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**AUDIT FIRM ALLIANCES AND AUDIT QUALITY:  
INTERNATIONAL EVIDENCE**

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**Ph.D**

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**Audit Firm Alliances and Audit Quality: International  
Evidence**

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A thesis submitted in partial fulfilment  
of the requirements for the degree of  
Doctor of Philosophy

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## **Abstract**

Audit quality is influenced by both auditor's competencies and auditor's incentives. In my dissertation, I use international auditing data to investigate the effect of joining audit firm alliances on audit pricing and audit quality, and whether country-level differences and alliance-level differences play mediating roles in the average effect. My dissertation corresponds to the recent call from regulators and practitioners on audit market competition. Using manually-collected data of non-Big Four audit firms joining audit firm alliances and their joint dates in 17 countries, I find that after non-Big Four audit firms join audit firm alliances, there is an increase in clients' audit fees and a decrease in clients' discretionary accruals, indicating that both audit pricing and audit quality increase after non-Big Four audit firms join alliances. I also find that the effect of joining audit firm alliances on increasing audit quality and audit pricing is stronger if clients are from countries or industries with lower litigation risks. Moreover, I find that country-level audit quality and firm-level audit quality interact with each other closely. Specifically, the documented effect on audit quality and audit pricing is stronger in countries with low country-level audit quality. Further, I find that the increases in audit fees and audit quality are more pronounced if audit firms join audit firm alliances with high number of staff in each office, or alliances with high member growth, or alliances with high fee income. Moreover, I find that the increases in audit fees and audit quality are significant in both audit firm networks' clients and audit firm associations' clients, but the effect is more pronounced among clients' of audit firm networks. Overall, my findings suggest that joining audit firm alliance is an effective way for non-Big Four audit firms to earn audit fee premiums and increase audit quality.

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# Chapter 1 Introduction

Audit pricing and audit quality are two critical research areas in auditing literature. Prior literature studies audit pricing and audit quality for both Big N audit firms as well as non-Big N audit firms. They generally conclude that Big N auditors earn more audit fees compared to non-Big N auditors, and the quality of audit services provided by Big N auditors are higher than that provided by non-Big N auditors. Also, because of the high audit market domination by Big Four, as well as advantages in both auditor abilities and audit incentives of Big Four audit firms, there has been concern that non-Big Four auditors face barriers in reaching higher audit quality. However, in practice, a significant proportion of publicly listed firms are audited by those non-Big Four audit firms. According to *World Survey 2016* by International Accounting Bulletin, the market share of non-Big Four worldwide is 33.5% (IAB World Survey 2016). Despite the more and more critical role of non-Big Four auditors in providing audit service to public firms, little attention is paid to them in auditing and accounting literature. In my dissertation, I focus on the audit pricing and audit quality provided by non-Big Four audit firms in the international setting. The growth of the number of public firms audited by non-Big Four auditors make the research question interesting and worth exploring. Specifically, I am interested in a strategy that non-Big Four auditors could adopt in improving their audit quality. The strategy I focus on is the joining of audit firm alliances by non-Big Four auditors. I examine whether audit firms charge higher audit fees and whether their clients receive higher-quality audits after non-Big Four auditors join audit firm alliances.

The increasing trend of non-big four auditors joining audit firm alliances reflect the urging demand for non-Big Four auditors to provide high-quality audits, as well as non-Big Fours' own incentives (Bills et al. 2016a). The major source of the

incentive is from market competition. The importance of competition in audit market is often emphasized by regulators and practitioners (Government Accountability Office [GAO] 2003; 2008; PCAOB, 2011). If audit market is dominated by several large audit firms, the incentives for second-tier or small audit firms are reduced, which is harmful to the audit market competition. Also, the domination of large audit firms will create barriers for non-Big Four auditors to get resources and improve audit quality. To eliminate the concern, regulators, such as SEC, PCAOB, FRC, strongly recommend the promotion of non-Big Four auditors to become reliable suppliers of public company audits (Boone et al. 2010; Bills et al. 2016a). Before the mandatory re-rendering of audit, FTSE 100, the largest public companies in United Kingdom, switch auditors in more than 40 years, and they only choose from Big Four audit firms. The UK Office of Fair Trading (OFT), said that,

*“It is highly concentrated, largely supplied by four big firms, with clients rarely switching between auditors. There are also high barriers to entry for new and smaller competitors. These are not the indicators of a competitive market”*,

