Competition in Jamaica's Audit Services Industry

April 2021

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I. INTRODUCTION

1. A financial audit involves an examination of the financial records and reports by individuals other than those responsible for their preparation. This is done to verify the accuracy of the records and whether they are in accordance with applicable rules (including accounting standards), regulations, and laws.

2. Public auditing by independent, impartial accountants has become increasingly common with the rise of large business units and the separation of ownership from managerial control (Encyclopaedia Britannica, 2020). The principles, standards, and practices that govern the provision of audit services vary by market size, industry and jurisdiction.

3. Competition authorities use market concentration as an indicator of competitiveness. All other things constant, competition authorities recognize that unconcentrated markets (many participants with insignificant market shares) facilitates more robust competitive interaction among market participants than highly concentrated markets (i.e., market with few participants with significant market shares).

4. Market concentration has an ambiguous effect on consumer welfare. On one hand, a highly concentrated market may benefit consumers by providing greater opportunities for market participants to exploit economies of scale and scope. On the other hand, a highly concentrated market may be detrimental to consumer welfare by erecting a barrier to entry and encouraging higher prices.

5. Audit services markets are typically highly concentrated. The term "Big 4" has been used to characterize the four largest auditing firms.[1] The Big 4 auditing firms appear to be similar in the majority of countries. Internationally during 2019, *Deloitte* was the largest auditing firm, followed by *PricewaterhouseCoopers* (PwC) then *Ernst & Young* (EY) and KPMG. The more concentrated a market is, the greater the opportunity for the auditors to exercise market power individually or by collaborating with each other. To counter this potential harm to their consumers ('clients'), competition authorities in some jurisdictions monitor the audit services market for signs of coordinated or unilateral conduct.

6. There has been mixed results in prior research assessing the impact of market concentration on competition in the audit services market. Consistent with the position that market concentration

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[1] The size of auditing firm is measure by either volume of audits conducted or the revenue generated.

harms competition, a market study by Oxera (2006) concluded that new entry could promote competition in the audit services market. However, Bresnahan and Reiss (1991) argued that the chances of a new entrant stimulating competition in the audit services market are limited if there are only three, four or five big audit firms in the market.

7. There are numerous other studies on audit services markets but few have been conducted on the market in Jamaica. This paper takes a look at the auditing services provided to clients listed on the main and junior markets of the Jamaica Stock Exchange (JSE) during the six-year period of 2013-2018.

8. The remainder of this paper is organized as follows: Section II describe research assessing the impact of market concentration on the performance of audit services markets. In Section III, the Report examines the legislative framework of the audit services industry. Section IV outlines and explains sample selection, data source, research method and data collection methods. Section V analyses and discusses the research results. The paper summarises the Report and offers some conclusions in Section VI, after which it proposes an agenda for future work in Section VII.

II. LITERATURE REVIEW

9. In 2002, the Competition Commission (CC) in the United Kingdom (UK) prompted the Office of Fair Trading (OFT) to monitor the market for audit services following the acquisition of Anderson UK by Deloitte and Touche.[2,3] The OFT referred the audit services market to the CC for further investigation as it was concerned that there were features of the market that were restricting and distorting competition. Specifically, the OFT reported that the market was highly concentrated and there were substantial barriers to entry and switching. The OFT indicated that in 2010, the four largest audit firms (Deloitte and Touche, KPMG, EY and PwC) earned 99 percent of audit fees paid by FTSE100 companies (Office of Fair Trading, 2011).[4]

10. In 2013, the CC released its report on the audit services market in the UK. Some of the findings were:
    - Significant switching costs. For instance, companies faced significant opportunity costs in the management time involved in the selection and education of a new auditor. Therefore,

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[2] The Competition Commission was closed on April 1, 2014 and is now called the Competition and Markets Authority.

[3] The Office of Fair Trading was closed and its responsibilities passed onto a number of different organizations.

[4] FTSE100- The Financial Times Stock Exchange 100 Index is a share index of the 100 companies listed on the London Stock Exchange with the highest market capitalization (Financial Times, 1997).

companies were reluctant to switch. Sixty- seven per cent of FTSE100 companies had the same auditor for more than ten years.

- There were reputational barriers to entry. The Big 4 audit firms were more successful in winning audit engagements than other audit firms as companies preferred selecting audit firms with a substantial track record of experience.

11. The market for auditing services is also observed to be highly concentrated in developing countries. However, the level of concentration in developing countries is lower than that in developed countries. Ishak et al. (2013) found that Big 4 firms accounted for around 72 percent of the market share in Malaysia in 2003. In China, the market share of the Big 4 firms in the audit services market was 36.98 percent in 2002, increased to 54.72 percent in 2007 and decreased to 44.3 percent in 2009 (Zhu & Sun, 2012).

12. Abidin et al. (2010) warn that the determinants and consequences of concentration in the audit services market are difficult to assess using theoretical analysis because of the unique characteristics of the market. According to Stein (2006), these unique characteristics include: inelastic demand due to statutory requirement for audits; regulated activity; the unobservability of quality or audit costs; and the possibility of cross-subsidization of audit fees arising from the provision of non-audit services. Broadly speaking, market concentration is impacted by changes in three areas: the number of customers ('clients'), the number of audit firms ('auditors') and the extent of switching clients between auditors. These changes in concentration can be triggered by several factors which include the inability of existing clients and auditors to cope with economic, political or regulatory changes and therefore exit the market and opportunities to grow their business through economies of scale and industry-specific expertise through mergers and acquisitions.

