Audit Quality and Auditor Reputation: Evidence from Japan*

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Abstract

At the same time that Japan is holding itself out as a high quality participant in world capital markets, there have been a string of high-profile accounting scandals, including those at Sanyo, Nikko Cordial, Kanebo, and Livedoor ("Corporate Shenanigans in Japan," *The Economist*, March 22, 2007). Regulators at the Japanese FSA have reacted strongly to these scandals, arresting auditors and suspending the operations of one of Japan's Big Four accounting firms, ChuoAoyama, the PwC affiliate in Japan. These events caused PwC to restructure its Japanese operations, which essentially resulted in the transfer of lower quality clients and staff to competitors and the formation of a new, smaller boutique operation in Japan (PwC Aarata). These events provide an unusually rich setting to investigate the role of auditor reputation on audit quality in a country where auditors' legal liability has, until recently, been largely non-existent. We provide evidence on auditor switching around the time of these events, whether ChuoAoyama's reputation for low audit quality is evident in the nature of its clients and/or their earnings quality, and on the market's reaction to events that revealed the extent of ChuoAoyama's audit failure.

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1. Introduction

As recent accounting scandals at Enron, Worldcom, Parmalat, and others make clear, high quality external auditing is one of the central components of sound corporate governance. We study the Japanese audit market, where recent events provide a potentially powerful setting for studying the effect of auditor reputation on audit quality.

An important but largely unresolved issue in both the academic and policy arenas is what determines audit quality. The literature focuses on two principal forces that motivate auditors to deliver quality[1] – a litigation/insurance incentive and a reputation incentive. Under the first motive, if auditors are legally liable for audit failures to an economically significant degree (including regimes under which they are liable for more than their proportionate share of losses), they have an incentive to deliver quality to avoid litigation. Under the second, auditors have reputational incentives to avoid audit failures because audit quality is valuable to client firms and priced in the market for audit services.

The audit profession has long argued that reputation effects are sufficient to ensure quality, and that their legal liability for corporate failures should be limited. Regulators in several important jurisdictions, including Europe and the U.S., are currently considering rules that limit auditor liability.[2] Arguments in favor of this include: (i) current liability claims against the major audit networks are substantial, exceeding the total capitalization of these networks, (ii) as a result, it is possible that one or more of these firms could be subject to "catastrophic" liability claims that put them out of

[1] High quality auditors (e.g., Watts and Zimmerman, 1986) have two key attributes: competence (sufficient accounting and auditing expertise to uncover frauds) and independence (the ability to report frauds).
[2] See, for example, Global Capital Markets and the Global Economy: A Vision from the CEOs of the International Audit Networks (2006), Interim Report of the Committee on Capital Markets Regulation (2006), European Commission (2008). See also "US auditors renew calls for liability limits" (*Financial Times*, September 1, 2008) and "Professional liability: Hard-won solution faces threat from US" (*Financial Times*, September 2, 2008).

business, resulting in even greater audit market concentration than currently exists, (iii) some type of limit to audit firm liability would allow these firms to obtain insurance against liability claims, further reducing the likelihood a large claim would put them out of business.

We study recent events in the Japanese audit market. With the increasing globalization of capital markets, Japanese financial regulators are seeking to convince regulators in other countries that Japan's financial reporting infrastructure, including its accounting rules and auditing, is of "high quality" and so equivalent to those in other large capital markets, most notably in Europe and the U.S. This means that the Japanese audit profession is changing rapidly, away from the traditional Japanese model of "cozy" relationships between auditors and clients (that worked well in an era when much economic activity was relationship-based and centered around "main bank" group of companies), to one more like the western model which emphasizes auditor independence and a more adversarial monitoring relationship.

This research also has potentially important policy implications. There are now only four major audit firms (the Big Four). If another of these firms were to go out of existence (because of the legal/regulatory consequences of another large audit failure), there are concerns about whether the remaining firms could adequately service the market.[3] As we discuss below, recent events in Japan essentially coincide with this scenario, and provide an interesting case study relevant to this debate.

[3] It is not clear whether firms just below the top tier, such as Grant Thornton and BDO Seidman, are able to provide the same quality of audit services as the existing Big Four. The Big Four currently audit virtually all of the world's large listed firms. For example, in the UK, all but one of the FTSE 100 are audited by the Big Four. In Japan, over 90% of firms, by market capitalization, on the first section of the TSE are audited by Big Four affiliates; see Table 3 below and related discussion.

We provide a number of empirical analyses of events surrounding ChuoAoyama's decline and fall. First, we compare ChuoAoyama's clients to those of other audit firms along a number of dimensions, including earnings quality/earnings management potential. We find little evidence that ChuoAoyama's clientele was any different to those of the other major audit firms, which is inconsistent with them offering systematically lower quality audits. Second, we provide evidence that many of ChuoAoyama's clients switched to alternative auditors as the extent of its audit failure at Kanebo was revealed, consistent with the importance of auditors' reputation for quality. Further, we describe how PwC responded proactively to the scandal by setting up a new, small audit affiliate in Japan, to which a select group of former ChuoAoyama clients, including Sony and Toyota, were moved. This is strong evidence of the importance of an auditor's reputation for quality. Third, and somewhat inconsistent with this conclusion, we cannot find any event study evidence that ChuoAoyama's clients suffered declines in equity value as these events unfolded, although these tests may not be very powerful. Overall then, we view the evidence from these events as providing support for the view that audit quality and reputation are important in an economy where the legal system does not punish auditors for malfeasance.

The next section provides more details about the events that surrounded the Kanebo fraud and ChuoAoyama's role therein, as well as our empirical predictions. Section 3 provides discusses our sample and empirical evidence. Section 4 offers a summary and conclusions.

2. Events that led to the downfall of ChuoAoyama and related empirical predictions

2.1 Auditing in Japan

Over the last ten years, changes in Japanese auditing reflect wider changes in Japan's overall financial system and corporate governance. Following several decades of prosperity, the Japanese economy became mired in a sustained economic slump during the 1990s, which became known as the "lost decade." Many commentators blamed this slump on Japan's financial system, which in many ways was unique and certainly different to those in the world's large western economies.[4]

Since the Second World War, much economic activity in Japan has been organized through large corporate groups, known generally as *keiretsu.* There are two principal types of *keiretsu*, one organized horizontally around the six main banks in Japan (and so also known as "main bank" groups), and the other organized vertically as subcontractors or suppliers associated with a large core firm. The major source of corporate finance during this period was bank debt, which meant that banks played a large role in corporate governance. Along with the banks, companies within *keiretsu* groups typically held substantial equity stakes in other group companies. Boards of directors in group companies include managers of affiliated (through cross-holdings) companies, bank representatives, and company executives. The close-knit nature of the inter-company relationships within these groups as well as the banks' access to private information from companies helps resolve many of the agency and information problems common to securities markets in western economies, and so substituted for market-based discipline. For example, the strong intra-group relationships among firms within each group and the predominance of bank debt financing avoids the types of information

[4] For example, see Fukao (2003), Hoshi and Kashyap (2001, 2004).

asymmetries common to external debt and equity financing, and so obviates the need for the types of mechanisms commonly used in western economies to address agency problems, including high quality external auditing.[5]

This setting helps explain why the traditional Japanese audit model is different to that in western economies. In western economies, the goal of corporate governance is to ensure that management focuses on maximizing stockholder value, and external auditors are expected to support this process by providing independent verification of the financial statements produced by management. In Japan, auditors traditionally cooperate with management to help it achieve its goals, which are often more about serving the interests of the various firm and *keiretsu* stakeholders (such as employees, suppliers, and especially creditors) than about maximizing shareholder value.[6] Japanese managers tend to make decisions that are in creditors' best interests rather than those of stockholders, which explains why Japanese firms tend to pay lower dividends and hold more cash than their western counterparts (e.g., Pinkowitz and Williamson, 2001).

There is evidence that auditor choice was affected by the *keiretsu* structure. Pong and Kita (2006) and Suzuki (1999) both provide evidence that many of the companies in a group, including the banks, shared a common auditor. This structure is efficient given the close-knit corporate relationships among entities within the *keiretsu*, but compromises auditor independence because serious conflicts between management and the auditors of one company could potentially lead to a loss of the auditor's business in the *keiretsu* as a

[5] See Hoshi and Kashyap (2001, Ch. 6) or Suzuki (1999) for a discussion of how the *keiretsu* system addresses adverse selection and moral hazard problems in external financing. Aoki et al. (1994) provide an overview of the main bank system in Japan. More details on the evolution of corporate governance and financing in Japan are provided by Hoshi and Kashyap (2001).

[6] For discussions of Japanese corporate governance and how it has evolved over the last two decades, see Aoki (2007), Milhaupt (2003), and Patrick (2004).

whole. Given the long-term nature of the *keiretsu* relationship, it is not surprising that auditor relationships with management in Japan are both "cozy" and longstanding. The audit culture was one of accepting management judgments and the *status quo*.

During the 1990s, the ongoing economic problems in Japan raised questions about whether its financial system had outlived its usefulness. There was a general consensus that reform was necessary, and in 1996 the Government announced a large slate of financial reforms known collectively as the Big Bang. Part of these reforms involved improving the transparency of financial reporting in the wake of several spectacular corporate failures, which were at least partly due to fraudulent accounting.[7]

As a result of the Big Bang, the past decade has seen a number of important changes in the Japanese financial reporting environment. Prior to 2001, accounting rules in Japan were set by the Business Accounting Deliberation Council (BADC), a committee of the Ministry of Finance (MOF). Thus, Japanese accounting rules were effectively set by the Government, and were substantially different to those in the U.S., U.K., and other western countries. Benston et al. (2006) indicate that the main aims of Japanese accounting were stewardship, creditor protection, and the satisfaction of tax requirements.[8] Moreover, there was no dedicated securities regulator akin to the U.S. SEC; instead, many functions were served by the MOF, which had as its overarching goal

[7] Fukao (2003) argues that one of the main factors between the Japanese financial crisis in late 1997 was lost confidence in the accounting and auditing system in Japan. He discusses the case of Hokkaido Takushoku Bank which collapsed in November 1997 in spite of financial statements that showed 0.3 trillion yen in book value, which was subsequently restated to negative 1.2 trillion yet. Similarly, Yamaichi Securities was apparently hiding 260 billion yen in securities losses when it collapsed at the same time.

[8] Japanese accounting rules are rooted in a "triangular" legal system, comprised of the Commercial Code, the Securities and Exchange Law, and the Corporate Income Tax Law. There was no going concern concept in Japanese accounting until 2002, and no principle that accounting should follow substance over form. Instead, accounting rules were interpreted literally, so that practices were deemed acceptable unless specifically inconsistent with the law.

the promotion of business interests (as opposed to the enforcement of securities laws). This led to an overall perception that Japanese accounting was of low quality.

