between Big firms and non-Big firms is greater than ever. Moreover, Abidin, Beattie, and Goodacre (2010) investigate audit market competition affected by the PWC merger and Andersen's demise in the UK market from 1998 to 2003 and find that audit fees for Big firms do not change, while audit fees increase only for smaller clients during post-events. Gerakos and Syverson (2015) suggest that the exit of a Big 4 firm would make client firms in the market pay a total of $1.4-1.8 billion more to request the same level of services from audit firms.

Academic studies examining the direct impact of audit market competition on audit quality provide mixed evidence. Some studies find that audit market competition has a direct and positive effect on audit quality. For example, using a US sample for the period from 2003 to 2009, Boone et al. (2012) find that when the audit market is less competitive, clients are more likely to meet or beat analysts' earnings forecasts, indicating a low audit quality. In addition, in an international setting with 42 countries, Francis, Michas, and Seavey (2013) provide cross-country evidence that the Big Four concentrated (i.e., less competitive) market results in low audit quality, indicated by accruals quality, the likelihood of reporting a profit, and timely loss recognition. In contrast, a few papers document the negative impact of audit market competition, such that earnings management, accounting restatements and internal control opinion shopping are more likely to occur in a competitive audit market (Kallapur, 2010; Newton, Persellin, Wang, & Wilkins, 2015; Newton, Wang, & Wilkins, 2013). In addition, Bleibtreu and Stefani (2018) examine auditors' bidding strategies and suggest that mandatory auditor rotation to increase audit market competition may have adverse consequences.

2.4 The Effect of Audit Market Competition on Audit Quality and Audit Independence

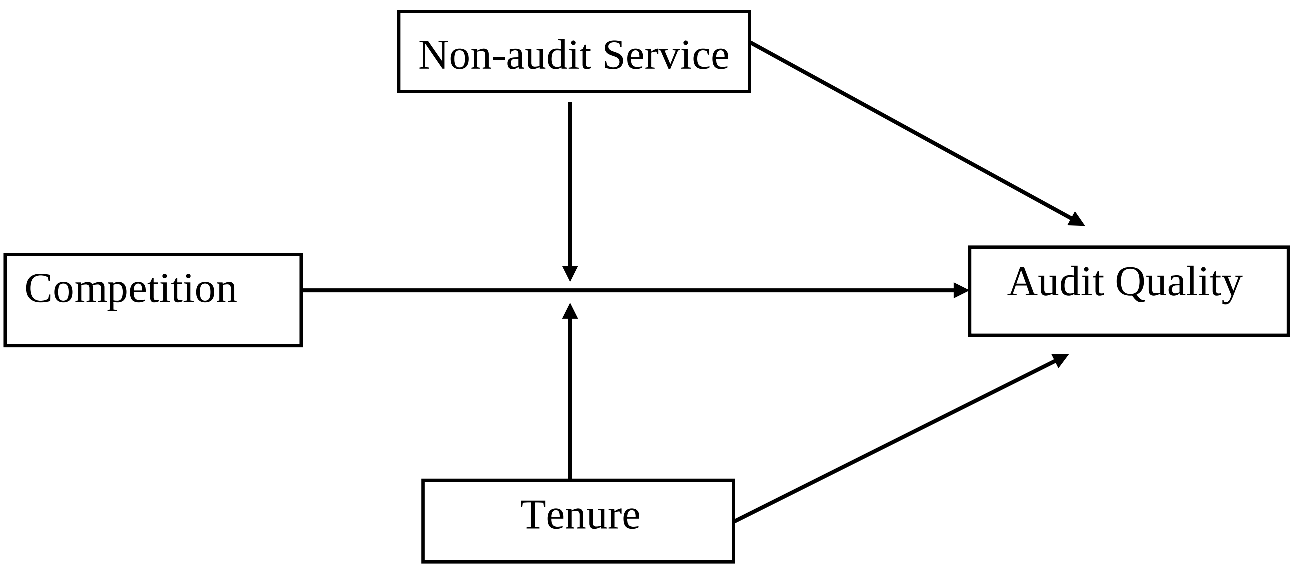
Prior literature investigates the direction of the effect of audit market competition on productivity with ambiguous predictions. Theoretically, as previously described, both positive and negative associations are possible. On the one hand, increased competition increases manager's incentives to increase productivity by reducing agency costs, which is referred to as the competition-monitoring perspective in this study (Griffiths, 2001; Hart, 1983; K. M. Schmidt, 1997). Hart (1983) finds that an increase in competition would increase productivity by reducing agency problems. In line with Hart (1983), some studies provide supporting evidence that the optimal incentive strategy is a function of the degree of market competition. An increase in competition may reduce firms' profits, which may provide managers' incentives to exert effort and thus increase efficiency and growth rate (Griffiths, 2001; K. M. Schmidt, 1997). Thus, competition plays an important monitoring role in reducing agency costs and thus can increase efficiency. Under this competition-monitoring view, when the audit market is more competitive, auditors have strong incentives to improve service quality to differentiate them from other competitors and keep their clients and are more likely to be independent (Boone et al., 2012; Francis et al., 2013).