13. Regardless of the reasons auditing firms choose to merge, the effect on the market must be assessed to determine the competitive harm that may be caused. Entry and expansion conditions in the market could be difficult because of the inherent costs associated with switching between auditors. An expansive body of literature is dedicated to the cost of switching between auditors (May 2016; Stefaniak et al, 2009; Magri and Baldacchino 2004; Whisenant, 2003).

14. Market concentration has also been impacted by an observed tendency of specialization - usually along the lines of industry. The decision to specialize is influenced by the auditors themselves as well as requirements of audit technology to integrate industry expertise in audit approaches. Ishak et al. (2013) argue that the Malaysian authority should encourage auditors to specialize in particular

industries. The basis for this argument is that auditors specialized in a particular industry would assist in reducing the likelihood of the issuance of restatements affecting core operating accounts. In Spain, however, Garcia-Blandon and Argiles-Bosch (2018) found that industry specialization of auditors did not have a significant impact on audit quality. This evidence, according to these researchers, stresses the importance of the institutional context in the study of the industry specialization – audit quality relationship.

15. The prospect of monopoly pricing is at the forefront of arguments against high market concentration. The two most prominent issues that regulators are concerned with regarding the monopoly pricing resulting from increased concentration are: (1) tacit collusion among auditors, and (2) potential abuse of market power. For example, Pong (1999) posits that increased levels of market concentration is a platform on which auditors could launch cartels or even tacitly collude to charge higher fees.

16. Noteworthy, the extant literature on the effect of increased concentration on the economy is mixed. On the one hand, the literature is rife with empirical evidence or predictions of increased audit services market concentration resulting in higher audit fees. McMeeking et al. (2007) in looking at the implication of the rise in concentration ratios in the audit services market in the UK concluded that the high concentration ratios have not improved the level of price competition and in fact were associated with higher audit fees. According to McMeeking et al. (2007) the results provide evidence that "*…[clients] are likely to pay higher fees if their auditor merges with a larger counterpart. We attribute merger-related fee hikes to product differentiation, rather than anti-competitive pricing*." Numerous other studies assert that monopoly pricing fears resulting from increased concentration in audit services markets were justified [Gerakos and Syverson (2015); Huang et al. (2016); Choi et al. (2017)]. Specifically, Gerakos and Syverson (2015) estimated that total audit fees would increase by between USD 470 and USD 580 million per year in the United States if the current Big Four auditors were further reduced to, say, Big Three.

17. On the other hand, studies show instances of increased concentration in the audit services market without any commensurate adverse effect on competition; that is, competition either improved (primary evidence being a reduction in prices) [Thavapalan et al. (2002); Firth & Lau (2012); Sullivan (2002)] or remained unaffected [GAO (2003; 2008)]. Further to this, Baskerville & Hay (2006) showed that increased concentration did not enhance or distort competition. Their study showed that the effect of increased concentration was reflected elsewhere in non-competition related parameters

such as the substantial reduction in the number of partners or increasing partner leverage so that individual remaining partners were better off. Specifically, Sullivan (2002) concluded that the Big Eight mergers of 1989 resulted in cost reductions that benefited relatively large audit buyers who switched auditors after the mergers.

18. The objective of the paper is to explore the nature of market concentration in the supply of auditing services in Jamaica.

III. LEGISLATIVE FRAMEWORK

19. Some companies are legally mandated to undertake an audit in order to provide audited financial statements. These types of audits are classified as statutory audits and are audits conducted by a person appointed by a company by the provisions of the Companies Act or other specified legislation. The Companies Act (2004), for instance, stipulates that public companies are obliged to file audited accounts, thus presenting financial statements, including where necessary appropriate consolidated financial statements. Accordingly, the Companies Act of Jamaica, 2004, requires registered companies in Jamaica to keep proper books and documents of their accounts concerning monies received and spent, sales and purchases by the company and the assets and liabilities of the company. Further, companies involved in the trading of securities (shares, stocks and bonds) through the JSE are required to submit audited financial statements to the JSE. These financial statements are accompanied by a certificate from public accountants authorized to perform audits (auditing firms) under the provisions of the Companies Act.

20. Consequently, in accordance with the Companies Act private and public companies (except small companies or small groups) are obliged to file audited accounts. These companies must keep adequate accounting records and the directors must not approve the accounts unless they are satisfied that they give a true and fair view of the company’s financial position. Companies must commission a statutory audit each financial year. The appointment or reappointment of an auditor is usually made formally by the shareholders by ordinary resolution in the annual general meeting. Shareholders may also dismiss an auditor at any time by passing an ordinary resolution at a general meeting.

21. An auditor of a public company holds office as an auditor for one year only. The auditor may then be reappointed for a further period of one year upon passing of a resolution by the shareholders. This

process of annual reappointment may be repeated in each subsequent year until the directors propose the appointment of a different auditor.

22. Importantly, the Companies Act stipulates the qualifications required for the appointment of an auditor. It states that a person shall not be qualified for an appointment unless the person is a registered public accountant as defined in section 2 of the Public Accountancy Act (1968) ("PAA").

23. PAA is the prevailing legislation in Jamaica that regulates registered public accountants. According to Section 2 of the PAA, "…[a public accountant] means a person whose name is on the register, not being a person whose registration is for the time being suspended."

24. It is of significance to note that only registered public accountants have the legal authority to sign audit reports on financial statements. Accordingly, to enter the audit services industry, the entrant would have to comply with the stipulations of the PAA.