In 2001, the Accounting Standards Board of Japan (ASBJ) was set up as an independent accounting standards setter, similar to the U.S. FASB. In 2003, the CPA Law in Japan was amended, and made a number of significant changes to audit practice, including restrictions on the provision of non-audit services, mandatory auditor rotation (of the engagement partner within the audit firm), reforming the CPA exam, changes in the legal procedures for organizing and operating an audit corporation, and strengthening auditor oversight. Many of these changes were similar to reforms introduced in the U.S. as part of Sarbanes-Oxley. The CPA and Audit Oversight Board (CPAAOB) was set up in Japan to monitor the audit profession, similar to the Public Company Accounting Oversight Board (PCAOB) in the U.S. In 2002 a new set of auditing standards was issued. The objective of these new standards was to bring Japanese auditing standards into line with international standards as well as to address changes in the Japanese corporate and audit environment (JICPA, 2004). Remarkably, these standards introduced some very basic auditing concepts into Japanese auditing, highlighting how different Japanese auditing was prior to this time.[9]

In short, a number of reforms were instituted between 2001 and 2003 which were intended to transform the Japanese audit profession from its traditional role as part of a relationships-based financial system to a model similar to that employed in western countries. While much was done to change the laws and procedures that governed the audit profession, it is unclear how quickly actual audit practice changed, especially given

[9] Some examples of these basic concepts include: (i) audit objectives emphasizing that auditors obtain reasonable assurance that the financial statements are free from material misstatement, and (ii) that company management is responsible for preparing financial statements (JICPA, 2004).

the longstanding relationships between auditors and their clients and the radical nature of the changes. For example, in many Japanese companies external auditors still report to the board of statutory auditors, who in turn are largely controlled by management.[10]

In this context, the events at ChuoAoyama and particularly the decision by the FSA to suspend ChuoAoyama's operations can be seen as a watershed event in Japanese audit practice. The FSA used these events to send a message to the Japanese auditing community that the old ways of doing business would no longer be tolerated, and that it was serious about reforming audit practice. We discuss these events in more detail next.

2.2 The Kanebo fraud and events at ChuoAoyama

In May of 2006, the Japanese Financial Service Agency (FSA) issued an order suspending the operations of one of Japan's Big Four accounting firms, ChuoAoyama, for two months (ChuoAoyama was the PwC affiliate in Japan). This move was unprecedented, and resulted from ChuoAoyama's involvement in a major accounting fraud at Kanebo Ltd., a large cosmetics company. The fraud had previously (in September of 2005) resulted in the arrest of three ChuoAoyama auditors who were alleged to have knowledge of the fraud. Prior to Kanebo, ChuoAoyama had audited a number of Japanese companies involved in accounting frauds, including Yamaichi Securities (1999) and Ashikaga Bank (2000).[11]

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[10] Two types of auditors are required under Japanese law (the Commercial Code and Securities Exchange Law). The first are known as statutory auditors (*kansayaku*) and are internal to the company. The statutory auditors (which may be an individual or a committee) are part of the board of directors and have technical responsibility for approving the financial statements for presentation to the stockholders at the annual meeting. The external auditors (*kaikei-kansinin*) play a similar role to that of external auditors elsewhere in the world. External auditors were first required in Japan under the Securities and Exchange Law (1949). For more detail, see Someya (1996, Ch. 3) or Matsumoto (1999).

[11] The problems at Ashikaga had resulted in a stockholder derivative lawsuit against ChuoAoyama and former executives at the bank, an unprecedented action in Japan where litigation of any type is very unusual. This lawsuit was filed in September 2005.

PwC took a number of aggressive measures to preserve its reputation in the wake of events at ChuoAoyama. First, in early 2006, it sent high-level personnel from the U.S. and U.K. to investigate and take corrective action at ChuoAoyama.[12] As a result of this process, ChuoAoyama was subsequently split into two entities, Misuzu Audit Corp. and PwC Aarata, so that ChuoAoyama ceased to exist (more precisely, ChuoAoyama was renamed Misuzu when the firm resumed operations after the FSA ban was lifted, on September 1 2006). Most of the former firm's clients and staff went to Misuzu, which was essentially a rebranded ChuoAoyama. In addition, a small, select group of prominent clients, and arguably those of most strategic importance to PwC internationally (Sony and Toyota are two prominent examples), were transferred to the new PwC Aarata.

During the next several months, in the fall of 2006, two additional accounting frauds – at Nikko Cordial, the third largest securities house in Japan, and Sanyo Electric – came to light. ChuoAoyama had audited both companies at the time of the alleged frauds. As a result of these announcements and to preempt regulatory action and preserve its diminishing reputation in Japan, PwC announced in early 2007 that Misuzu no longer complied with its quality standards, and that the firm was to be wound down, with all staff and clients transferred to affiliates of other audit firms after fiscal 2006 audits were completed in the spring of 2007.[13] This left Japan with three major audit firms, as well as the smaller PwC Aarata firm.

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[12] Even before this, in late 2005, Samuel DiPiazza, head of the international firm, visited Japan to meet with regulators, ChuoAoyama executives, and management of important Japanese clients, largely to practice "damage control."

[13] There is some ambiguity about who initiated the closure of Misuzu. Some articles, including those that cite Samual Di Piazza, then CEO of PwC internationally, characterize this as a decision taken by PwC. Others have told us that the decision was made by the local (Japanese) management of Misuzu, who wanted to preempt its loss of clients as a result of the cumulative effect of the accounting scandals. This was partly to avoid the firm "losing face" by having to close involuntarily and lay off staff. Thus, soon after these scandals came to light, the firm cooperated with other audit firms, including Tohmatsu,

2.3 Previous Literature and Predictions

The literature provides two types of evidence to assess the importance of auditor reputation. Both lines of research rely on the premise that, if reputation is important in the audit market, observable declines in audit firm quality will lead to reductions in the demand for its services and to adverse consequences for its clients.

One line of research examines auditor switching around the time of events that signal changes in audit quality for a given audit firm. Lennox (1999) analyzes the relation between audit firm size and auditor turnover among client firms using data from the U.K. over 1987-1994. He relies on the prediction from DeAngelo (1981) that the importance of auditor reputation increases in audit firm size (large auditors have larger client-specific quasi-rents, and so have more to lose from a given audit failure). An alternative argument is that large auditors have "deeper pockets" and so are more likely to be sued for audit failures than smaller audit firms (e.g., Dye, 1993). Consistent with the liability argument and inconsistent with the reputation argument, Lennox finds a positive relation between auditor size and proxies for litigation. In addition, he finds little support for the prediction that publicity surrounding audit failures leads client firms to drop incumbent auditors. In fact, he finds that auditor-client relationships are very stable: changes in the number of clients audited by the Big Six are consistently in the low single digits.[14]

ShinNihon, and AZSA (the remaining Big Four firms), to place its audit personnel and their associated clients with those other firms, thus essentially voluntarily winding up Misuzu. There is little doubt, however, about the basic cause and effect – the revelation of the accounting frauds at Nikko Cordial and Sanyo quickly resulted in the demise of Misuzu.

[14] As he notes, however, litigation against auditors may be a poor proxy for quality because litigation occurs when auditors make Type I errors (failing to detect an accounting irregularity) but not Type II errors (incorrectly reporting an accounting irregularity).

Other evidence from this literature is similarly inconclusive regarding the link between changes in audit quality and audit switches. Johnson and Lys (1990) examine "voluntary" auditor changes (that is, those initiated by the client firm) and attribute these largely to changes in the business and financing characteristics of client firms; i.e., firms switch auditors as the nature of their business changes over time. Johnson and Lys do not find evidence of significant stock price changes at the time of these changes. Shu (2000) looks at auditor resignations (i.e., initiated by the audit firm) and finds, consistent with the litigation argument, that changes are due to increases in client litigation risk as well as changes in audit firm characteristics. Also consistent with this view, she finds that client firms tend to move to smaller audit firms after a large auditor resigns, and that there is a significant negative stock price reaction to auditor resignations.

Barton (2005) and Blouin et al. (2007) both examine auditor switches at the time market participants learned about the scope of Andersen's audit failure at Enron. Barton (2005) examines variation in the timing of the departures (earlier departures are more likely to occur for reputational reasons) while Blouin et al. (2007) look to explain variation in whether or not former Andersen clients follow their audit team from Andersen to one of the remaining Big Five. A problem with interpreting this work is that the events at Enron and the associated demise of Andersen occur over a short period of time, making it difficult to decide whether the auditor switches are attributable to reputation or were simply forced by Andersen closing its doors.[15]

Finally, Landsman et al. (2009) examine whether client firms that switch away from "Big N" auditors switch to smaller firms or to other Big N auditors. They find that

[15] Barton (2005) finds that 95% of switches away from Andersen occur after it was indicted in March 2002, when the likelihood that it would be unable to continue operations likely had increased significantly. This makes it difficult to characterize these switches as "voluntary."

auditor switches are associated with increases with both client financial risk and audit risk. Somewhat surprisingly, however, they find that there is no difference in the likelihood that these client firms select another Big N auditor over a non-Big N auditor; the reputation argument predicts that firms with higher audit or financial risk would be more likely to select a lower quality, non-Big N auditor.

Overall, there is little consistent evidence from auditor changes consistent with the reputational view that clients switch away from auditors revealed to be of low quality and, in fact, little support for the importance of reputational effects generally.

A second line of research examines the stock price reaction to events that change market perceptions of audit quality for a given audit firm.[16] Menon and Williams (1994) and Baber et al. (1994) both examine the reaction of client firm stock prices to the bankruptcy of Laventhol and Horwath, at the time the seventh largest audit firm in the U.S. These authors argue that the firm's financial difficulties lowered its audit quality and that this was revealed to the market by the bankruptcy announcement. Both studies report a significant negative reaction to the announcement, consistent with both the insurance and reputational roles for auditors. The negative reaction can also be interpreted as impounding the costs associated with changing auditors.

Chaney and Philipich (2002) examine the stock price reaction for clients of Arthur Andersen when that firm revealed that its personnel had shredded documents related to the Enron case. These authors also find a significantly negative reaction, which they

[16] This is a basic premise of positive accounting theory. See Watts and Zimmerman (1979, p. 279, note 26): "Share prices are unbiased estimates of the extent to which the auditor monitors management and reduces agency costs…The larger the reduction in agency costs effected by an auditor…the higher the value of the corporation's shares and bonds and, *ceteris paribus*, the greater the demand for that auditor's services. If the market observes the auditor failing to monitor management, it will adjust downwards the share prices of all firms who engage this auditor…and this will reduce the demand for his services."

interpret as attributable to Andersen's loss of reputation, although a recent study by Nelson et al. (2008) raises questions about whether these results can be attributed to the Enron-related events at Andersen.

Other methodological problems held aside, an important interpretational problem with these studies is their inability to distinguish between the insurance and reputational explanations for auditing.[17] Because of this, Weber et al. (2008) characterize evidence from the audit literature as "mixed" on this point, and address this issue by examining a similar event in the German audit market. In Germany external auditors' potential legal liability is limited, reducing the viability of an insurance rationale for auditor choice. They provide evidence that supports the importance of reputation in audit markets. Specifically, they find that the stock prices of KPMG clients declined at the time of events revealing that firm's involvement in an audit failure at ComROAD, a highly visible German firm. We use the Japanese audit setting in a similar way since litigation risk for auditors in Japan is essentially nil.

We argue that the events that revealed the apparent low audit quality at ChuoAoyama, the emergence of Aarata, and the subsequent closure of Misuzu provide a relatively powerful setting for assessing the importance of audit reputation. First, litigation against auditors, like litigation more generally, is virtually non-existent in Japan. This means that auditing does not play an important insurance role in the Japanese setting.[18] Second, the events at Kanebo and ChuoAoyama unfold over a relatively long period of time, from when the problems at Kanebo first came to light in the spring of

[17] Shu (2000) finds that auditor resignations generate a negative stock price reaction for client firms, which is generally consistent with the litigation argument but not with the reputation argument.