*“(Audit market is) concerned for some time that the market for external audit services to large firms in the UK is highly concentrated, with substantial barriers to entry and switching”*,

Correspondingly, in 2010, Grant Thornton UK, one of the leading second-tier audit firms in UK, said that,

*“The high level of concentration amongst the four largest providers of audit services to large companies in the UK has persisted for a significant period of time. Grant Thornton and the other suppliers of audit services have been unable to break the stranglehold that the four largest suppliers of audit services have on the market,”*

In 2013, UK Competition Commission started the five-year mandatory

retendering for FTSE350 companies. The retendering program is aimed to increase the incentives of both Big Four and non-Big Four audit firms to develop and expand their capabilities to get audit engagement (International Accounting Bulletin, 2013). Moreover, this provision has been viewed as a great step to encourage non-Big Four firms to improve their abilities needed to win engagements from public firms, especially FTSE350 firms. Those small audit firms who are not competitive in terms of scale of complexity and international reach are especially encouraged to overcome their disadvantages (International Accounting Bulletin, 2013)<sup>1</sup>. Collectively, these recent regulatory changes have shown that regulators worldwide are concerned about the domination of audit market and are making efforts to reduce market concentration of Big Four and level up the capability of non-Big Four audit firms.

Despite the great need to increase the use the non-Big Four as alternatives of Big Four as audit providers, concerns have been expressed about the ability and incentives of non-Big Fours, especially those small audit firms, to provide high-quality audits. PwC UK, in 2011, argued that audit market concentration in UK is not harmful to audit quality and such concentration is not suggesting any problem related to audit market competition. Deloitte agreed to the call, and said that their investment in the client relationship makes them efficient in and capable of healthy auditor-client relationship. The requirement from large public companies, especially multinational firms, can only be fulfilled by Big Four audit firms, and non-Big Four audit firms do not have the ability to provide required quality of audit services to those big clients.

Most prior literature define audit quality as the function of competency and independence (DeAngelo, 1981; DeFond and Zhang, 2014). Therefore, the increase in

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<sup>1</sup> The information is from <http://www.internationalaccountingbulletin.com/news/mandatory-retendering-every-10-years-hits-uk-ftse350/>

audit quality should be an increase in either or both functions (Beatty, 1989; Khurana and Raman, 2004). Competency means that audit firms will make investment on audit process, and increase their ability in detecting financial reporting errors in clients' financial statement. Independence refers to whether auditors would release the documented errors in financial statement. There are two main factors that would increase auditor independence, litigation risks and reputational risks. As the market leader, Big Fours have invested significantly on improving both competency and independence. Correspondingly, to compete with Big Four auditors, non-Big Fours also need to make intensive investment on both competency and independence. In this paper, I document that by joining audit firm alliances, auditors could improve their audit quality, which is an effective way for them to become more competitive with big-four auditors.

Joining audit firm alliances could improve audit quality mainly from the perspective of competency (Bills et al. 2016a; Bills et al. 2016b). Audit firm alliances are professional services alliances, which will provide member firms with resources and assistance on technical knowledge, practice management procedures, professional visions and experiences all over the world. There are two types of alliances, one is in the form of association, the other is the form of network. Both associations and networks are audit firms operating independently, and provide member firms with resources and assistance to work with clients. Based on AICPA definition of audit firm associations and alliances, networks and associations firms are required to be independent of an audit client of another firm within the alliance. Member firms in networks are working together more tightly, compared with member firms in associations. Certain networks require all members use the same brand name to recognize themselves as one member of the network. For example, starting from

October 26, 2015, RSM International adopted the global trading name RSM across all member firms. By adopting a single brand name, accounting networks could establish themselves as a leading audit services provider, especially to the middle-tier market, by indicating clients that members are united to support shared goals and objectives. Examples of accounting networks are BDO Global, Baker Tilly International, Nexia International, HLB Internatiuonal, PKF International. In contrast, audit firm association members work less tightly together, and usually won't share a single brand name. Members in associations will identify themselves as one member of the association. For example, S.J. Grand Financial and Tax Advisory, an audit firm based in China, identify itself as a member of PrimeGlobal in its website. Member firms in associations will also work together to provide supports and assistance to each other. Examples of audit firm associations are GGI Global Alliance, Praxity Global Alliance, PrimeGlobal, BKR International. In the main analysis, I do not differentiate between audit firm networks and associations, and refer them equally as "audit firm alliances". In further analysis, I separate between audit firm networks and audit firm associations. My finding is that there are increases in audit fees and audit quality in clients' of both networks and associations. However, the increases are more pronounced if audit firms join audit firm networks.