25. The PAA's functions are undertaken by the Public Accountancy Board (PAB). The PAB is a public body that promotes, in the public interest acceptable standards of professional conduct among registered public accountants in Jamaica. Importantly, as well, it is responsible for the licensing and registering of public accountants; maintaining an investigation and disciplinary system for public accountants, and establishing a mandatory quality assurance review system for all audits of financial statements.

26. The selection of the PAB members is governed by the Third Schedule of the PAA. The Third Schedule stipulates that the PAB is to consist of ten members appointed by the Minister. However, at least six members are to be nominated by the Institute of Chartered Accountants of Jamaica (ICAJ). The ICAJ is required to submit the nomination within a month of receiving the request from the Minister. Additionally, the nomination should include one public officer, as well as one person who is neither an accountant in private practice nor a public officer. Most of the PAB members are persons with extensive knowledge and years of experience in auditing and accounting; some of whom had positions of leadership or are currently the heads of departments for major firms such as KPMG and PwC. PAB members are appointed for three years and are eligible for reappointment.

27. Among its mandate, the Board aims to strengthen the accountancy profession and is authorized to establish, evaluate and monitor accounting and auditing standards to be complied with by the registered accountants. Additionally, the Board may issue or specify any statement of professional

ethics required to be observed, maintained, or otherwise applied by persons registered to practice accountancy in Jamaica.

28. The application process to become a public accountant involves the submission of a specified form to the PAB for processing. The applicant is required to be at least 21 years old and must satisfy the ethical, education, and experience requirements of the Board. A fee of $25,000 is required and an applicant for the PAB's Certificate of Registration may be requested to attend an interview.

29. In addition to the PAB, the PAA also created the Institute of Chartered Accountants of Jamaica (ICAJ). The ICAJ was incorporated under the PAA and with its membership comprising chartered accountants in public practice and in private practice. Jamaican legislation requires persons to register with the ICAJ to become a public accountant. There are certain requirements, however, that must be satisfied to be eligible for membership. They include:

    a) Complete an accountancy education programme recognized by the ICAJ;
    b) Practical experience requirement of no less than three years; and
    c) Pass an examination administered by ICAJ.

30. The ICAJ is a member of the International Federation of Accountants (IFAC) and is mandated to promote the adoption of international standards and best practices. Accordingly, in the audit services industry, the legislations and regulations regarding public accountants are factors that new entrants would be required to satisfy to enter the industry.

31. Additionally, both the PAB and ICAJ have instituted rules of professional and ethical conduct as the supervisory bodies of participants in the audit services market. Regarding the PAB, for example, they have instituted the Rules of Professional Conduct (March 2019) (the Rules) with the view to ensure propriety in the profession. In accordance with these rules, a registered public accountant is required to comply with the fundamental principles of integrity, objectivity, professional competence and due care, confidentiality, and professional behaviour. Arguably, the Rules of Professional Conduct governs participants already in the market, thus are not considered barriers to entry.

32. A new entrant would need to advertise to attract customers and participants would require the tools to effectively compete within the market. Consequently, a close examination of the rules to determine whether they cause any competition concerns was undertaken. It was observed that the Rules of Professional Conduct details the requirement of the PAB regarding the advertisement of

professional services. The Rules dictate the considerations that must be adhered to when advertising the services of a public accountant. They are permitted to advertise but the advertisements and promotional material are prohibited from bringing the PAB into disrepute or bring discredit to the “registrant”, firm or the accountancy profession; discredit the services offered by others, whether by claiming superiority of their services or otherwise misleading, either directly or by implication as well as fall short of any local regulator or legislative requirements, such as the Fair Competition Act. Arguably, these rules are not stringent and allow the entrants and participants to equally advertise once they are properly registered with the PAA.

33. Statutory audits are extensively regulated regarding their form and substance. The Companies Act (2004) stipulates in its Eighth Schedule the matters that are to be expressly stated in the auditor's report. Accounting and auditing are interlinked, and the preparation of audited financial statements is governed by the International Financial Reporting Standards (IFRS), which has been adopted by the ICAJ. Essentially, the IFRS is a set of principles companies follow when preparing and publishing their financial statements providing a standardized way of describing the company's financial performance. Public companies, for example, those listed on the public stock exchange and financial institutions are legally required to publish their financial reports in accordance with agreed accounting standards.

34. Furthermore, in the preparation of audited financial statements, public accountants conduct the audit in accordance with the principles laid down in the International Standards on Auditing (ISA). The ISA, therefore, plays a fundamental role in the provision of audit services and are the professional standards dealing with the responsibilities of the independent auditor when conducting the financial audit. These standards are issued by the International Federation of Accountants (IFAC) through the International Auditing and Assurance Standards Board (IAASB).

35. Audits are crucial to the efficient allocation of capital and consequently the performance of the economy. Audits are also a vital contributor to the trust and confidence that is required in a modern economy. As a result, the appointment of auditors is essential to the wellbeing of a company as although shareholders collectively own the company, it is the directors and officers who run the company and as such, the report of the external auditor assists in ensuring that the accounts presented fairly in all material respects ("unqualified report"). The provision of an unqualified report indicates that in the auditor's opinion the accounts give a true and fair view of the financial state of the company. Contrarily, the auditors may provide a modified report that contains "an emphasis of

matter" which does not affect the auditor's opinion or matters which do adversely affect the auditor's opinion.