On the other hand, the competition-impairment perspective indicates that an increase in competition leads to a reduction in monopoly rents, which magnifies agency problems and increases managers' incentives to take an extra risk (Allen & Gale, 2000; Keeley, 1990). In line with the competition-impairment perspective, a competitive audit market may reduce audit firms' profits and thus increases their preference for risk-taking, which encourages auditors to take on more risky clients, and makes auditors more likely to please the clients, resulting in lower audit quality. Overall, based on the two contradictory competition theories: competition-monitoring and competition-impairment propositions, opposing effects of audit market competition on audit quality may co-exist.

Prior literature suggests that audit market competition is an important factor in the audits. Simunic (1984, p. 681) explains that "*while efficiency from joint production may exist, this does not imply that joint performance of NAS and auditing is necessarily desirable. Efficiency can be partially appropriated as rents to the CPA firm supplier, and hence can themselves create a threat to independence.* ***The degree of competition among CPA firms is therefore a critical factor in the problem****.*" Audit market competition, as an overall market environment in the audit, may have complex influences on several aspects of the audit service. That is, besides its direct effects, indirect effects of audit market competition on audit quality should be considered when studying the relation between audit market competition and audit quality. For instance, as auditor independence is perceived as the main indicator of audit quality, competition may indirectly influence audit quality through auditor independence. That is, the effect of audit market competition on audit quality depends on the level of auditor independence (i.e., the provision of non-audit services, long auditor tenure). When the auditor has a limited amount of non-audit services and a short tenure with their clients and thus is able to maintain their independence in the audit, audit quality increases in a competitive audit market. Conversely, the auditor earning a higher amount of non-audit fees from their clients and having long tenure are more likely to accommodate their clients at the expense of their independence, and such auditors' risk-taking behavior will be more pronounced in a competitive market, so audit market competition leads to lower audit quality. Therefore, the indirect impact of audit market competition on audit quality through auditor independence should be emphasized when studying audit market competition.

Figure 1 displays the theoretical model and the interrelationships implied in the literature previously described. I propose the theoretical model to demonstrate that audit market competition has both direct and indirect impacts on audit quality through auditor independence. Specifically, in the model, both the provision of non-audit services and audit firm tenure, proxies for auditor independence, are linked to auditor quality. In addition, a direct link exists between audit market competition and audit quality. Further, the linkage between audit market competition and audit quality is affected by non-audit services. Similarly, the linkage between audit market competition and audit quality is affected by audit firm tenure.