One important characteristic of audit firm alliances is that even tightened together by the alliance, member firms do not lose their independence. By combining firms from different countries and different industries together, leading audit firms in the alliance can provide professional training and experiences to small audit firms. Also, member firms could seek help from international specialists or even firms from other countries in their non-core practice areas. Thus, the ability of auditors in detecting financial reporting errors increases, so the competency aspect is reached.

Another benefit for smaller audit firms to join large firm alliance is that smaller members could use the alliance's brand and identification as a signal and increase its overall credibility. The signal from audit firm alliances' brand names will also attract new clients. Reputation risks increase because of increased clients base. Thus, joining audit firm alliances will improve non-Big Four audit firms' audit quality, by providing more resources and brandings to them.

To examine whether audit quality improves after non-Big Four audit firms join audit firm alliances, I handily-collect association and network membership data from different countries from 1999 to 2014 from the association and network firms' websites. Then I handily-collect the joint date of each member firm. With the join dates, I am able to compare the change in audit pricing and audit quality in the treatment sample before and after clients' audit firms join audit firm alliances. I use *Capital IQ* database to identify audit firms and their clients. I choose auditor names in *Capital IQ* instead of auditor names in Compustat Global. Although both databases have auditor names for international firms, Compustat Global has less advantage in my setting because I focus on non-Big Four auditors. Most non-Big Four auditors are coded as "Other" in Compustat Global. On the contrary, *Capita IQ* covers a more complete name list of non-Big Four auditors. I ended up with audit firm alliances from 35 countries. I excluded countries with less than 15 observations from the sample. The final treatment sample after the sample selection process is comprised of 13,380 firm-year observatons at client level. The control sample is comprised of those clients of non-Big Four firms that do not join any alliances. I restrict the control sample to clients of non-Big Four firms to control for the fundamental differences among client firms, since firms choosing Big Fours could have very different characteristics from those choosing non-Big Fours (Lawrence et al. 2011). Also, I use control sample from the

same countries, to control for different institutional backgrounds from different countries. In the first part of the dissertation, I compare the audit pricing and audit quality of the member firms with those of non-member firms. My results show that after audit firms become audit firm alliance members, clients pay more audit fees, and discretionary accruals decrease among clients. Such findings are robust to alternative audit quality measures, different sample compositions, and alternative sample period. I use three alternative audit quality measures, the likelihood to meet or beat earnings targets from analysts, the likelihood to issue going-concern reports by audit firms, and performance-matched discretionary accruals measure following Kothari et al. (2005). I also use different sample compositions. First, I drop India, the largest country in my sample, to eliminate the concern that the results are driven by the largest country. Also, I drop India because India has an imbalanced distribution between treatment sample and control sample. The second robustness check I do is to drop alliance members with the largest number of clients in my sample. I drop BDO, Crowe Horwath, and Praxity, to eliminate the concern that the results are driven by those clients from the largest alliances. The third robustness check I do is to shorten the time period to five years before the event year (the year the member joined the alliance) and five years after the event year. The purpose of this test is to overcome the concern that the prior long time period I use could have concurrent events related to accounting or auditing regulations. The main results are not sensitive to different samples and time period.

Next, I change the benchmark sample to Big Four audit firms. As Big Fours are the market leaders, if there is significant increase in audit pricing or audit quality provided by Big Fours, other non-Big Fours could also be driven to increase the pricing and quality of their service. In this case, the increase in audit fees or audit



quality is not related to the joining of audit firm alliances. After using clients of Big Fours as control sample, I find that compared with them, there are significant increases in audit pricing as well as audit quality in clients of alliance members. Therefore, my documented increases in audit quality and audit pricing are not because alliance members are pushed by a concurrent improvement in the quality of services provided by Big Fours. Although I provide evidence that there is significant increase in audit quality among alliance members compared with Big Fours, I do not argue that the audit quality or audit pricing provided by alliance members is comparable to that provided by Big Four auditors. The purpose of the test is to provide a robustness check that the increase in audit quality and audit pricing is due to the joining of audit firm alliances.