36. In jurisdictions such as United States (US) and the United Kingdom (UK), the audit services industry is largely serviced by one of the following audit firms Deloitte & Touche, EY, KPMG, and PwC, referred to as the Big 4 firms. These firms also offer a suite of services including advisory, taxation, and consultancy services. In Jamaica, it was observed that on the Jamaica Stock Exchange market of public listed companies KPMG and PwC conduct the most number of audits in the industry. KPMG audited 33% of the companies listed and PwC audited 33%.

37. Comparable to the Jamaican legislation, the UK's Companies Act requires companies to conduct statutory audits, specifically large companies, and the companies may only engage an auditor for one year. However, it was observed that a significant number of these statutory audits were conducted by a Big 4 firm, as well as, in practice firms are frequently and repeatedly appointed. This has resulted in some companies having the same auditors for many years. It was surmised that the UK needs more than the current four firms to audit its biggest companies. This is particularly important in the long term as should one of these companies fail, it would reduce competition. Accordingly, the industry was examined to determine the source of consumer inertia and whether they were barriers to entry, expansion, and selection of audit firms in the market.

38. The provision of audit services has faced high profile failings in the UK, which was demonstrated by the failure of some prominent companies. The UK's study of the audit services market revealed that several problems were impacting the industry and that there were several shortcomings regarding the standard set by the regulator, the Financial Reporting Council (FRC).[5] It was suggested that audit committees were only a partial solution to the problem that customers select their auditors. Additionally, it was observed that the high concentration among Big 4 audit services resulting in limited choice and a market that is not resilient as audits are being carried out by firms whose main business is not audit.

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[5] The FRC regulates auditors, accountants and actuaries in the public's interest by setting high standards of corporate governance, reporting and audit; and by holding to account those responsible for delivering them. Consequently, the FRC provides regulatory standards, supervision and corporate services as well as enforcement action to ensure the proper function of the market. Notably, however, based on the recommendations of the Independent Review of the FRC, the CMA's review and Sir Donald Brydon's review into the quality and effectiveness of audit services, the FRC is to be replaced by the Audit, Reporting and Governance Authority (ARGA). The ARGA is to provide stronger regulatory supervision and have the ability to enforce higher audit standards.

39. In this regard, several recommendations were made to address the competition issues arising in the market. Among them were:

    a) Robust regulatory oversight of the committees that run the selection process for audited companies, and oversee the audit, to make them more accountable and ensure that they prioritize quality.

    b) Mandatory joint audit, to increase the capacity of challenger firms, to increase the choice in the market and thereby drive up audit quality.

    c) An operational split between the Big 4's audit and non-audit businesses, to ensure maximum focus on audit quality.

    d) A five-year review of progress by the regulator.

40. The Competition and Markets Authority of the UK, formerly the CC made the above recommendations as they pursued legislative changes to encourage the Big 4 firms to adjust their market behaviour by separating their other business, thus allowing for more competition. Arguably, these recommendations were based on issues that arose because of the audit services market structure. Legislation and other regulations role as barriers to entry have been superseded by this factor and as a result, regulators are examining the implementation of laws to level the playing field and improve choice, ultimately promoting competition.

41. Arguably, the legal and regulatory framework that governs the audit services industry does not facilitate high barriers to entry, as entrants are not faced with unnecessarily prohibitive or cumbersome restraints to enter the audit services industry. In this regard, the legal examination of the industry concludes that there are currently no legislative conditions that pose competitive concerns.

IV. RESEARCH METHODOLOGY

42. The audit services market examined for this study was that of the companies listed on the JSE both the Main Market and the Junior Market for the period 2013 through to 2018. The information was gleaned from the audited financial statements of the companies. Companies involved in the trading of securities (shares, stocks and bonds) through the JSE are required to submit audited financial statements/annual reports to the JSE. These financial statements are accompanied by a certificate from public accountants authorized to perform audits under the provisions of the Companies Act.

Accounting data were sourced from these financial statements, with respective companies being contacted to fill in missing data.

43. Over the period, companies entered and exited the JSE for varying reasons. Information on newly listed companies or re-admissions was obtained from the 'News' section of the JSE website. The total number of firms listed on the exchange that were included in the study ranged from a count of 48 in 2013 to 60 in 2018. Details on delisted firms were also gathered from the JSE website along with reports in the media and the web pages of the listed companies. A few companies also changed auditors over this period. In these instances, the company's details were checked against their annual reports and the individual company's web pages.

44. Market share distribution is one of the main considerations when assessing market power. In the audit services market, high entry and exiting of firms along with high market share mobility signals that competition is strong (Buijink, Maijoor & Meuwissen, 1998). Market concentration concerns each firm's share of economic activity in a particular market. A market is said to have high concentration when a small number of suppliers control a large share of the market. Conversely, when there are a large number of suppliers, each with a small share of the market, the market is said to have low concentration. The number of auditors determines the structure of the market – monopoly, oligopoly, duopoly, competitive and impacts the market concentration. Two widely used measures of concentration in market studies are the k-firm concentration ratio (CR) and the Herfindahl-Hirschman Index (HHI). Using the market shares of the audit firms to calculate concentration is useful when assessing market power held by auditing firms.

45. Several measures of market share in the audit services market have been included in the literature – these include the number of audits undertaken by each firm, audit fees paid by the audit client, total assets of the audit firm, total sales of the audit client etc. The measure that is unanimously recommended by authors throughout the literature is audit fees. Intuitively, the more audit fees an audit firm receives, the bigger the audit supplier. Abidin et al. (2010) highlight the drawbacks of using measures other than audit fees. In fact, they recommend that in settings where audit fees are disclosed, audit fees are used as the measure of choice.