Figure 1. Theoretical Model



3. REGULATORY REFORM IN INCREASING AUDIT MARKET COMPETITION

Public criticism of the lack of competition in the audit market due to Big Four's domination has been exacerbated recently as audit deficiencies surge, and audit failures by Big Four firms accompany the collapse of several large public companies, resulting in investment and pension losses. Regulatory reforms in the audit industry, particularly relating to audit market competition, is imminent. In the US, the SOX passed in 2002 is the most influential regulation in reforming the audit industry. Although regulatory restrictions on providing certain types of non-audit services by auditors with other requirements in the SOX may indirectly increase competition in the audit market, the SOX does not explicitly address the audit market issue related to competition. After the passage of SOX in 2002, although regulators (i.e., PCAOB) have considered mandatory auditor rotation to increase audit market competition in 2011, there is no specific regulation passed to address the competition issue in the US audit market for over a decade. Most recently, in December 2019, the SEC proposed to loosen auditor independence rules by giving audit firms more discretion in assessing conflicts of interest (SEC, 2019). It may provide companies more choices when selecting auditors, but how it will affect the level of competition in the audit market and impact audit quality is unknown.

In contrast, the UK regulators have strengthened regulatory reforms in the audit industry. These reforms are partly driven by the potential adverse consequence of inadequate competition in the audit market and the recent collapse of several high-profile public companies. Since the CMA's 2014 order to require mandatory tendering every ten years for FSTE 350 companies, the UK FRC in 2016 introduced mandatory auditor rotation every twenty years and set a 70% non-audit fee cap for all UK public interest entities to implement the 2014 EU Audit Reform into the UK. Although these regulatory reforms have moderate impacts to reduce long auditor tenure in the UK, it has a limited impact on the level of audit market competition (FRC, 2019a). Since clients audited by Big Four have almost exclusively moved to other Big Four firms after mandatory auditor rotation and thus Big Four's domination in the audit market almost remains the same level after regulatory reforms. The ineffective reforms in audit market competition resulted in CMA's continuous efforts to address the issue. In 2019, the CMA in its final report proposes four recommendations to increase audit market competition, including the joint audit of FTSE 350 entities, an operational split audit from non-audit business, increasing accountability of companies' audit committees, as well as a 5-year review of progress by the regulator (CMA, 2019). While some support the proposal, others question whether the CMA's proposed recommendations will be effective to increase competition and improve the audit industry. Concerns on the 2019 CMA's proposal are centered on a few issues (Financial Times, 2019). For example, there are suggestions to introduce requirements of increasing auditor's liability in audits, remove barriers to enter the audit market and address audit quality issues in the CMA's proposal. In addition, the cost and benefit of joint audits should be evaluated since it may dramatically increase clients' audit fees with little quality improvement. Therefore, before making the final regulatory change based on the 2019 CMA's final report, regulators should conduct thorough evaluations and be cautious about the potential adverse consequence.

4. CONCLUSION AND POLICY IMPLICATIONS

This paper contributes to the literature by incorporating the indirect impact of audit market competition on audit quality in a comprehensive theoretical model. Specifically, I review two competing theories of the audit market competition and propose a theoretical model of how audit market competition indirectly affects audit quality through auditor independence, indicated by the provision of non-audit services and audit firm tenure. Under the competition-monitoring view that competition reduces agency costs, auditors in a competitive market may provide a higher audit quality, when they have more incentives to keep their reputation capital and maintain independence in a competitive market. Conversely, a competitive audit market may reduce audit quality when auditors have an increased fear of client loss in a more competitive market and thus compromise their independence to maximize their profits by providing more non-audit services and long auditor tenure, which is consistent with the competition-impairment view that competition increases risk-taking and profit-driven behaviors. Thus, the direction of the association between audit market competition and audit quality depends on whether the auditor is independent when conducting audits. Therefore, two opposite effects of audit market competition on audit quality may co-exist through different factors: the provision of non-audit services and long audit firm tenure.

This study should benefit and interest policymakers, practitioners, and academics, as it provides valuable insights into the recent debates about audit market competition, the provision of non-audit services, mandatory auditor rotation, and improving audit quality. In general, the model proposes that competition not only has direct effects on audit quality but also has indirect effects on audit quality through auditor independence. An understanding of the co-existent opposite indirect effects of audit market competition on audit quality is essential for regulators to make good decisions regarding regulatory policy. Potential regulatory solutions which can take advantage of positive competition monitoring role without impairing auditor independence are recommended. For example, a restriction on the upper bound of audit tenure, limited types of non-audit services with fee caps, and lower barriers to entry would improve auditor independence and eliminate the negative effect of audit market competition, resulting in higher audit quality. Furthermore, this study provides the evidence that different regions in the country may have different levels of competition in the audit market, thus regulators should be aware that a one-fits-all regulatory reform may not be effective to all regions. Overall, the paper provides insights into the direct and indirect effects of audit market competition in future regulatory policies for improving audit quality.