[18] This is clearly true for firms listed in Japan but not elsewhere. For firms cross-listed in the U.S. and audited by Japanese firms that are part of the Big Four audit networks (such as Aarata-PwC clients Toyota and Sony) stockholders are likely to be able to sue the Big Four parent in the U.S.

2004 until early 2007, when the decision that Misuzu would cease operations was taken. This allows us to separate the effects of audit reputation from those of switching: while it was likely clear early in this period that ChuoAoyama audits were tainted, leading to the prediction that those client firms that most valued audit quality most highly would defect to other auditors, the switch did not become inevitable until nearly three years later, when Misuzu actively began the process of transferring its clients to other audit firms. Third, we have direct evidence that auditor reputation played an important role in these events – the international PwC firm intervened quickly and forcefully when it became clear that ChuoAoyama's problems at Kanebo were going to attract the attention of investors and regulators in a significant way. It seems clear that the management of PwC worldwide perceived that its international reputation was at stake and was prepared to lose a big part of its Japanese business to preserve its reputation.[19]

We use several empirical approaches to assess the extent to which evidence from these events in Japan supports the importance of auditor reputation. First, we undertake an analysis of auditor changes during the period over which these events unfolded. If auditor reputation is important, we expect client firms to switch auditors when the incumbents are revealed to be of low quality. In this setting, we can examine the extent of client defections before, during, and after the suspension of ChuoAoyama. If auditor reputation is important, higher quality corporate clients should switch earlier in this sequence of events.

Second, unique to this setting, we analyze PwC's decision to transfer a small number (about 50) former ChuoAoyama clients to Aarata, while its other Japanese clients

[19] Interestingly, recent revelations that PwC was also involved in a highly-publicized accounting scandal at Satyam in India have again put strain on the firm's reputation for high audit quality.

stayed with Misuzu, the rebranded ChuoAoyama.[20] Managers of these remaining firms then chose whether or not to stay with Misuzu, meaning that there are three possible outcomes for ChuoAoyama clients: (i) switch away from PwC altogether, (ii) switch to Aarata, if that is available, (iii) remain with ChuoAoyama through its reincarnation as Misuzu. This analysis provides evidence on the types of clients that most value audit quality.

Third, we plan to use data on client firm accounting quality (i.e., earnings management/window dressing measures) to examine whether we can establish that ChuoAoyama was a "low quality" auditor in the years before these events. Alternatively, this evidence may establish that ChuoAoyama was indistinguishable from the other three main Japanese auditors, which would raise questions about the overall quality of the audit process in Japan, which has suffered from a number of accounting scandals in recent years and a perception that "window dressing" is pervasive.

Finally, for listed clients of ChuoAoyama, we undertake an event study analysis of the stock price reaction to events that led to the FSA's suspension of the firm. This analysis include tests of cross-sectional predictions (e.g., we expect the stock price reaction to be more adverse for those clients, like Sony and Toyota, for which high quality audits are relatively more valuable).

3. Empirical Analysis

Our empirical analysis consists of four sections. We first assess (Section 3.1) whether the clients of ChuoAoyama were different from those of other audit firms, which would indicate either a lower quality set of clients and/or clients that were more likely to

[20] Our understanding is that PwC gave certain clients the option of moving to Aarata rather than staying with ChuoAoyama/Misuzu. Thus, this analysis provides evidence on the joint decision of PwC management and the client firms themselves.

manage earnings. Second, we analyze changes in auditor market share (Section 3.2) to see whether evidence from auditor changes was consistent with the importance of auditor quality/reputation. Next, in Section 3.3, we analyze the determinants of ChuoAoyama's clients' decisions to change auditors: whether they moved to Aarata, moved to a different auditor entirely, or remained with Misuzu. Finally, Section 3.4 presents a conventional event study of these events.

3.1 Sample and Descriptive Statistics

We sample all firms listed on the First and Second Sections of the Tokyo Stock Exchange (TSE) in February 2008, a total of 2,199 firms. In addition, to mitigate possible survivor bias, we went back to the beginning of 2004 and added firms delisted from the TSE during this period, which increased the sample by about 200 firms. We identify the name(s) of these firms' external auditors from the audit reports that form part of the regular securities filings for Japanese firms (*yukoshoken hukoksho*) from fiscal 2002 through fiscal 2008.[21] Table 3 provides details of the number of firm/year observations available in this panel; there are approximately 2,000 firms available in each year F2001 through F2007.

We first provide descriptive statistics for the firm/year observations in our sample (Table 1) and compare the characteristics of firms audited by ChuoAoyama to those audited by other Japanese audit firms, including the other Big Five firms (Table 2). This comparison provides evidence on whether ChuoAoyama was a low quality auditor, either because it audited client firms with different attributes (perhaps riskier growth firms

[21] In Japan most companies have a March 31 fiscal year-end. We use the *Compustat* convention to label firm/years; for example, the fiscal year ended March 31, 2007 will appear as FY2006 in our data. Data on the external auditors of Japanese firms are not available from *Worldscope* or other commercially available databases and have to be hand collected from the Japanese language filings.

whose managers had greater incentives to manage earnings) or because it allowed managers of its client firms to report more aggressively (as indicated by various properties of their reported earnings) or both.

We use a number of independent variables in our analyses. Some are used as control variables while others are used to measure audit and/or earnings quality as it pertains to possible earnings management. We obtain Japanese firms' financial data from the sources indicated in Appendix B. Variable definitions are also presented in Appendix B. Firms in our sample have a mean (median) market capitalization of $1.6 billion ($254 million) and total assets of $5.9 billion ($542 million). Leverage (debt to total assets) is around .5 while mean (median) market-to-book is 1.5 (1.1), lower than for the typical U.S. firm. Mean (median) profitability is also generally lower than for U.S. firms – ROA is 2.7% (2.5%) while ROE is 5.1% (5.6%) although the fraction of losses is smaller (at around 10%; in some recent years 40% to 50% of U.S. firms report losses). Annual stock returns are about 13% (2%) at the mean (median) while dividend yields are 1% (1%). The relatively low profitability, valuation, and dividends of Japanese firms are consistent with the notion that Japanese firms are typically not run in the interests of stockholders, which manifests itself in poor corporate governance and a tradition of ineffective external auditing.

Some of these firms have business and financing links to western countries, which likely leads to a demand for higher audit quality. The mean (median) level of foreign ownership in these firms is 8% (4%), with foreign sales about 11% (0%) of overall sales. One percent of these firms are listed on U.S. securities exchanges, while 7% are listed in the U.S., including OTC markets.

We report a number of measures of these firms' earnings attributes designed to measure the quality of reported earnings (the extent to which earnings are managed). Following Leuz et al. (2003), we compute two measures of the magnitude of accruals, standardized by the magnitude of cash flows. One measure uses accruals as conventionally defined while the other measures total accruals. We also report the variability (standard deviation) of profitability, and the extent to which firms are able to report strings of positive annual earnings and increases in annual earnings (e.g., Myers et al., 2007).

To provide evidence on how, if at all, firms audited by ChuoAoyama differ from the clients of other audit firms, Table 2 provides univariate comparisons of these variables for ChuoAoyama audit clients, firms audited by other Big Five firms, and firms audited by non-Big Five firms. These comparisons are made for firm/years prior to F2004, and so predate the Kanebo allegations.

As we might expect, firms audited by ChuoAoyama and the other Big Five auditors are (statistically) significantly larger than firms audited by non-Big Five auditors but not significantly different from one another, which just says that the Big Five tend to audit larger firms. Similarly, market-to-book ratios are higher for firms audited by ChuoAoyama and the other Big Five firms [mean (median) of 1.4 (1.0) for both groups] than for the non-Big Five clients [mean (median) of 1.3 (.9)]. Leverage is not significantly different for the ChuoAoyama clients than for either of the other two groups while profitability is better for firms audited by ChuoAoyama and other Big Five firms than it is for clients of non-Big Five firms (ROA, ROE, and fraction of losses for ChuoAoyama clients are all significantly higher than for non-Big Five clients but

insignificantly different to those for other Big Five clients). Annual stock returns are much the same across all three groups of firms while dividends per share are marginally higher for clients of the other Big Five firms than for ChuoAoyama clients, which in turn have higher dividends than non-Big Five clients (means statistically different at 10%, medians at 5% or better). Foreign ownership, number of segments, and extent of U.S. listings are all higher for clients of ChuoAoyama and the other Big Five firms, as might be expected of larger firms. Firm age is higher for non-Big Five clients. Overall, this evidence shows that clients of ChuoAoyama are different along a number of dimensions to those of non-Big Five auditors, but largely similar to clients of other Big Five auditors.

Our earnings quality measures also look similar across each of the three groups, with few significant differences. Means and medians for both accrual measures are statistically indistinguishable across the groups, as are the two "string" measures (strings of positive net income and the change in net income). The variability of earnings, however, is higher for ChuoAoyama clients than clients of the other Big Five firms (means and medians are statistically significantly different at better than 1%) and much the same as earnings variability for non-Big Four client firms. This is hard to reconcile with greater earnings management if that is usually associated with smoother earnings.

Overall then, there is little evidence in Table 2 to suggest that ChuoAoyama clients are systematically different from clients of other Big Five auditors, while there is evidence that they differ from non-Big Four clients in ways we might expect (such as size, profitability, levels of foreign ownership, and listing in the U.S.). This conclusion is reinforced by (unreported) multivariate analyses of differences between ChuoAoyama clients and (i) clients of all other audit firms, and (ii) clients of other Big Five firms –

with the exception of earnings variability (which is significantly higher for ChuoAoyama firms), there are no statistically significant coefficients in these multivariate regressions.

3.2 Analysis of Market Share

We report the number of firms audited by the Big Five and non-Big Five in each year in Panel A of Table 3. The Big Five audit firms in Japan (with their affiliations to the Big Five audit networks worldwide) are Asahi (Andersen), AZSA (KPMG), ChuoAoyama/Misuzu/Aarata (PwC), ShinNihon (Ernst & Young), and Tohmatsu (Deloitte).[22] We do not have a full year of data for F2007 because our data end with the annual filings of March 31 firms and so exclude those firms with a F2007 year-end after March 31, 2008.

The data in Panel A of Table 3 show that, as is the case elsewhere in the world, there is a high degree of audit market concentration in Japan. Our data indicate that the Big Five audited 81.2% (by number) of sample firms in FY2001 and that this fraction stays largely the same through FY2007.[23] Market concentration is even greater when weighted by the size of client firms. The Big Five audit 93.6% of these firms by value in FY2001 and 92.1% in FY2007.

For each of the Big Five affiliates, Panel B of Table 3 provides a breakdown of market share by number of client firms while Panel C of Table 3 provides market share

[22] Even prior to the demise of Andersen (and the consequent demise of Asahi, its Japanese affiliate), Japan only had the Big Four because KPMG did not have a significant presence. KPMG AZSA was formed in January 2004 through a merger of Asahi and Azsa, which was in turn formed in 2003 from KPMG's Japanese practice.