46. "Concentration measures based on several audits, while highly correlated with measures based on audit fees, are known to be systematically lower due to the 'size effect', whereby large companies

tend to employ large audit firms. In settings where audit fees are not disclosed, inferior measures of total assets or total sales are used to proxy activity level..." Abidin et al. (2010).

47. In this study, the FTC uses audit fees paid by the clients to their audit supplier as reported in annual reports as the measure of choice for market shares.

48. Using the concentration ratio (C*n*) one may analyze how much of the market is dominated by the big audit firms. It can be calculated for the four, six, eight…n largest auditing firms. The formula for calculating C*n* as follows:

$$C_n = \frac{\sum_1^n S_i}{\mathrm{S_T}}$$

n = number of largest audit firms
S_i = size of audit firm i measured by audit fee earned.
S_T = Total audit fees earned by all auditing firms

49. The concentration ratio varies between 0 and 100 percent. The higher the ratio, the greater market share those leading firms have. (e.g. C_4= 20 percent means that the four leading audit firms generated 20 percent of fees earned by the entire market.) According to Stefani (2006), the following bounds are useful for interpreting C*n* outcomes:

C_4	**C_8**	**Interpretation**
75 – 100 percent	90 – 100 percent	Very high market concentration
65 – 75 percent	85 - 90 percent	High market concentration
50 – 65 percent	70 - 85 percent	Medium market concentration
35 – 50 percent	45 - 70 percent	Little to medium market concentration

50. The formula for calculating the HHI is given by the following:

$$HHI = \sum_{i=1}^{n} s_i^2$$

where,
n = number of audit firms
s_i = market share of audit firm i

51. The HHI is calculated by squaring the market share of each firm in a market and then summing the resulting numbers. It ranges between a maximum of 10,000 (where there is only one firm) and a minimum of zero (where there is a large number of equally sized firms). See US Department of Justice and Federal Trade Commission (2010) for guidance on how to interpret the range of values calculated for the HHI.

52. Roberts (2014) posits that the HHI operates under a very simple premise: industry behaviour strongly correlates with industry structure; the larger a firm is within its industry, the more likely it is to engage in pricing above the competitive market price. Economic theorists generally interpret an increasing HHI level, without more, as evidence that competition is being compromised (Abidin et al, 2006; OECD, 2018).

V. RESULTS AND DISCUSSION

53. Table 2 in the Appendix shows the number of audits and the fees collected by various auditing firms during the period 2013-2018. The number of listed companies for which audited accounts were available increased from 47 in 2013 to 60 in 2018, a 27.6 percent increase, peaking in 2017 at 67 companies. Over the period, the number of auditing firms also increased from 8 to 11, a 37.5 percent increase.[6] This is a marked increase in listings, given the fact that in 2008 there were 19 companies listed on the combined JSE market and 5 audit firms servicing these companies. The ratio of auditing firms to listed companies has increased from 1:3.8 to 1:5.5. The total number of registered auditing firms in 2018 was approximately 70.[7] Of this number, only 11 firms conducted audits for listed companies. This represents approximately 15 per cent of the total number of firms registered to do audits in Jamaica. This could suggest that there are significant barriers to entry in the public listed

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[6] Notably, since 2014 only one new audit firm acquired any business from listed companies. The number of firms auditing listed companies has been constant from 2015 to 2018.

[7] Yello. 2018. *Island of Jamaica Directory*. Kingston: Yello Media (Jamaica) Limited.

company audit services market. Over the period of study, eight auditing firms entered the market and three exited.

54. The mean audit fee increased by 51.6 percent compared with the average general inflation of 5.3 percent over the same period. This increase could be as a result of the Big 2 auditing firms being able to charge more for their services to existing or new clients and/or Non-Big 2 auditing firms commanding a higher price for their services and/or attracting new clients. In the first instance, this could be a result of the Big 2 companies having market power and in the latter instance, it could be that there is an increase in the competitiveness of the market.

55. Table 1 reports the level of market concentration in the audit services market in Jamaica. The dollar value of the audit fees collected by each firm was used to calculate the firms' market share. The two measures of concentration used for this study are Concentration Ratio (CR) and the Herfindahl-Hirschman Index (HHI). Four different CR measures are used for comparative purposes - CR2, CR4, CR5 and CR6. CR4 is the most commonly used measure in audit studies to highlight the impact of the Big 4. Over the period of the study, the CR4 increased from 93 percent to 98 percent. By comparison, the CR3 increased from 92 percent to 97 percent. Even more pointed is the fact that while the Big 2 did 7 percent fewer audits (a dip from 65 percent to 58 percent), they still recorded an increase of 3 percent of audit fees (90 percent to 93 percent). Two audit firms collected 90-93 percent of audit fees over the period. Over the period 2013-2017, the Big 2 did fewer audits (there was a slight increase in the number of audits done in 2018 over 2017) and collected more in audit fees. This could be as a result of the Big 2 shifting their client portfolios towards larger clients and dropping smaller clients. To examine this closer, we look at Table 4, which shows market concentration by the size of audit fees.