5. SUGGESTIONS FOR FUTURE RESEARCH

This study has provided original insights into the dynamic interrelationships among audit market competition, auditor tenure, non-audit services, independence and audit quality and suggested the potential co-existence of positive and negative indirect impacts of competition in audit services. Therefore, future research can further develop such insights and assess their application to other contexts. For example, research should further examine the evidence of changes in audit market competition after regulatory reforms, and how such competitive changes affect the audit services under different institutional and regulatory environments. A longitudinal research design with cross-country studies can be a fruitful option for this stream research. In addition, future research could investigate the optimal length of audit firm tenure and fee caps of non-audit services to increase audit market competition effectively for regulatory decision-makers. Moreover, since there is no consensus on audit quality indicators among regulators, practitioners, investors and academia, in-depth research studying on the key factors that influence audit quality perceived from different parties would help to converge the definition and measurement of audit quality. Given the comprehensive interactions among audit market competition and other auditing factors and the measurement issue of latent variables, such as audit quality and independence, more powerful and sophisticated modeling and analysis tools, such as structural equation modeling, may be a more appropriate approach for this stream of research.

REFERENCES

Abidin, S., Beattie, V., & Goodacre, A. (2010). Audit market structure, fees and choice in a period of structural change: Evidence from the UK – 1998–2003. *The British Accounting Review, 42*(3), 187-206. doi: http://dx.doi.org/10.1016/j.bar.2010.04.002

Allen, F., & Gale, D. (2000). Corporate governance and competition. *Corporate governance: Theoretical and empirical perspectives, 23*.

Antle, R. (1982). The Auditor as an Economic Agent. *Journal of Accounting Research, 20*(2), 503-527.

Beck, P. J., & Wu, M. G. H. (2006). Learning by Doing and Audit Quality. *Contemporary Accounting Research, 23*(1), 1-30.

Bedard, J. C., Johnstone, K. M., & Smith, E. F. (2010). Audit Quality Indicators: A Status Update on Possible Public Disclosures and Insights from Audit Practice. *Current Issues in Auditing, 4*(1), C12-C19. doi: 10.2308/ciia.2010.4.1.C12

Bleibtreu, C., & Stefani, U. (2018). The Effects of Mandatory Audit Firm Rotation on Client Importance and Audit Industry Concentration. *Accounting Review, 93*(1), 1-27. doi: 10.2308/accr-51728

Boone, J. P., Khurana, I. K., & Raman, K. K. (2012). Audit Market Concentration and Auditor Tolerance for Earnings Management. *Contemporary Accounting*

Research, 29(4), 1171-1203. doi: 10.1111/j.1911-3846.2011.01144.x

Brandon, D. M., Crabtree, A. D., & Maher, J. J. (2004). Nonaudit Fees, Auditor Independence, and Bond Ratings. *Auditing, 23*(2), 89-103.

Carcello, J. V., & Nagy, A. L. (2004). Audit Firm Tenure and Fraudulent Financial Reporting. *Auditing, 23*(2), 55-69.

Carey, P., & Simnett, R. (2006). Audit Partner Tenure and Audit Quality. *Accounting Review, 81*(3), 653-676.

Chan, D. K. (1999). "Low-balling" and efficiency in a two-period specialization model of auditing competition. *Contemporary Accounting Research, 16*(4), 609-642.

Competition & Markets Authority (CMA). (2014).The Statutory Audit Services for Large Companies Market Investigation Order 2014.

Competition & Markets Authority (CMA). (2019). Statutory audit services market study. London, UK: CMA.