[23] These numbers are consistent with those reported in previous studies of the Japanese audit market. Pong and Kita (2006) report that Asahi, ChuoAoyama, ShinNihon, and Tohmatsu together audited 85% of firms (by sales) on the First Section of the TSE in 2000. Suzuki (1999) indicates that the largest five firms at the time of his study were (in no particular order): Asahi, Century, Chuo, ShowaOta, and Tohmatsu. ShowaOta and Century subsequently merged (in 2000) to form Century Ota Showa which then merged with other firms in 2004 to form ShinNihon. Taylor (1997) reports that these same five firms plus Aoyama had 78% of the audit market in 1994.

based on the size of client firms. These tables show that in the first two years of our sample period (F2001 and F2002), four firms dominate the market – Asahi (with around 17% of the total market), ChuoAoyama and Tohmatsu (each with around 20%), and ShinNihon (24%). There is a shift in F2003, during which Asahi combined with Azsa to form AZSA, such that AZSA (KPMG) essentially replaces Asahi (Andersen) in the Big Five. In this year, AZSA had 17% of the market while ChuoAoyama and Tohmatsu had 21% and 20% respectively and ShinNihon held 23%. These percentages stay much the same in F2004.

The problems at Kanebo (and hence ChuoAoyama) first came to light in 2004, when Kanebo announced an internal investigation due to suspicion of fraud (April 2004) and dropped ChuoAoyama as its auditor (July 2004). However, the problems became more serious in the middle of 2005, when executives from Kanebo and auditors from ChuoAoyama were arrested and the audit firm's offices were searched by Government prosecutors (in July and September of 2005). This means that any switching away from ChuoAoyama should begin in F2005, for which audits were being finalized in the spring of 2006. We see no evidence of this. ChuoAoyama's number of clients stays essentially unchanged in FY2005 (declines by two, from 471 to 469).[24]

The market share numbers for F2006 more clearly reflect the reputational effects of the events at ChuoAoyama. The suspension of ChuoAoyama (for July and August of 2006) was announced by the FSA in May 2006. It was during this period that the old ChuoAoyama became Misuzu and a select group of clients transferred to Aarata (which

[24] This conclusion does not change if we instead view the first revelations of the seriousness of the Kanebo problems (and the associated implications for audit quality at ChuoAoyama) as occurring in F2004, when Kanebo first announced an internal investigation into possible fraud and dropped ChuoAoyama as its auditor (these events occurred in the spring and summer of 2004); the number of firms audited by ChuoAoyama increases modestly from F2003 to F2004.

officially began business on July 1). In F2006 Misuzu has 303 clients and Aarata has 52. The combined total of 355 is 114 shy of the number audited by ChuoAoyama in F2005, implying that a significant number of firms began to move away from ChuoAoyama as these events unfolded. The other Big Four firms were the primary beneficiaries of this movement (from F2005 to F2006 AZSA gained 33 clients, ShinNihon gained 41 clients, and Tohmatsu gained 19 clients, with non-Big Five firms gaining 11 clients). Given the lead time necessary to complete an audit, and the fact that the decision to terminate Misuzu was not taken until late in F2006 (in February 2007), it seems reasonable to interpret the F2006 audit changes as a response to concerns about audit quality for ChuoAoyama, rather than as being forced by the termination of Misuzu (which continued to operate until the end of July 2007 to finalize F2006 audits).[25]

The F2006 to F2007 audit changes away from Misuzu are forced by its closure and are unlikely to reflect reputational concerns.[26] Thus, there are three types of former ChuoAoyama client firms, defined by how they reacted to the events related to that firm's failed audit at Kanebo: (1) those clients that switched to Aarata (there are 52 such firms); (2) those clients that chose to move away from PwC Japan altogether, presumably because of concerns about that firm's ability to deliver sufficient audit quality (there are 114 such firms), and (3) those clients that chose to remain with ChuoAoyama/Misuzu until they were ultimately forced to switch (there are 303 such firms). In Section 3.3,

[25] During F2006 many firms that used Misuzu as their auditor also listed an additional auditor for the year (i.e., they had dual auditors). This supports our interpretation that the 303 firms that remained with Misuzu for F2006 intended to stay with the firm in spite of the decline in that firm's perceived audit quality. Our understanding is that Japanese companies must have an external auditor under contract on a continuous basis, so those firms that wished to stay with Misuzu hired an additional auditor for the period of the suspension.

[26] Twelve client firms remained with Misuzu in F2007. Presumably, these are firms with fiscal years that end after March 31 for which the F2007 year-end concludes in calendar 2007 so that Misuzu could complete the F2007 before it shut its doors on July 31 of that year.

we compare these firms to see whether differences in their characteristics are consistent with our interpretation that these decisions are driven by audit quality considerations.

Panel D of Table 3 reports on how client turnover at ChuoAoyama/Misuzu compares to that for other auditors. This panel reports general data on audit turnover for all of the years in our sample (the numbers start in F2002 because we are looking at changes). In all six years of our sample period audit turnover for the Big Five in Japan is low, ranging from 0.6% in F2004 to 2.5% in F2003 with most years around 1%.[27] The rate of turnover is noticeably higher for non-Big Five auditors, at around 8% for F2002, F2004 and F2005, and 10% for F2006 and F2007. The numbers for ChuoAoyama for F2002-F2005 inclusive are comparable to those for other Big Five auditors, at 1%-2%. However, there is a very substantial increase, to 23.6%, in F2006, consistent with the data reported above. This number is clearly unusually large relative to Japanese norms, and is consistent with a very strong move away from ChuoAoyama as its problems became more evident. The number for ChuoAoyama in F2007 is much higher again, at 91.9%, but this is due to the winding up of the firm and so is forced turnover.

By F2007, when the audit changes forced by the termination of Misuzu had largely occurred, the market share attributable to the remaining Big Five firms (now the Big Three plus Aarata) was 81.3% (by number, see Panel B of Table 3), only marginally below the peak for our sample period of 83.8% in F2005. If we exclude Aarata, this fraction falls only slightly, to 78.6%, meaning that the Big Three now dominate Japan's audit market, with one firm (ShinNihon, with 31.6%) having the largest share. As before, if we look at the size-weighted shares reported in Panel C of Table 1, the concentration is

[27] This rate seems lower than that for auditors in the U.S. Based on numbers reported in Landsman et al. (2006), the rate for U.S. firms over 1993-2001 is 4.5%.

even more pronounced, with 92.1% of total TSE market capitalization audited by the Big Three + Aarata, only slightly below the peak of 95.3%, with 83.6% audited by the Big Three alone (the dominant firm is now KPMG, which audits 31.0% of total capitalization). Whether this high level of concentration is problematic (either from a competitive standpoint or from a "too big to fail" standpoint) is unclear. However, to the extent we can generalize beyond Japan, this result implies that a failure of another of the Big Four auditors will see further market concentration, perhaps because audit firms outside this group do not have the scale, expertise, or quality required to be effective substitutes for the Big Four.

To provide a more formal analysis of whether the auditor changes away from ChuoAoyama during F2006 are unusual, which would strengthen our interpretation that these changes are driven by reputational concerns, we next estimate a logit model of the factors that explain auditor changes for our sample. We have a sample of 13,070 firm/year observations for which we have auditor and other relevant data for the current and prior years (necessary to compute the auditor changes). The control variables are drawn from previous research such as DeFond (1992), Francis and Wilson (1988), and Weber et al. (2008); thus, we explain auditor changes as a function of firm size (log of total assets), change in firm size (percentage change in total assets), leverage, change in leverage, profitability (ROA), a loss dummy, as well as industry fixed effects. We include a dummy variable for whether the client switches away from ChuoAoyama in F2006 as well as a dummy for whether the client switches away from ChuoAoyama before F2006.[28] The former variable is the variable of interest because it measures the

[28] We exclude the changes away from ChuoAoyama/Misuzu after F2006 because these switches are mostly forced by the decision to shut down Misuzu.

extent to which client firms switch away from ChuoAoyama in F2006, consistent with auditor reputation playing an important role in the switch.

We report the results of the auditor change logit regressions in Table 4. In the first estimation a change from ChuoAoyama to either Misuzu or Aarata is not considered a change (since they are all PwC affiliates) while in the second estimation we consider firms that moved from ChuoAoyama to Aarata to have changed auditors. The results show that firms are more likely to change auditors when they are smaller, growing more rapidly (as measured by the percentage change in total assets), and are less profitable. All of these relations are significant at the 5% level under two-tailed tests.

The results also support the prediction that the likelihood of an auditor change is higher in F2006 when ChuoAoyama was the incumbent auditor. The coefficient on this variable is highly significant (t = 34.6) and substantially larger than that for ChuoAoyama changes in prior years, although the coefficient on that variable is also positive and highly significant (t = 6.23). The marginal effect on the ChuoAoyama/FY2006 dummy is .63, which indicates that the probability of an auditor change increases by .63 in this situation. In contrast, the marginal effect on the CA dummy for prior years is only .03, indicating a much more modest effect.

These results are stronger than those reported in previous research (for example, we report a pseudo-R squared of 24.1% compared to 3.7% for Weber et al., 2008, and substantially larger marginal effects on the key variable of interest) and are largely unaffected when we treat firms that move to Aarata as having switched auditors. They support the notion that there was an unusually high likelihood of switching away from

ChuoAoyama during F2006 when doubts about the quality of that firm's audit practice manifested themselves in a significant way.

3.3 Determinants of auditor outcome for former ChuoAoyama clients

Section 3.2 shows that the original set of ChuoAoyama clients can be divided into three groups based on their subsequent auditor choices. The first group is the set of client firms that move from ChuoAoyama to Aarata when that firm was formed in mid-2006 (we refer to these as "Aarata" firms). These firms were selected (or chose) to switch to Aarata because of PwC's commitment to providing high quality audits through the new firm. There are at least two explanations for these changes: (i) PwC encouraged these firms to move to Aarata because it wished to maintain the client relationship given the size/visibility of these clients; (ii) these are firms for which audit quality is especially important, perhaps because of their size/visibility or links to overseas (foreign sales, investors, listings, or some combination thereof).

The second group is the set of client firms that switches to a different auditor before the end of F2006 after it became clear that there were serious questions about the quality of ChuoAoyama audits ("Change" firms). These may be firms that value audit quality but for which Aarata was not an option (our understanding is that Aarata was only available to a subset of ChuoAoyama clients) or that decided to move completely away from PwC. The third group is the set of firms that chose to remain with ChuoAoyama through its suspension and rebirth as Misuzu ("Misuzu" firms). These are likely to be firms for which audit quality is not all that important and/or whose managers valued the opportunity to make opportunistic accounting choices.

To get a sense for whether these explanations are plausible, Table 5 provides a comparison of the three groups of firms. Perhaps not surprisingly, the Aarata firms are substantially larger than those in both of the other two groups, while the Change firms are larger than the Misuzu firms. The mean (median) market capitalization for the Aarata firms is $5.1 billion ($863 million) compared to $1.7 billion ($516 million) for the Change firms and $1.3 billion ($288 million) for the Misuzu firms. All differences are statistically significant at the 5% level except for the difference in means between the Change and Misuzu firms. Corresponding numbers for total assets are $11.9 billion ($1.5 billion), $4.1 billion ($728 million), and $3.1 billion ($485 million), respectively; the same comment applies with regard to statistical significance. The fact that the size of the three groups differs in this way is consistent with a positive association between client firm size and audit quality.

The next variable, the market-to-book ratio, is higher for the Change firms than for either of the other two groups, although only differences relative to the Misuzu group are statistically significant [the mean (median) market-to-book ratio is 1.97 (1.33) for the Change firms, compared to 1.54 (1.14) for Misuzu firms and 1.70 (1.25) for Aarata firms]. Thus, there is some evidence that firms with more growth prospects prefer higher quality auditor than other firms.