56. Audit fees were assessed based on three categories: Small (<$5,000,000); Medium ($5,000,000-$10,000,000); Large (over $10,000,000). Over the period of the study 353 audits were conducted. Of this total 191 were small, 60 were medium and 102 were large. Of the large audits, the Big 2 conducted 95 percent of the audits, with the remaining 5 percent being conducted by EY (a member of the traditional Big 3/4). Noticeably, the Non-Big 2 conducted only 5 of the 102 large audits, all of which were done by EY. Contrast this to the small audits where the Big 2 did 35 percent, compared to the Non Big 2's 65 percent. The Big 2 also dominated the audits in the medium category as they accounted for 75 percent of the 60 audits conducted in this category. Fifty-three per cent of the audits done by PwC were in the large category, while for KPMG it was 42 percent. We offer some

more insight into this below when we look at movements in the market shares of the Big 2 under *Industry Concentration and Switching*.

Market Structure

57. Shepherd (1997) defines a 'tight oligopoly' as a market where the leading four firms combined have 60-100 per cent of the market and collusion among them to fix price is fairly easy. He further went on to examine three categories in which market power can be considered large enough to give rise to competitive concerns: monopoly, oligopoly and dominant firm. A dominant firm being one which operates in a market whereby there are other firms but they are not significant enough to constrain the behaviour of this firm.

58. The share of the market controlled by the Big 2 audit firms exceeds the commonly accepted oligopoly threshold of 60 percent. By this definition, the market for audit service in Jamaica is a tight oligopoly. While Shepherd's definition mentions a 4-firm concentration ratio, the 2-firm concentration moves even closer to a monopoly situation.

59. Over the period of the study, the market exceeded the mentioned threshold by at least 30 percentage points. At its lowest the Big 2 had a CR of 90 percent. This high level of concentration facilitates the possibility of successful collusion, overt or tacit, between the top firms.

60. These results are further reinforced by the more comprehensive HHI for the market over the period. Using the HHI to measure concentration showed that the market increased significantly in concentration.

61. Using the USFTC/DOJ recommendations for assessing HHI we note that the audit services market would be highly concentrated given the HHI ranged between 4100 and 5100 over the course of the study. This signals that the Big 2 audit firms are likely to have significant market power. Confirmation of the nature of concentration in the market is seen by the movement in the points of HHI. The HHI moved by 1,000 points over the period, which generally raises competition concerns given the implication of enhanced market power.

Firm-level observations

62. Over the period of the study the Big 2 (PwC and KPMG) were the consistent market leaders with respect to the number of audits conducted and the value of audits. While KPMG had more clients than PwC for every year of the study, PwC collected more audit fees than KPMG. In particular, KPMG had on average 33 percent of the clients while KPMG earned an average of 56 percent of the auditing

fees. This level is significantly higher than the 40 percent level industrial organization theorists cite as the existence of a dominant firm (Beattie et al. 2003). According to Shepherd (1997), a dominant firm usually has two effects on prices similar to those of pure monopoly. First, they raise the level of their prices, often (though not always) gaining excess profits. Second, they engage in price discrimination. Based on the audit fee ranking, PwC consistently earned annually, at least $50 million more than its closest rival KPMG. The largest market share differential between the Big 2 firms was approximately 39 percentage points in 2018.

63. By comparison, the audit fee market share gap between the Big 2 and other smaller firms grew wider over the 6 year period. This is demonstrated by comparing the market shares of KPMG, the smaller of the Big 2, and the other auditors. KPMG had 27.3 percent market share in 2018, which was over four times larger than the combined total of the non-Big 2's market share (6.8 percent). BDO, the closest rival to the Big 2, held just under 4 percent market share, indicating its very weak position relative to the Big 2.

64. PwC's share of audit fees increased by approximately 15 percentage points over the period. Contrastingly, KPMG's market share declined by 12 percentage points. Similarly, the share earned by non-Big 2 firms declined by 3.6 percentage points.

65. EY (traditionally a member of the Big 4) was not a significant player in the market. EY's highest market share over the period was 6 percent in the first year of the study, 2013. EY saw its market shares plummeting by 6 percentage points. EY, having entered this market in 2001, lost its status as the number 3 audit firm to BDO in 2015. Over the period, EY averaged 3 percent of the audit fees collected. BDO, at its peak in 2018, accounted for 4 percent of audit fees collected.

66. Observations of movement in the market at the exit of a rival can give some insight as to the competitiveness of the market. In the wake of Deloitte's exit in 2013, KPMG saw a 3 percentage point increase in audit fees collected. Meanwhile, PwC saw a 1 percentage point decrease in its audit fees collected. The non-Big 2 companies saw a 2 percentage point decrease in the audit fees collected. These differences could be attributed to the exit of Deloitte but are more likely due to the 10 percent increase in the number of clients.

Switching

67. Over the period of study 353 audits were conducted at a price of JMD 5.7 billion. Of the total number of audits done, the Big 2 accounted for 56 percent with a commensurate 75 percent of the audit fees. Two of the leading reasons that have been proffered for established auditing firms commanding this large share of the audit services market are reputation and technical capabilities in specific industry sectors.

68. To further delve into the applicability of these factors, the study assesses the industry specific concentration of each audit firm to analyze technical capabilities and examine switching activity. Firms that operate internationally may be particularly attractive as clients may perceive them to have a solid reputation given the rigours of conforming to multiple international requirements. Additionally, technical capabilities should see equally reputable firms being dominant in industries that they have superior capabilities. The traditional Big 4 firms can be considered to be of international repute with similar competencies.

69. Table 6 shows a categorization of listed companies by industries and the audit companies they employ. The table further shows how each audit company ranks in each industry based on the number of audits they perform.