Dao, M., Mishra, S., & Raghunandan, K. (2008). Auditor Tenure and Shareholder Ratification of the Auditor. *Accounting Horizons, 22*(3), 297-314. doi: 10.2308/acch.2008.22.3.297

Davis, L. R., Soo, B. S., & Trompeter, G. M. (2009). Auditor Tenure and the Ability to Meet or Beat Earnings Forecasts. *Contemporary Accounting Research, 26*(2), 517-548.

DeAngelo, L. E. (1981). Auditor size and audit quality. *Journal of Accounting and Economics, 3*(3), 183-199. doi: http://dx.doi.org/10.1016/0165-4101(81)90002-1

DeFond, M., & Zhang, J. (2014). A review of archival auditing research. *Journal of Accounting and Economics, 58*(2–3), 275-326. doi: http://dx.doi.org/10.1016/j.jacceco.2014.09.002

Defond, M. L., Raghunandan, K., & Subramanyam, K. R. (2002). Do Non-Audit Service Fees Impair Auditor Independence? Evidence from Going Concern Audit Opinions. *Journal of Accounting Research, 40*(4), 1247-1274. doi: 10.2307/3542312

Dhaliwal, D. S., Gleason, C. A., Heitzman, S., & Melendrez, K. D. (2008). Auditor Fees and Cost of Debt. *Journal of Accounting, Auditing & Finance, 23*(1), 1-22.

Eilifsen, A., & Knivsfla, K. H. (2013). How Increased Regulatory Oversight of Nonaudit

Services Affects Investors' Perceptions of Earnings Quality. *Auditing: A Journal of Practice & Theory, 32*(1), 85-112. doi: 10.2308/ajpt-50305

European Union (EU). Directive 2014/56/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2006/43/EC on statutory audits of annual accounts and consolidated accounts., 2014/56/EU Stat. (2014a 17 June 2016).

European Union (EU). Regulation (EU) No 537/2014 of the European Parliament and of the Council of 16 April 2014 on specific requirements regarding statutory audit of public-interest entities and repealing Commission Decision 2005/909/EC., 537/2014/EU Stat. (2014b 17 June 2016).

Financial Reporting Council (FRC). (2016a). *Revised Ethical Standard 2016*. London, UK.

Financial Reporting Council (FRC). (2016b). *The UK Corporate Governance Code*. London, UK.

Financial Reporting Council (FRC). (2019a). Developments in audit 2019. London, UK: FRC.

Financial Reporting Council (FRC). (2019b). *Revised Ethical Standard 2019*. London, UK.

Financial Reporting Council (FRC). (2020). Audit Quality Indiciators: AQR Thematic Review. London, UK.

Financial Times. (2019). Watchdog's plans for audit reform get mixed reception, *Financial Times*.

Firth, M. (1997). The provision of nonaudit services by accounting firms to their audit clients. *Contemporary Accounting Research, 14*(2), 1-21.

Francis, J. R., Michas, P. N., & Seavey, S. E. (2013). Does Audit Market Concentration Harm the Quality of Audited Earnings? Evidence from Audit Markets in 42 Countries*. *Contemporary Accounting Research, 30*(1), 325-355. doi: 10.1111/j.1911-3846.2012.01156.x

Frankel, R. M., Johnson, M. F., & Nelson, K. K. (2002). The Relation between Auditors' Fees for Nonaudit Services and Earnings Management. *The Accounting Review, 77*, 71-105. doi: 10.2307/3203326

Geiger, M. A., & Raghunandan, K. (2002). Auditor tenure and audit reporting failures.

Auditing, 21(1), 67-78.

General Accounting Office (GAO). (2003). Public accounting firms: Mandated study on consolidation and competition. *GAO-03-864*. Washington, D.C.: GAO.

General Accounting Office (GAO). (2008). Audits of public companies: Continued concentration in audit market for large public companies does not call for immediate action. *GAO-08-163*. Washington, D.C.: GAO.