There is little evidence of differences for most of the other variables, including those related to earnings management, apart from variables related to foreign ownership, U.S. securities listing, and foreign sales. Mean (median) foreign ownership is 12.6% (7.8%) for the Aarata firms, 9.6% (5.5%) for the Change firms, and 7.3% (3.9%) for the Misuzu firms, with some of the differences significant at the 5% level. The mean

overseas sales ratio demonstrates the same type of relation, as does U.S. listing. 14% of the Aarata firms, 10% of the Change firms, and 4% of the Misuzu firms have some type of U.S. listing (including OTC). This suggests that international operations and/or capital raising makes high quality auditing important, as we might expect.

To investigate these arguments more formally, we estimate an ordered logit model of ChuoAoyama client firms' auditor decisions. The dependent variable in this regression is coded 2 for Aarata firms, 1 for Change firms, and 0 for Misuzu firms. We report the results of two specifications of this model in Table 6. In both cases the results are fairly easy to characterize: the coefficients on firm size and market-to-book are both positive and significant while that on leverage is significant in one of the two specifications. This says that larger firms and firms with relatively higher market valuations were more likely to switch away from ChuoAoyama to higher quality alternatives. Variables that capture these firms' foreign operations and U.S. listing are not significant once size and market-to-book are controlled for (larger firms are more likely to have foreign operations, investors, and listings). No other variables are significant.

3.4 Event study analysis

We follow previous studies that also analyze the market reaction to events associated with changes in the market's expectations about an auditor's quality or ability to survive as a going concern (e.g., Menon and Williams, 1994; Baber et al., 1995; Chaney and Philipich, 2002; Weber et al., 2008). These studies typically attribute a decline in client firm equity values to either a decline in the value of the auditor's insurance role, a decline in audit quality, the costs of switching costs auditors, or some

combination thereof. Because there is no significant litigation risk for auditors in Japan, any abnormally negative returns to ChuoAoyama client firms at the time events related to ChuoAoyama's role in the Kanebo fraud came to light are likely due to changes in expectations about audit quality for ChuoAoyama.

Similar to previous research, to address cross-sectional correlation among the contemporaneous daily returns of the ChuoAoyama client firm stocks, we form a portfolio of these firms and estimate a multivariate regression model or MVRM (Bernard, 1987; Schipper and Thompson, 1983). The MVRM methodology is essentially a GLS procedure that first estimates the variance-covariance matrix by estimating the regression below using OLS separately for each firm in the portfolio. One of the tradeoffs in using this approach is whether small sample estimation results in sufficiently precise estimates of residual variances and covariances and so coefficient standard errors. The regression model that we estimate is as follows:

$$Return_t = \alpha_0 + \beta_1 Return_{\text{TSE INDEX, t}} + \theta_k Event_{k,t} + \varepsilon_t \qquad (1)$$

$Return_t$ is the return on day t to an equally-weighted portfolio of ChuoAoyama client firms,

$Return_{\text{TSE INDEX, t}}$ is the return on the TSE Topix index for day t, and

$Event_{k,t}$ is a dummy variable that turns on during the three trading day window centered on each of the 13 events, k = 1…13.

We estimate this equation for each of the events individually as well as for the combined set of events, and report the results of these regressions in Table 7. We use a *Factiva* search over the relevant period to identify 13 event days as containing potentially significant information about the Kanebo fraud and ChuoAoyama's role therein.

We list these events in Appendix A. As is always the case in such studies, to the extent that we have missed events or the information in these events is anticipated by market participants, our tests may fail to detect an effect. For example, if events prior to the emergence of the Kanebo fraud in early 2004 revealed that ChuoAoyama was a low quality auditor, the power of our tests is reduced.[29]

The results in Table 7 provide little evidence of any significant effect on these event dates. The coefficients on the event dummies are small and insignificant for 12 of the 13 events. The only exception is event 11 (when PwC sent a crack team of auditors from the U.S. and U.K. to address the problems at ChuoAoyama) which shows a statistically significant negative return of -0.86% (t = -3.51). However, there is no *a priori* reason why this event should be more important than any other. When we combine these events, the overall event dummy is -0.14% (t = -1.90) which provides only weak support for the hypothesis. As a robustness check, we also perform these tests using returns to a portfolio of returns to all non-PwC clients in our sample as the benchmark rather than the market index returns (not reported in tables). Here we see some modest evidence of negative effects, with statistically significant negative returns for events 3 (when Kanebo announced that its internal investigation had uncovered evidence of fraud) and 9 (when three ChuoAoyama audit personnel are indicted on charges related to the fraud, the firm's partners stepped down, and the FSA announced that it would be imposing a penalty). Overall though, there is little evidence that any of these events is associated with abnormal event performance.

[29] This is possible because ChuoAoyama audited both Ashikaga Bank (which failed in November 2003 and was subsequently accused of reporting fraudulent earnings in 2000) and Yamaichi Securities (which failed in the late 1990s).

To further validate this conclusion, Figure 1 presents the cumulative difference in returns between the portfolio of ChuoAoyama clients and the portfolio of sample firms that are not ChuoAoyama clients. This figure addresses the possibility that our event study analysis fails to correctly identify when the market learned of the lower audit quality associated with ChuoAoyama, and so investigates whether over the full period of approximately three years these firms underperform their peers. Figure 1 provides little evidence that the ChuoAoyama client firms systematically underperformed their peers over this period. There is some evidence of outperformance over the first part of the period and underperformance during the second part of the period but the magnitudes are small (about 2% over year) and not obviously tied to any of the events of interest. Perhaps the strongest evidence that ChuoAoyama client firms underperform is in two subperiods: (1) there is an decline of around .75% between Sept. 2005 and early Oct. 2005, which roughly corresponds to when the ChuoAoyama auditors were arrested, its partners stepped down, and the FSA announced that it would impose sanctions; and (2) there is a decline of around 1% in May 2006, the month during which the suspension was announced by the FSA. Overall, then, there is only weak evidence of a decline in audit quality that imposes costs on the ChuoAoyama client firms.

This evidence suggests that the ChuoAoyama client firms overall do not suffer significant costs as a result of the apparent decline in audit quality for ChuoAoyama. One possible explanation for this is simply that auditing generally is of lower quality in Japan, so there is no quality premium in stock prices to begin with. Our understanding is that auditing traditionally has not been viewed in the same way that it is in Western countries. For example, auditing is not considered to be a profession in Japan, external

auditors are typically seen by management as another supplier to the company and so generally do not get access to top management during the audit, and auditing is seen as much less adversarial, with audit personnel typically reluctant to challenge or question client accounting. Audit relationships tend to be very longstanding and are regarded as cooperative rather than adversarial. If this is the case, then any decline in audit quality may only occur for those firms for which audit quality is the most valuable.

To investigate this possibility, we also estimate cross-sectional regressions that use the abnormal returns associated with the events described above (i.e., the total return aggregated across the 13 events) as the dependent variable. In particular, we regress these abnormal returns on a set of firm characteristics likely to be associated with audit quality in the cross-section. We estimate these regressions using the Sefcik and Thompson (1986) method, which accounts for cross-correlation among the residuals.

We use the following firm characteristics to proxy for the importance of audit quality in these regressions: (i) firm size (for both demand and supply reasons, larger firms are likely to have higher audit quality); (ii) leverage (firms with higher leverage may demand higher audit quality given their relatively large agency costs of debt); (iii) market-to-book (firms with relatively more growth options and/or higher growth rates are likely to have larger agency costs), (iv) profitability (negatively associated with managers' incentives to make opportunistic accounting choices), (v) firm age, (vi) U.S. exchange listing, foreign ownership, proportion of overseas sales (there are arguments on both the audit demand and supply side to expect that firms that do more business outside of Japan and/or that list their securities in the U.S. are likely to have higher quality auditing), (vii) variability of earnings/cash flows. We also include dummy variables for

whether the firm was a ChuoAoyama client that moved to Aarata (for which the demand and supply arguments would predict higher audit quality) and whether it was a ChuoAoyama client that left the firm "early" (during or before F2006). In both cases we expect negative coefficients if these are the firms for which audit quality is higher.

We report the results of these regressions in Table 8. The results are largely consistent with those in Table 7: there is little or no evidence to support the prediction that client firms with higher audit quality suffered more negative stock price reactions to the events that revealed that ChuoAoyama was a low quality auditor. Most of the coefficients on these variables are small and insignificant, including those on the Aarata and "early" switchers dummy variables, where we might expect to see the strongest results.

Overall then, the results of our event study analyses provide little evidence that the former clients of ChuoAoyama suffered any material decline in equity value, either at the event dates that we identify or more generally during the period over which these events unfolded. Moreover, there is no evidence that declines occurred for subsets of these firms for which audit quality is most likely to be important. The event study evidence then is inconsistent with the argument that a reputation for audit quality matters for equity valuation in Japan.

4. Summary and Conclusions

In the spring of 2006, the Japanese FSA took the unprecedented step of suspending the operations of ChuoAoyama, the PwC affiliate in Japan, for two months as a result of its role in a major accounting fraud at Kanebo. Even before the suspension was announced, PwC had taken its own actions to address the apparent shortcomings of

its Japanese unit. First, it brought in high level personnel from overseas to revamp ChuoAoyama's audit procedures. Second, it introduced a new Japanese affiliate (Aarata), to which it transferred a select group of its larger Japanese clients. Moreover, when, after the suspension was lifted and ChuoAoyama began business under the name Misuzu, two additional fraud cases came to light, PwC quickly shut down Misuzu's operations, thus ceding a large amount of its Japanese franchise to competitors.[30] These actions make it clear that PwC viewed the problems at ChuoAoyama as a major issue for the international firm, and provide strong evidence of the importance of an auditor's reputation for quality.

We use these events to provide evidence on the importance of audit quality and reputation. Previous studies using U.S. data have trouble gauging the relative importance of the two principal factors hypothesized to drive audit quality: (i) an auditor's incentive to maintain a reputation for delivering quality audits, and (ii) the possibility that auditors are subject to potentially very large legal liabilities for apparently defective audits.[31] Because there is effectively no litigation in Japan, the insurance role can be ruled out. Consequently, similar to Weber et al.'s (2008) analysis of the effect of the ComROAD scandal on the German audit market, we focus on whether the events around the Kanebo scandal in Japan support the importance of auditor reputation.

Our evidence on this score is somewhat mixed. First, we are unable to provide any evidence that ChuoAoyama was a "low quality" auditor: we find that the financial characteristics and financial reporting quality of its clients looked similar to those of the

[30] It is not entirely clear whether the decision to shut down Misuzu was taken by top management at PwC internationally or by local management who saw the demise of the firm as inevitable in light of client departures that it felt would likely accompany the additional fraud cases.
[31] See Weber et al. (2008) for a recent summary of the evidence and citations to much of the recent literature.

other Big Five auditors in the years before the Kanebo scandal. Thus, there is little evidence to support the view that ChuoAoyama was willing to trade off audit quality to grow its business, as some commentators claim. Second, in contrast to much prior research, our event study evidence does not support the view that the series of events that revealed the seriousness of the audit failure at Kanebo tainted ChuoAoyama's other audit clients, even those for which quality is likely to be important.[32]

On the other hand, we find strong evidence that a significant number of ChuoAoyama's clients left the firm for other auditors as the seriousness of ChuoAoyama's problems came to light. We show that the rate of auditor turnover at ChuoAoyama in F2006, well before it was likely to be shut down but after serious questions about its quality had been raised, was substantially higher than would otherwise be expected, consistent with clients leaving once the firm's reputation for quality was seriously diminished. This result holds after we condition on other factors that the literature identifies as explaining audit turnover. These departures are in addition to those clients that moved to Aarata. Apart from size and market-to-book ratio, however, client firms that switched auditors look much the same as those that did not switch; i.e., we cannot explain cross-sectional variation in the switching decision as a function of proxies for the importance of audit quality, although this task is complicated because such proxies (foreign ownership, U.S. listing, foreign sales, etc.) may be subsumed by size and market-to-book, clouding our interpretations.