70. The listed companies were categorized into 15 industries. Of this number, there were 9 industries with a clear leader. PwC was a leader in three industries (banking, medical and insurance, and shipping), KPMG was also a leader in three industries (utilities, manufacturing and investment) while the remaining three industries were led by a Non-Big 2 auditors: MGRT (office supplies), M&A (distribution) and BDO (microfinance). It is noticeable that all the industries that the Non-Big 2 led in comprised companies that were recently listed on the Junior Stock Exchange.
71. Of the 6 industries that had one or more leader, PwC and KPMG were either joint leaders or one of the leaders in all but the automobile and transportation industry. All companies in this industry were listed on the Junior Stock Exchange.

72. To determine industry specialization we observe the level of each audit company's market share in the specific industry. The industries within which the Big 2 were clear market leaders accounted for over 62 percent of the total industries, not including those that were joint leaders with Non-Big 2 firms. The banking industry saw PwC as the clear leader, auditing 2 of the 3 listed banks. Investments industry which represented over 19 percent of the industries listed on the JSE was led by KPMG (7 of

14).[8] KPMG also led the manufacturing industry that constituted 25 percent of listed industries (10 of 18).

73. Over the period of study, 12 clients switched auditors. On two occasions a client switched from a Big 2 to a Non-Big 2 auditor; 4 times clients switched between Non-Big 2 auditors and 6 times the client of a Non-Big 2 auditor switched to a Big 2 auditor. All switching from Non-Big 2 to Big 2 auditors involved KPMG. Of the 6 switches to KPMG, 3 were from EY. Noticeably, 4 manufacturing firms changed auditors - 3 of these 4 switches saw clients changing from a Non-Big 2 auditor to KPMG.

74. The three industries led by Non-Big 2 auditors and the two clients that switched from Big 2 to Non-Big 2 auditors indicate that Non-Big 2 auditors may represent viable alternatives to Big 2 auditors.

75. Several researchers indicated that the audit services market is often characterized by industry specialization whereby clients perceive a particular auditor as being more equipped based on experience and/or resources to audit clients in specific industries. The report now looks at Jamaica's experience in this regard.

76. The data collected show that manufacturing and investment were the only industries with more than ten listed companies which had a clear market leader. The market leader in both these industries, as measured by the number of clients, was KPMG. In manufacturing, industry specialization may likely have some impact given that over the period of study, of the 4 clients that switched auditors, 3 switched to KPMG. Additionally, KPMG audited 56 percent (10 of 18) of the clients in the manufacturing industry. By comparison, they audited 57 percent of the clients in the investments sector. This industry also saw the emergence of non-Big 2 auditors, particularly BDO which completed 21 percent of audits in this industry. This 21 percent mirrors that of PwC in this industry. The differences in the value of the audits, however, were stark; PwC had a huge differential in terms of audit fees collected. BDO had only one client on the JSE Main index and it was in this industry as compared to the Big 2 auditing firms which had all but three of the companies on the Main index. The other 2 being audited by EY. Companies on the Main Index are likely to pay higher auditing fees based on their larger market capitalization compared to their Junior Stock Exchange counterparts.

77. The evidence of industry specialization is not as strong in the investment industry as it is for manufacturing. Of the two clients that switched, both switched from a Big 2 auditor to a non-Big 2

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[8] Comprising all non-bank financial institutions.

auditor (one client from each Big 2 auditor). There were insufficient clients in the other industries to make any significant conclusions regarding specialization.

VI. SUMMARY AND CONCLUSION

78. This study provided an overview of the state of competition in the market for auditing services in Jamaica- focusing on trends in market concentration over the period 2013-2018. Further analysis was done at the individual firm level and the industry level to determine industry-specific interactions between the Big 2 and other auditors.

79. The results show that clients rarely switched away from a Big 2 auditing firm to a non Big 2 firm. Additionally, clients on the Main listing of the JSE are likely to pay higher auditing fees based on their larger market capitalization compared to clients on the Junior listing of the JSE stock market. Big 2 auditors are likely to gain larger clients from switching as evidenced by the four companies that switched from Non-Big 2 auditors.

80. Over the period of the study, concentration was shown to be consistently high, exhibiting signs of what Shepherd (1997) classifies as a 'tight oligopoly.' The share of the market controlled by the Big 2 auditors exceeds the commonly accepted oligopoly threshold of 60 percent. The Big 2 consistently generated in excess of 90 percent of the audit fees for the industry. From the study it can be seen that the Big 2 are engaged in fewer audits but accounts for an increasing share of the revenue.

VII. FUTURE WORK

81. The results of this study suggest that the auditing services market in Jamaica may be susceptible, if not being subjected, to the undue exercise of market power. Further work is needed, however, to confirm this inference. In particular, a closer examination of the conditions of entry, expansion and exit is needed for the FTC to better understand and characterize the persistently high concentration levels observed in the market during the review period.