Gerakos, J., & Syverson, C. (2015). Competition in the Audit Market: Policy Implications. *Journal of Accounting Research*, n/a-n/a. doi: 10.1111/1475-679X.12087

Ghosh, A., & Moon, D. (2005). Auditor Tenure and Perceptions of Audit Quality. *The Accounting Review, 80*(2), 585-612. doi: 10.2307/4093070

Griffiths, R. (2001). Product market competition, efficiency and agency costs: an empirical analysis.

Gul, F. A., Fung, S. Y. K., & Jaggi, B. (2009). Earnings quality: Some evidence on the role of auditor tenure and auditors' industry expertise. *Journal of Accounting and Economics, 47*(3), 265-287. doi: http://dx.doi.org/10.1016/j.jacceco.2009.03.001

Hart, O. D. (1983). The Market Mechanism as an Incentive Scheme. *The Bell Journal of Economics, 14*(2), 366-382. doi: 10.2307/3003639

Hotelling, H. (1929). Stability in competition. *The Economic Journal, 39*(153), 41–57.

House of Lords Economic Affairs Committee. (2011). Auditors: Market Concentration and Their Role. London, U.K.: House of Lords Economic Affairs Committee.

Jenkins, D. S., & Velury, U. (2008). Does auditor tenure influence the reporting of conservative earnings? *Journal of Accounting and Public Policy, 27*(2), 115-132. doi: http://dx.doi.org/10.1016/j.jaccpubpol.2008.01.005

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360.

Johnson, V. E., Khurana, I. K., & Reynolds, J. K. (2002). Audit-firm tenure and the quality of financial reports. *Contemporary Accounting Research, 19*(4), 637-660.

Kallapur, S. a. S., Srinivasan and Zang, Yoonseok,. (2010). Audit Market Concentration and Audit Quality. *Available at SSRN: http://ssrn.com/abstract=1546356 or* *http://dx.doi.org/10.2139/ssrn.1546356*.

Keeley, M. C. (1990). Deposit Insurance, Risk, and Market Power in Banking. *The American Economic Review, 80*(5), 1183-1200.

Knechel, W. R., & Sharma, D. S. (2012). Auditor-Provided Nonaudit Services and Audit Effectiveness and Efficiency: Evidence from Pre- and Post-SOX Audit Report Lags. *Auditing, 31*(4), 85-114.

Koh, K., Rajgopal, S., & Srinivasan, S. (2013). Non-audit services and financial reporting quality: evidence from 1978 to 1980. *Review of Accounting Studies, 18*(1), 1-33. doi: http://dx.doi.org/10.1007/s11142-012-9187-6

Krishnamurthy, S., Jian, Z., & Nan, Z. (2006). Auditor Reputation, Auditor Independence, and the Stock-Market Impact of Andersen's Indictment on Its Client Firms. *Contemporary Accounting Research, 23*(2), 465-490.

Krishnan, J., Sami, H., & Yinqi, Z. (2005). Does the Provision of Nonaudit Services Affect Investor Perceptions of Auditor Independence? *Auditing: A Journal of Practice & Theory, 24*(2), 111-135.

Mansi, S. A., Maxwell, W. F., & Miller, D. P. (2004). Does Auditor Quality and Tenure Matter to Investors? Evidence from the Bond Market. *Journal of Accounting Research, 42*(4), 755-793. doi: 10.1111/j.1475-679X.2004.00156.x

Nam, S., & Ronen, J. (2012). The Impact of Nonaudit Services on Capital Markets. *Journal of Accounting, Auditing & Finance, 27*(1), 32-60. doi: 10.1177/0148558X11409143

Newton, N. J., Persellin, J. S., Wang, D., & Wilkins, M. S. (2015). Internal Control Opinion Shopping and Audit Market Competition. *The Accounting Review*. doi: doi:10.2308/accr-51149

Newton, N. J., Wang, D., & Wilkins, M. S. (2013). Does a Lack of Choice Lead to Lower Quality? Evidence from Auditor Competition and Client Restatements. *Auditing: A Journal of Practice & Theory, 32*(3), 31-67. doi: 10.2308/ajpt-50461

Numan, W., & Willekens, M. (2012). An empirical test of spatial competition in the audit market. *Journal of Accounting and Economics, 53*(1–2), 450-465. doi: http://dx.doi.org/10.1016/j.jacceco.2011.10.002

Patterson, E. R., Smith, J. R., & Tiras, S. L. (2019). The Effects of Auditor Tenure on Fraud and Its Detection. *Accounting Review, 94*(5), 297-318. doi: 10.2308/accr-52370

Public Company Accounting Oversight Board. (2011). *Concept Release on Auditor Independence and Audit Firm Rotation.* Washington, D.C.