[32] It could be that our event study analysis lacked power. For example, ChuoAoyama had been involved with two other accounting frauds in the years before the fraud at Kanebo was revealed. Alternatively, our search of the English language business wires and financial press over this period may have failed to uncover significant events that appeared only in Japanese language sources.

These events also have implications for the recent debate on how the audit market might evolve if one of the remaining Big Four was wiped out, perhaps by a catastrophic event similar to that which befell Andersen. This is essentially what happened to PwC in Japan (even though Aarata, its smaller boutique operation, survived), where its business was principally divided among the remaining Big Three, which raises questions about whether lower tier audit firms are viable substitutes for the Big Four around the world.

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Appendix A: Significant events in the Kanebo/ChuoAoyama scandal, including events used in event study analysis.

	Date	Event
Event 1	4/19/2004	First news that Kanebo is going to conduct an internal probe due to suspicion of fraud.
Event 2	7/9/2004	Kanebo changes auditor. Drops CA and takes on Tohmatsu.
Event 3	10/29/2004	Kanebo reports that the preliminary internal investigation has found fraud. Investigation continues.
Event 4	11/26/2004	SESC launches Kanebo investigation
	3/31/2005	**End of Fiscal 2004**
Event 5	4/16/2005	Results of fraud investigation announced by Kanebo. Will restate last five years of financial statements
Event 6	7/29/2005	Two former Kanebo executives are arrested. CA offices are searched.
Event 7	9/12/2005	Three auditors from CA are arrested.
Event 8	9/19/2005	Top executives from CA are questioned by prosecutors.
Event 9	10/3/2005	CA partners step down. Three CA auditors indicted. FSA indicates it will impose penalties on CA.
Event 10	11/10/2005	Kanebo executives plead guilty to fraud
Event 11	2/20/2006	PwC sends team of auditors from U.K. and U.S. to revamp ChuoAoyama
	3/31/2006	**End of Fiscal 2005**
Event 12	5/9/2006	CA suspension announced.
	7/1/2006	Aarata commences operations; FSA suspension begins for ChuoAoyama/Misuzu
	8/31/2006	Suspension ends; ChuoAoyama resumes operations as Misuzu
Event 13	2/20/2007	Misuzu announces that it will cease operations
	3/31/2007	**End of Fiscal 2006**

Appendix B: Variable definitions

The table provides definitions and data source for all the variables used in the subsequent tests.

Variable Name	Definition	Source
Market cap	Market value of equity in USD Millions	Worldscope
Sales	Total sales in USD Millions	Worldscope
Total Assets	Total assets in USD Millions	Worldscope
Ln(Assets)	Natural log of Total assets	Worldscope
Market to Book	Market value of equity/book value of equity	Worldscope
Leverage	Long term debt divided by total assets	Worldscope
Net Income	Net income in USD Million	Worldscope
ROA	Net Income divided by total assets	Worldscope
ROE	Net Income divided by book value of equity	Worldscope
Loss	Indicator variable that takes the value 1 if Net income is less than zero and 0 otherwise	
Annual returns	Fiscal year stock returns	Datastream
Dividends per share	Dividend per share in USD	Worldscope
Dividend yield	Dividend per share divided by share price at the end of the fiscal year	
Foreign ownership	Percent ownership of the firm's equity by foreign entities	Japan Company Handbook, All volumes, 2004
Overseas sales ratio	Ratio of sales outside Japan to total sales expressed in percentage	Japan Company Handbook, All volumes, 2004
Number of segments	Number of distinct divisions for which share of total sales are reported.	Japan Company Handbook, All volumes, 2004
Firm Age	Age since the firm was founded.	Japan Company Handbook, All volumes, 2004
US Exchange Listing	Listing on NYSE, Nasdaq and American Stock Exchange	Citibank ADR database
US Any Listing	All US listings including through stock exchange, portal and the OTC.	Citibank ADR database
Accrual Quality 1	Absolute value of accruals divided by absolute value of cash flow from operations where Accruals are defined as Accruals = (ΔCA – ΔCash) – (ΔCL – ΔSTDebt – ΔTaxPayable) – Depreciation. Lower values of the measure indicates higher information quality.	Worldscope

Variable Name	Definition	Source
Accrual Quality 2	Absolute value of total accruals divided by absolute value of cash flow from operations. Total accruals are defined as = (ΔTotalAsset – ΔTotalLiability) – ΔCash. Lower values of the measure suggests higher information quality.	Worldscope
Std Dev ROA	Standard deviation of ROA between 1990 - 2005 subject to a minimum of 9 years of data being available. For firms with less than 9 years of available data the measure is not computed.	Worldscope
Std Dev ROE	Standard deviation of ROE between 1990 - 2005 subject to a minimum of 9 years of data being available. For firms with less than 9 years of available data the measure is not computed.	Worldscope
String Positive NI	The maximum of the number of years that the firm has consecutive increases in Net Income scaled by total number of years for which Net Income data are available between 1990 and 2005 subject to minimum of 9 observations. For firms with less than 9 years of available data the measure is not computed.	Worldscope
String Positive DNI	The maximum of the number of years that the firm has consecutive increases in change in Net Income scaled by total number of years for which changes in Net Income data are available between 1990 and 2005 subject to minimum of 9 observations. For firms with less than 9 years of available data the measure is not computed.	Worldscope
Industry	Industry affiliation of the company based on industry classification provided by Tokyo Stock Exchange Listing Database.	Tokyo Stock Exchange
TSE index	The Tokyo Stock Price Index (TOPIX) is a composite index of all common stocks listed on the first section of the Tokyo Stock Exchange.	Datastream

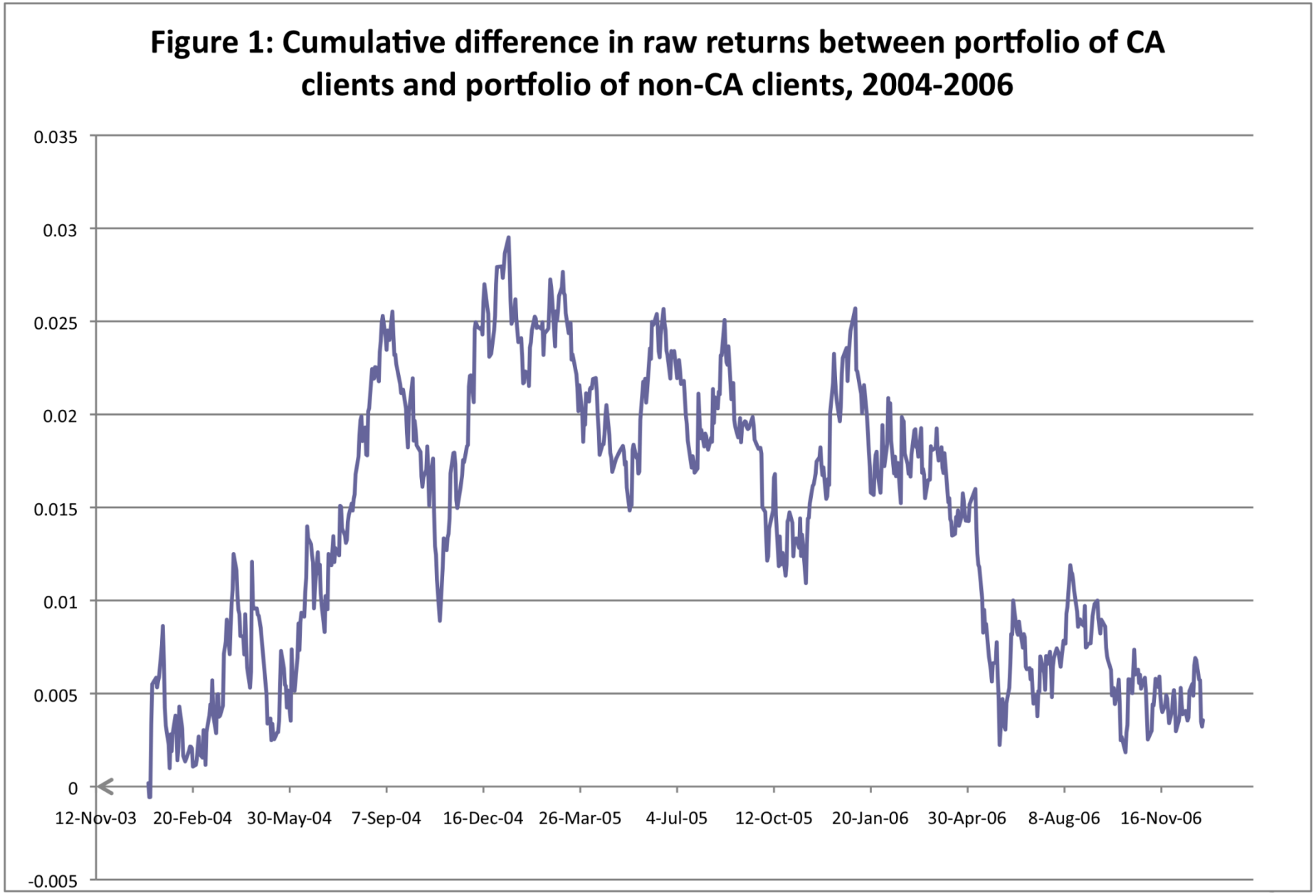
Figure 1: Cumulative difference in raw returns between portfolio of CA clients and portfolio of non-CA clients, 2004-2006
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
-0.005
12-Nov-03
20-Feb-04
30-May-04
7-Sep-04
16-Dec-04
26-Mar-05
4-Jul-05
12-Oct-05
20-Jan-06
30-Apr-06
8-Aug-06
16-Nov-06

Table 1
Descriptive statistics for full sample of Tokyo Stock Exchange firms with available auditor data, F2001-F2007

	Mean	Median
Market cap	1597.81	254.76
Sales	2355.90	523.13
Total Assets	5942.30	541.97
Market to Book	1.51	1.10
Leverage (LTD/TA)	0.55	0.55
Net Income	62.94	10.92
ROA (%)	2.71	2.47
ROE (%)	5.06	5.64
Loss (If NI<0)	0.15	0.00
Annual returns	0.13	0.02
Dividends per Share	1.05	0.08
Dividend Yield	0.01	0.01
Foreign ownership (%)	8.25	3.95
Overseas sales ratio (%)	11.25	0.00
Number of Segments	3.61	3.00
Firm Age	54.90	56.00
US Exchange Listing	0.01	0.00
Any US Listings (incl. OTC)	0.07	0.00
Accrual Quality 1 - Abs(Accruals)/Abs(CFO)	2.70	0.62
Accrual quality 2 - Abs(Total Accruals)/Abs(CFO)	5.43	1.02
Std Dev ROA	2.34	1.93
Std Dev ROE	8.52	5.46
String Positive NI	0.65	0.65
String Positive DNI	0.22	0.20

See Appendix B for variable definitions and data sources.