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APPENDIX

Table 1. Market Concentration Level for JSE Listings, 2013-2018 (Based on Audit Fees)

Year	No. of Listings	CR_2	CR_3	CR_4	CR_6	HHI
2013	50	0.90	0.92	0.93	0.998	4,100
2014	54	0.91	0.95	0.95	0.99	4,200
2015	58	0.91	0.95	0.96	0.99	4,300
2016	65	0.93	0.96	0.97	0.99	4,800
2017	67	0.92	0.95	0.98	0.99	4,500
2018	60	0.93	0.97	0.98	0.99	5,100

Table 2. Number of Audits and Fees, 2013-2018

Auditing Firm	**2013**		**2014**		**2015**		**2016**		**2017**		**2018**	
	Count	Fee ($‘000)	Count	Fee ($‘000)	Count	Fee ($‘000)	Count	Fee ($‘000)	Count	Fee ($‘000)	Count	Fee ($‘000)
KPMG	17	229,576	18	275.446	19	296.040	21	363,784	23	434,662	20	352,321
PriceWaterhouse Coopers	15	301,125	15	333.284	16	383.929	16	697,872	15	698,103	15	849,648
Binder Dijker Otte	7	15.455	7	223.63	8	26.009	10	32,343	11	45,145	10	48,273
McKenley & Associates	3	4.900	3	5.567	4	7.640	4	9,467	4	29,375	3	12,907
E&Y Global Ltd	3	37.793	4	22.814	3	21.137	4	21,781	3	10,726	3	11,708
Mair Russel Grant Thornton	0	0	2	2.738	2	3.879	3	5,467	3	6,063	2	4,716
Bogle and Company	2	1912	2	1.950	2	2.420	2	3,050	2	3,110	2	3,330
Critchton Mullings & Assoc.	1	650	1	750	1	765	2	2,077	2	2,600	1	1,500
James Allen & Company	1	750	1	900	-	-	-	-	-	-	-	-
Crooks Jackson Burnett	-	-	-	-	-	-	1	1,150	2	3,000	2	3,093
Baker Tilly Strachan Lafayette	-	-	-	-	1	911	1	972	1	946	-	-
UHY Dawgen /Crowe Horwath	-	-	-	-	1	815	1	442	1	442	1	1,057
Lee Clarke Chang	-	-	1	1.200	-	-	-	-	-	-	-	-
Ventry Foo	-	-	-	-	1	300	-	-	-	-	-	-
Calvert Gordon & Associates	-	-	-	-	-	-	-	-	-	-	1	1,100
TOTAL		**592,161**		**667.012**		**7438.45**		**1,138,405**		**1,234,172**		**1,289,653**
Total # of Companies	49		54		58		65		67		60	
Total # of Audit Firms	8		10		11		11		11		11	
Avg. Annual π (STATIN)	9.4		8.3		3.7		2.4		4.4		3.7	
Mean Audit Fee		**74,020**		**66,701**		**67,622**		**102,752**		**112,197**		**117,241**
% change mean audit fee		**-**		**-10**		**1.4**		**52**		**9.2**		**4.5**
Median Audit Fee		**10,178**		**4,153**		**3,879**		**4,147**		**6,063**		**4,716**
% change median audit fee		**-**		**-59**		**-6.6**		**6.9**		**46**		**-22**

***2008 (5 Audit Firms; 19 listed companies)…What explains the shift? Junior Market + other JSE policies etc**

****Figures are based on companies listed and annual reports – not all companies listed identified their auditor in their financials**

*****PBS’ listing in 2017 generated 112m in fees for PwC in 2016; NCB restructuring (delist NCBJ, list NCBFG) contributed 105m**

******Only audits for which records of fees were available/published were included.**

Table 3. Overall Share of Client, 2018

Client type *	**Share of Industry Fees (%)**	**No. of Client**
Small	49	27
Medium	15	15
Large	36	18
Total	**100**	**60**
*Client type is based on fees. Small (Less than $5 million); Medium ($5-10 million); Large (more than $10 million)		

Table 4. Distribution of Client Types

Audit Firm	**No. of Clients, by Types**				**Share of Client Types within Firm (%)**			
	Small	Medium	Large	Total	Small	Medium	Large	Total
PwC	22	20	47	89	24.7	22.5	52.8	100
KPMG	44	25	50	119	37.0	21.0	42.0	100
All Others	125	15	5	145	86.2	10.3	3.5	100
Total	**191**	**60**	**102**	**353**	**-**	**-**	**-**	**-**
Note: Total fees generated by audits = $5.67 billion								

Table 5. Distribution of Market Share among Big 2 Firms, 2018

Audit Firm	**Share of audit fee (%)**	**Number of Clients**
PwC	66	15
KPMG	27	20
All Others	7	25

Total	100	60

Table 6. Auditing Firms, by Industry

		Industry															
		Ban	MFin	Ins	Inv	Man	Dis	Med	R/E	E/T	Bus	Uti	OS	Con	Auto	Shi	Oth
Auditors	KPMG	2	2	1	8	9		1	1	1	1	2	1	1			1
	PwC	1		2	4	3		1	1	1				1		2	
	E&Y					1					1						
	BDO				3	1	1			2							1
	M&A					1	2										
	MRGT									1			2				
	B&Co					1							1				
	CMA		1												1		
	CJB														1		1
	BTSL									1							
	CH																1
	CGA																1

KEY

Auditing Firms

KPMG
PwC - Pricewaterhouse Coopers
E&Y - E&Y Global Ltd
BDO - Binder Dijker Otte
M&A - McKenley & Associates
MRGT - Mair Russel Grant Thornton
B&Co - Bogle and Company
CMA - Critchton Mullings & Assoc.
CJB - Crooks Jackson Burnett
BTSL - Baker Tilly Strachan Lafayette
CH - UHY Dawgen /Crowe Horwath
CGA - Calvin Gordon & Associates

Industry

Ban – Banking
MFin – Microfinance
Ins – Insurance
Inv – Investment
Man – Manufacturing
Dis – Distribution
Med – Media
R/E – Real Estate
E/T – Entertainment and Tourism
Bus – Business Services
Uti – Utilities
OS – Office Supplies
Con – Construction
Auto – Automobile/Transportation
Shi – Shipping
Oth - Other