Public Company Accounting Oversight Board (PCAOB). (2015). *Concept Release on Audit Quality Indicators*. Washington, D.C.

Public Company Accounting Oversight Board (PCAOB). (2017a). AS 3101: The Auditor's Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion (Vol. PCAOB Release No. 2017-001). Washington, D.C.

Public Company Accounting Oversight Board (PCAOB). (2017b). Audit industry concentration and potential implications [Press release]

Reuters. (2019, March 15). PwC to pay $335 million over failed audits of Alabama's Colonial Bank: U.S. regulator, *Reuters*.

Sarbanes-Oxley Act of 2002: An Act to protect investors by improving the accuracy and reliability of corporate disclosuresmade pursuant to the securities laws, and for other purposes., Pub. L. No. Public Law 107–204, 116 STAT. 745 Stat. (2002 JULY 30, 2002).

Schmidt, J. J. (2012). Perceived Auditor Independence and Audit Litigation: The Role of Nonaudit Services Fees. *The Accounting Review, 87*(3), 1033-1065.

Schmidt, K. M. (1997). Managerial Incentives and Product Market Competition. *The Review of Economic Studies, 64*(2), 191-213. doi: 10.2307/2971709

Securities and Exchange Commission. (2005). *Remarks before the 2005 AICPA National Conference on Current SEC and PCAOB Developments. Speech by SEC Chairman Christopher Cox*. Washington, D.C.

Securities and Exchange Commission. Revision of the Commission's Auditor Independence Requirements, Release Nos. 33-7919; 34-43602; 35-27279; IC-24744; IA-1911; FR-56; C.F.R. (2000).

Securities and Exchange Commission (SEC). (2019). SEC Proposes to Codify Certain Consultations and Modernize Auditor Independence Rules. [Press release]

Sikka, P. (2009). Financial crisis and the silence of the auditors. *Accounting, Organizations and Society, 34*(6), 868-873. doi: https://doi.org/10.1016/j.aos.2009.01.004

Sikka, P., Haslam, C., Cooper, C., Haslam, J., Christensen, J., Driver, D. G., & Willmott,

H. (2018). Reforming the auditing industry. *Report commissioned by the Shadow Chancellor of the Exchequer, John McDonnell MP*.

Simunic, D. A. (1984). Auditing, Consulting, and Auditor Independence. *Journal of Accounting Research, 22*(2), 679-702.

Singer, Z., & Zhang, J. (2018). Auditor Tenure and the Timeliness of Misstatement Discovery. *Accounting Review, 93*(2), 315-338. doi: 10.2308/accr-51871

Tepalagul, N., & Lin, L. (2015). Auditor Independence and Audit Quality: A Literature Review. *Journal of Accounting, Auditing & Finance, 30*(1), 101-121. doi: 10.1177/0148558X14544505

The European Commission. (2010). *Audit Policy: Lessons from the Crisis.* Brussels.

The Guardian. (2019). The big four auditors are failing – and the watchdog's report won't change that., *The Guardian*.

The Wall Street Journal (WSJ). (2019). High-Wire Audit Looms as Regulators Scrutinize KPMG and GE *The Wall Street Journal (WSJ)*.

Watts, R. L., & Zimmerman, J. L. (1983). Agency problems, auditing, and the theory of the firm: Some evidence. *Journal of law and Economics*, 613-633.

Wolk, C. M., Michelson, S. E., & Wootton, C. W. (2001). Auditor Concentration and Market Shares in the US: 1988-1999. *The British Accounting Review, 33*(2), 157-174. doi: http://dx.doi.org/10.1006/bare.2001.0159