Table 2

Comparison of clients of Chuo Aoyama, other Big Five auditors, and non-Big Five auditors for fiscal years prior to 2004

Values in USD Millions	*CA*			*Other Big Five*			*Non-Big Five*			*p-value diff in mean*	*p-value median-diff*	*p-value mean*	*p-value median*
	N	Mean	Median	N	Mean	Median	N	Mean	Median	CA vs. Other Big FIve	CA vs. Other Big FIve	CA vs. Non-Big Five	CA vs. Non-Big Five
Market cap	1312	1527.5	195.5	3830	1321.1	212.1	1145	424.1	117.5	0.23	0.29	0.00	0.00
Sales	1351	2399.2	453.9	3945	2365.9	519.0	1163	851.5	350.1	0.90	0.12	0.00	0.00
Total Assets	1351	5318.4	513.9	3944	6382.4	541.3	1163	1176.7	406.3	0.43	0.31	0.00	0.00
Market to Book	1317	1.45	1.00	3847	1.37	0.99	1146	1.26	0.85	0.12	0.57	0.00	0.00
Leverage (LTD/TA)	1351	0.58	0.59	3944	0.57	0.58	1163	0.57	0.57	0.52	0.49	0.40	0.35
Net Income	1351	25.75	6.43	3944	21.06	7.59	1163	8.23	4.04	0.79	0.04	0.32	0.00
ROA (%)	1328	2.03	1.78	3882	2.14	1.96	1149	1.31	1.48	0.42	0.11	0.00	0.00
ROE (%)	1315	2.86	4.08	3848	3.50	4.45	1138	1.11	3.11	0.16	0.07	0.00	0.00
Loss (If NI<0)	1351	0.21	0.00	3944	0.19	0.00	1163	0.25	0.00	0.10	0.10	0.02	0.02
Annual returns	1282	0.21	0.06	3746	0.19	0.04	1124	0.20	0.05	0.24	0.64	0.70	0.98
Dividends per Share	1338	0.50	0.06	3900	0.82	0.07	1155	0.31	0.05	0.09	0.05	0.10	0.00
Dividend Yield	1306	0.01	0.01	3822	0.01	0.01	1138	0.01	0.01	0.90	0.60	0.23	0.11
Foreign ownership (%)	459	8.29	4.20	1321	9.00	4.80	382	6.19	2.00	0.23	0.08	0.00	0.00
Overseas sales ratio (%)	458	10.71	0.00	1321	11.99	0.00	382	10.39	0.00	0.23	0.20	0.80	0.81
Number of Segments	459	3.65	4.00	1321	3.69	3.00	382	3.37	3.00	0.60	0.70	0.00	0.00
Firm Age	1394	51.39	54.00	4030	52.83	53.00	1188	58.75	56.00	0.26	0.90	0.00	0.00
US Exchange Listing	472	0.01	0.00	1345	0.02	0.00	384	0.00	0.00	0.74	0.74	0.02	0.02
US Listings (incl. OTC)	472	0.08	0.00	1345	0.08	0.00	384	0.02	0.00	0.77	0.77	0.00	0.00
Accrual Quality 1 - Abs(Accruals)/Abs(CFO)	832	1.85	0.68	2480	3.01	0.68	656	7.58	0.74	0.60	0.61	0.22	0.17
Accrual quality 2 - Abs(Total Accruals)/Abs(CFO)	918	5.09	1.24	2734	5.88	1.22	719	5.11	1.27	0.80	0.20	0.99	0.46
Std Dev ROA	1201	2.48	1.97	3463	2.24	1.90	1091	2.51	1.97	0.00	0.00	0.60	0.68
Std Dev ROE	1201	9.02	5.89	3463	8.14	5.29	1091	9.45	5.58	0.00	0.00	0.24	0.89
String Positive NI	1201	0.63	0.59	3463	0.67	0.65	1091	0.61	0.59	0.00	0.60	0.16	0.19
String Positive DNI	1078	0.22	0.20	3099	0.22	0.21	995	0.21	0.19	0.06	0.07	0.02	0.08

Table 3
Market Share Analysis of Japanese Audit Market, F2001-F2007

Panel A: Distribution of clients across time.

Big 5 refers to Big Five audit firms (with their affiliations to the Big Five audit networks worldwide) are Asahi (Andersen), AZSA (KPMG), ChuoAoyama/Misuzu/Aarata (PwC), ShinNihon (Ernst & Young), and Tohmatsu (Deloitte). Non Big 5 are all other audit firms. Size of clients is measured by market capitalization at the end of the fiscal year.

Fiscal year	*Big 5*	*Big 5 % by Number of clients*	*Big 5 % by Size of client*	*Non Big 5*	*Non Big 5 % by Number of clients*	*Non Big 5 % by Size of client*	*Total*
2001	1,565	81.2%	93.6%	363	18.8%	6.4%	1,928
2002	1,757	82.0%	93.4%	386	18.0%	6.6%	2,143
2003	1,820	82.1%	93.6%	396	17.9%	6.4%	2,216
2004	1,852	82.9%	94.4%	382	17.1%	5.6%	2,234
2005	1,872	83.8%	95.1%	361	16.2%	4.9%	2,233
2006	1,857	83.3%	95.3%	372	16.7%	4.7%	2,229
2007	1,544	81.3%	92.1%	356	18.7%	7.9%	1,900
Total	12,268	82.4%	94.1%	2616	17.6%	5.9%	14,884

Panel B: Time series distribution of number clients across the Big 5 auditors.

Fiscal year	*Arata*	*Asahi*	*Azsa*	*Chuo Aoyama*	*Misuzu*	*Shin Nihon*	*Tohmatsu*	*Non Big*
2001	0	324	0	396	0	465	380	363
2002	0	348	4	452	0	515	438	386
2003	0	12	373	464	0	518	453	396
2004	0	0	395	471	0	525	461	382
2005	0	0	410	469	0	532	460	361
2006	52	0	443	7	303	573	479	372
2007	51	0	426	0	12	600	455	356

Panel C: Time series distribution of clients weighted by market capitalization

Fiscal year	*Arata*	*Asahi*	*Azsa*	*Chuo Aoyama*	*Misuzu*	*Shin Nihon*	*Tohmatsu*	*Non Big*
2001	0.0%	19.5%	0.0%	26.7%	0.0%	28.1%	19.4%	6.4%
2002	0.0%	19.2%	0.6%	25.2%	0.0%	28.4%	20.0%	6.6%
2003	0.0%	0.1%	20.8%	27.3%	0.0%	26.4%	19.0%	6.4%
2004	0.0%	0.0%	21.1%	26.3%	0.0%	27.0%	20.1%	5.6%
2005	0.0%	0.0%	23.9%	24.2%	0.0%	25.7%	21.2%	4.9%
2006	8.8%	0.0%	25.6%	0.1%	11.7%	26.0%	23.0%	4.7%
2007	8.5%	0.0%	31.0%	0.0%	0.2%	27.9%	24.6%	7.9%

Panel D: Auditor Changes in Big 5 and Non Big auditors

The table presents the percent change in auditor from the previous fiscal year. Change of auditor from Chuo Ayoama to Misuzu or Arata is not counted as an auditor change.

Fiscal year	Big Auditors Excluding Chuo Aoyama and Misuzu	Non Big Auditors	Chuo Aoyama and Misuzu
2002	0.9%	8.0%	0.5%
2003	2.5%	3.1%	1.3%
2004	0.6%	8.1%	1.5%
2005	1.2%	7.6%	1.7%
2006	1.1%	10.5%	23.6%
2007	1.8%	10.2%	91.9%

Table 4
Auditor Change Logit regressions – Changes away from Chuo Aoyama

$$\left.\begin{matrix} 1 if\ AuditorChange_{i,t} \\ 0 Otherwise \end{matrix}\right\} = \alpha_0 + \alpha_1 Ln(TotalAssets)_{i,t} + \alpha_2 \%\Delta TotalAssets_{i,t} + \alpha_3 Leverage_{i,t} +$$

$$\alpha_4 \Delta Leverage_{i,t} + \alpha_5 ROA_{i,t} + \alpha_6 Loss_{i,t} + \alpha_7 CA_{i,t-1} + \beta_8 CA_{i,t-1} * FY2006 + \varepsilon$$

AuditorChange takes the value 1 when the auditor the next fiscal year is not the same as the auditor in the current fiscal year. Auditor change from Chuo Ayoma to Misusu is not counted as a change. Change from Chuo Aoyama to Arata is not considered a change in column 1 and counted as a change in Column 2.

Variable	Coeff	Marginal effects	t-statistic	Coeff	Marginal effects	t-statistic
Constant	-2.27		(-2.14)**	-2.45		(-2.31)**
Ln (Assets)	-0.13	-0.00	(-3.76)***	-0.09	-0.00	(-2.59)**
%Change in Assets	0.03	0.00	(2.17)**	0.02	0.00	(2.21)**
Leverage	0.09	0.00	(0.35)	-0.03	-0.00	(-0.12)
Change in leverage	0.49	0.02	(0.6)	1.19	0.04	(1.45)
ROA	-0.03	-0.00	(-5.00)***	-0.03	-0.00	(-4.81)***
Loss	0.12	0.00	(0.85)	0.05	0.00	(0.37)
CA	0.70	0.03	(6.23)***	1.08	0.05	(10.69)***
CA*Fiscal Year 2006	4.15	0.63	(34.61)***	4.22	0.66	(34.91)***
Industry Fixed Effects	Included			Included		
Observations	13070			13070		
Pseudo r sq	0.2414			0.2422		

*, **,*** represents significance at the 10%, 5%, and 1% respectively (two-sided tests)

AuditorChange	–	One if the audit firm changes and zero otherwise
Ln(TotalAssets)	–	Natural logarithm of total assets
% ΔTotalAssets	–	Percentage change in total assets
Leverage	-	Total liabilities/Total assets
Δ Leverage	-	Change in Leverage
ROA	-	Return on Assets
Loss	-	One if net income is negative; zero otherwise
CA	-	One if Chuo Aoyama is the prior year audit firm; zero otherwise
CA*FY2006	-	One if Chuo Aoyama is the audit firm in FY2005 and year is FY2006; Zero otherwise

Table 5
Comparison of characteristics of former ChuoAoyama audit clients according to their subsequent auditor choices (i) to remain with ChuoAoyama (i.e., "Misuzu"), (ii) to move to a different auditor (labeled "Change"), (iii) to move to Aarata ("Aarata").

	Misuzu		Change		Aarata		p-value means test		
	N	Mean	N	Mean	N	Mean	Misuzu-Other	Misuzu-Arata	Other-Arata
Market cap	280	1332.30	107	1710.45	57	5148.09	0.46	0.00	0.05
Sales	291	1977.47	110	2115.17	59	8152.62	0.85	0.00	0.01
Total Assets	292	3095.98	110	4123.45	59	11885.75	0.39	0.00	0.03
Market to Book	280	1.54	107	1.97	56	1.70	0.02	0.41	0.42
Leverage (LTD/TA)	292	0.56	110	0.55	59	0.54	0.89	0.58	0.71
Net Income	292	77.95	110	18.26	59	317.71	0.18	0.02	0.03
ROA (%)	287	3.54	108	3.37	58	4.05	0.72	0.40	0.32
ROE (%)	283	7.71	106	6.65	58	9.70	0.49	0.26	0.16
Loss (If NI<0)	292	0.09	110	0.10	59	0.03	0.74	0.15	0.13
Annual returns (%)	274	26.05	103	21.20	56	20.78	0.28	0.38	0.95
Dividends per Share	290	0.97	108	0.18	59	0.69	0.13	0.70	0.14
Dividend Yield (%)	279	0.01	106	0.01	56	0.01	0.87	0.08	0.10
Foreign ownership (%)	280	7.29	108	9.55	56	12.60	0.04	0.00	0.15
Overseas sales ratio (%)	280	10.20	108	11.16	56	16.82	0.65	0.02	0.09
Number of Segments	280	3.54	108	3.83	56	3.63	0.05	0.65	0.37
Firm Age	297	53.93	111	53.78	59	55.29	0.96	0.68	0.70
US Exchange Listing	298	0.01	111	0.01	59	0.03	0.92	0.16	0.24
Any US Listings (incl. OTC)	298	0.04	111	0.10	59	0.14	0.03	0.01	0.48
Accrual Quality 1 - Abs(Accruals)/Abs(CFO)	192	1.07	74	3.85	47	0.68	0.04	0.20	0.25
Accrual quality 2 - Abs(Total Accruals)/Abs(CFO)	215	2.07	82	3.69	52	1.01	0.22	0.33	0.21
Std Dev ROA	246	2.46	94	2.43	51	2.31	0.86	0.57	0.71
Std Dev ROE	246	8.74	94	9.63	51	7.51	0.38	0.32	0.16
String Positive NI	246	0.62	94	0.63	51	0.70	0.80	0.06	0.15
String Positive DNI	222	0.22	85	0.21	47	0.22	0.64	0.91	0.63

Panel B: Comparison of median values of firm characteristics

	Misuzu	Other	Arata	p-value median test		
	Median	Median	Median	Misuzu-Other	Misuzu-Arata	Other-Arata
Market cap	288.21	516.07	863.55	0.01	0.00	0.05
Sales	464.93	689.58	866.48	0.05	0.00	0.06
Total Assets	484.96	728.16	1511.59	0.02	0.00	0.14
Market to Book	1.14	1.33	1.25	0.04	0.23	0.68
Leverage (LTD/TA)	0.56	0.59	0.52	1.00	0.52	0.65
Net Income	12.56	18.95	38.32	0.30	0.00	0.00
ROA (%)	3.09	2.93	3.56	0.38	0.39	0.16
ROE (%)	7.63	7.15	7.85	0.54	0.29	0.17
Loss (If NI<0)	0.00	0.00	0.00	0.74	0.15	0.13
Annual returns (%)	17.72	15.77	8.73	0.38	0.07	0.40
Dividends per Share	0.08	0.08	0.14	0.69	0.00	0.02
Dividend Yield (%)	0.01	0.01	0.01	0.50	0.07	0.29
Foreign ownership (%)	3.90	5.50	7.80	0.16	0.01	0.21
Overseas sales ratio (%)	0.00	0.00	3.00	0.73	0.01	0.05
Number of Segments	3.00	4.00	3.00	0.05	0.86	0.26
Firm Age	57.00	57.00	59.00	0.98	0.43	0.47
US Exchange Listing	0.00	0.00	0.00	0.92	0.16	0.24
Any US Listings (incl. OTC)	0.00	0.00	0.00	0.03	0.01	0.47
Accrual Quality 1 - Abs(Accruals)/Abs(CFO)	0.60	0.61	0.56	0.52	0.26	0.15
Accrual quality 2 - Abs(Total Accruals)/Abs(CFO)	0.63	0.43	0.47	0.06	0.16	0.75
Std Dev ROA	1.93	1.96	1.74	0.76	0.55	0.79
Std Dev ROE	5.53	5.90	5.21	0.57	0.41	0.29
String Positive NI	0.59	0.61	0.71	0.73	0.04	0.14
String Positive DNI	0.20	0.19	0.20	0.66	0.60	0.47

See Appendix B for variable definitions and data sources.

Table 6
Ordered logit estimation of the likelihood that former ChuoAoyama clients make the decision to: (i) stay with ChuoAoyama/Misuzu, (ii) switch to another audit firm, or (iii) switch to Aarata

The dependent variable takes the value 0 if the firms adopt Misuzu as the auditor, value 1 if they adopt other auditors and the value 2 if they adopt Arata as the next auditor. All independent variables are measured for fiscal year 2004. Robust Z-stats are in parentheses. The column Odds Change presents the value of the change in odds for one standard deviation change in the value of the independent variable measured as exp(b*SD of X) i.e. the change in odds for standard deviation increase in X.

VARIABLES	*(1)*			*(2)*		
	Coeff	z-stat	Odds Change	Coeff	z-stat	Odds Change
Log Total Assets	0.22	(2.56)**	1.44	0.37	(2.68)***	1.73
Market to Book	0.15	(2.51)**	1.26	0.21	(1.65)*	1.24
Leverage (LTD/TA)	-0.80	(-1.25)	0.84	-1.82	(-2.16)**	0.69
Net Income	-0.00	(-0.11)	0.99	-0.00	(-0.24)	0.95
ROA (%)	-0.03	(-0.85)	0.88	-0.05	(-0.95)	0.82
Loss	-0.25	(-0.57)	0.93	-0.76	(-1.15)	0.82
Annual returns (%)	-0.00	(-0.02)	1.00	0.00	(0.68)	1.12
Dividend Yield (%)	20.00	(1.35)	1.18	18.30	(0.98)	1.15
Foreign ownership (%)	0.01	(0.63)	1.09	0.01	(0.96)	1.17
Overseas sales ratio (%)	0.00	(0.58)	1.07	-0.00	(-0.37)	0.95
Number of Segments	0.04	(0.55)	1.06	0.07	(0.71)	1.10
Firm Age	0.00	(0.33)	1.04	0.00	(0.35)	1.05
Any US Listings (incl. OTC)	0.26	(0.69)	1.07	-0.08	(-0.18)	0.98
Accrual quality 2 - Abs(Total						1.00
Accruals)/Abs(CFO)				0.00	(0.06)	
Std Dev ROA				0.07	(0.73)	1.12
String Positive DNI				-1.38	(-1.05)	0.87
Constant Cut 1	2.29	(3.57)***		2.87	(2.55)***	
Constant Cut 2	3.81	(5.79)***		4.26	(3.70)***	
Observations	440			277		
Pseudo R-squared	0.0375			0.0554		

*, **,*** represents significance at the 10%, 5%, and 1% respectively (two-sided tests)

See Appendix B for variable definitions and data sources.

Table 7
Event study analysis of reaction to important events related to revelation of fraud and Kanebo and ChuoAoyama's role therein using Schipper and Thomson (1983) methodology

The table presents the coefficients and t-statistics (in parentheses) of the following regression. The Event dates are presented in Appendix 1.

$$Return_t = \alpha_0 + \beta_1 Return_{\text{TSE INDEX}} + \theta_k Event_{k,t} + \varepsilon_t \qquad (1)$$

Variable	*Event 1*	*Event 2*	*Event 3*	*Event 4*	*Event 5*	*Event 6*	*Event 7*	*Event 8*	*Event 9*	*Event 10*	*Event 11*	*Event 12*	*Event 13*	*All Events 1-13*
Constant	0.03*	0.03*	0.03*	0.03*	0.03*	0.03*	0.03*	0.03*	0.03*	0.03*	0.03**	0.03*	0.03*	0.03**
	(1.90)	(1.77)	(1.89)	(1.86)	(1.94)	(1.88)	(1.87)	(1.86)	(1.84)	(1.85)	(2.08)	(1.90)	(1.80)	(2.22)
TSE Index returns	0.85***	0.85***	0.85***	0.85***	0.85***	0.85***	0.85***	0.85***	0.85***	0.85***	0.85***	0.85***	0.85***	0.85***
	(58.19)	(58.14)	(58.18)	(58.15)	(57.57)	(58.16)	(58.11)	(58.12)	(58.15)	(58.15)	(58.49)	(58.16)	(58.17)	(58.30)
Event i	-0.22	0.32	-0.17	-0.05	-0.46	-0.13	-0.11	-0.10	0.02	-0.01	-0.86***	-0.22	0.18	-0.14*
	(-0.89)	(1.31)	(-0.69)	(-0.20)	(-1.49)	(-0.51)	(-0.46)	(-0.34)	(0.06)	(-0.05)	(-3.51)	(-0.88)	(0.75)	(-1.90)
Observations	798	798	798	798	798	798	798	798	798	798	798	798	798	798
Adjusted R2	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81

See Appendix B for variable definitions and data sources.

Table 8
Cross sectional analysis of market reaction to Kanebo events for ChuoAoyama clients.

Return is the cumulative return over all the days in 13 event windows around significant events described in Appendix 1. Index returns are returns to Tokyo Stock Exchange index available in Datastream.

$$Return_{j,t} = \alpha_j + \beta_j Return_{\text{TSE INDEX}t} + \Sigma_k \theta_{j,k} Event_{k,t} + \varepsilon_{j,t} \quad (2)$$

For the table below the market index (${}_jReturn_{\text{TSE INDEX}t}$) is TOPIX. The Tokyo Stock Price Index (TOPIX) is a composite index of all common stocks listed on the first section of the Tokyo stock Exchange.

VARIABLES	*Coeff*	*t-stat*	*Adj. R2*	*Coeff.*	*t-stat*	*Adj. R2*	*Coeff.*	*t-stat*	*Adj. R2*
Market to Book	-0.02	(-0.65)	0.12	0.02	(1.07)	0.07	0.04	(1.40)	0.03
Log Total Assets	0.01	(0.70)	0.45	0.01	(0.61)	0.37	0.02	(1.19)	0.07
ROA	0.01	(0.62)	0.01	0.01	(1.24)	0.01	0.00	(0.06)	0.01
Loss	0.09	(0.98)	0.04	0.12	(1.41)	0.01	-0.09	(-0.84)	0.00
Leverage (LTD/TA)	-0.20	(-1.31)	0.10	0.05	(0.32)	0.01	-0.08	(-0.44)	0.05
Foreign ownership	0.00	(0.05)	0.01	0.00	(0.98)	0.00	0.00	(0.41)	0.00
Overseas sales ratio	0.00	(0.23)	0.12	-0.00	(-0.27)	0.06	-0.00	(-0.23)	0.07
Number of Segments	-0.02	(-1.36)	0.05	-0.01	(-0.98)	0.05	-0.02	(-1.07)	0.01
Any US Listing	0.13*	(1.77)	0.10	0.03	(0.39)	0.15	0.06	(0.77)	0.10
Firm Age	-0.00	(-0.54)	0.02	-0.00*	(-1.68)	0.10	-0.00	(-1.13)	0.22
CA to Arata	-0.01	(-0.25)	0.01	-0.04	(-0.70)	0.01	-0.01	(-0.21)	0.00
Left CA Early	0.04	(1.10)	0.11	0.04	(0.81)	0.08	0.07	(1.41)	0.05
Std Dev ROA				0.03	(1.31)	0.09	0.01	(0.67)	0.14
Std Dev ROE				-0.01*	(-1.80)	0.06	-0.01***	(-2.59)	0.03
String Positive NI				0.01	(0.16)	0.11	-0.11	(-1.11)	0.01
String Positive DNI				-0.55**	(-2.43)	0.03	0.03	(0.10)	0.11
Accrual Quality 1 - Abs(Accrual)/Abs(CFO)							-0.02	(-0.84)	0.01
Accrual quality 2 - Abs(TotalAccrual)/Abs(CFO)							0.00	(0.76)	0.02

See Appendix B for variable definitions and data sources.