Next, I match treatment and control sample based on the client size (Lawrence et al. 2011). A standard difference-in-differences analysis requires the inclusion of a dummy variable to separate between treatment and control sample (*All*), and a time-series dummy variable to separate between pre-event period and post-event period (*Post*), and the interaction term (*All\*Post*). In Equation (1), where country fixed effect, industry fixed effect and year fixed effect are included, I include *All* since *All* indicates whether the client is audited by alliance members, and it varies on firm-level. I could not include *Post* in the regression since I could not identify the event year for control firms. The dummy variable (*All\*Post*) captures the change in audit quality or audit pricing in treatment sample from pre-event period to post-event period, compared with control firms. In Equation (2), *All* and *Post* are not included since firm fixed effect is used. To conduct a standard difference-in-difference analysis, I match the treatment firms with control firms based on year, industry, country, and client size at one year before the event year. The “*joining time*” of control firm is the same as the joining

time of its matched treatment firm. Therefore, *Post* could be included in both regressions, and the interaction term captures the difference-in-differences effect. The results remain unchanged. There are significant increases in both audit pricing and audit quality in the post-event period for treatment firms compared with control firms.

Next, to address the potential endogeneity problem, I use Heckman test, by including the inverse mills ratio calculated from the first stage in the second stage. Since clients do not choose auditors randomly, their choice could be related to certain omitted factors. If such factors are also related to the decision made by auditors about whether to join alliances, endogeneity could be a problem. After addressing the endogeneity issue, my previous findings remain unchanged.

In the second part of the dissertation, I further explore the cross-sectional variations of the main effect documented in the second part. Since I use international data, I am interested in the cross-country variations in the main effect. First, I examine whether the main effect varies across countries or industries with different litigation environments. I find that the increases in audit pricing and audit quality are more significant in less litigious countries and industries. Second, I examine whether the variations in country-level audit quality affect the documented average effect. Particularly, I am interested in how country-level audit quality and firm-level audit quality interact with on each other. I find that the increases in audit pricing and audit quality are more pronounced in countries with low country-level audit quality, i.e., in countries who do not comply with International Standards on Auditing, or in countries where there is no local audit oversight body, or in countries where earnings management behavior is more serious. Therefore, firm-level audit quality substitutes country-level audit quality and is more critical when country-level audit quality is low. Third, I conduct alliance-level cross-sectional tests using different alliance

characteristics, and find that clients' audit fees and audit quality increase more if their auditors join alliances with high number of staff each office, or if the alliance is expanding aggressively with high membership growth, or alliances with high fee income. Fourth, I separate my treatment sample into clients who are audited by members from accounting networks, and those who are audited by members from accounting associations. I find that the benefits of joining audit firm alliances are larger if audit firms join accounting networks. Collectively, the results in my dissertation indicate that non-Big Four audit firms provide higher-quality audits to their clients after they join audit firm alliances, and clients are willing to pay higher audit fees to them, compared with those non-Big Fours that do not join any alliances. This main effect varies across countries with different institutional backgrounds, as well as alliances with different characteristics.

A recent paper by Bills, Cunningham and Myers (2016) find that association member firms conduct higher-quality audits than non-member firms in the US. My dissertation is different from their study in four ways. First, the legal and regulatory backgrounds vary greatly across countries, especially between the US and other countries. Hence, there is also difference in the motivation for the US auditors and non-U.S. auditors. Both litigation risks and reputational risks are great concerns for the U.S. audit firms. However, non-U.S. audit firms are less concerned about litigation risks (Leuz, 2010; Mansi et al., 2004). Khurana and Raman (2004) found that litigation risk is the contributing factor of the difference in perceived audit quality provided by different auditors. Reputational risk is the major incentive for non-U.S. auditors. This is especially the case for non-Big Four auditors. Non-Big Four auditors usually have limited client base, compared with Big Four auditors, and the incremental effect from one audit failure is larger for non-Big Four auditors since they have "too few to lose".

Two out of the four audit quality proxies used by Bills et al. (2016a), PCAOB inspection deficiencies and misstatements, mainly deal with litigation risks. They find that deficiencies and misstatements are lower for member firms. The evidence is very convincing under U.S. settings. However, in non-U.S. firms, where litigation risk is much lower, and regulatory monitoring is less strict, such conclusion may not apply. Second, Bills et al. (2016a) documents the average effect of how joining audit firm alliances affect audit quality. I am more interested in the cross-sectional variations of the average effect. The major advantage of using international sample is that cross-country variations of the average effect could be explored. The average effect of joining accounting alliances on audit quality and audit pricing may not necessarily be the same across audit firms, alliances and countries. Different country-level institutional backgrounds could influence the effect of joining audit firm alliances differently. I explore the cross-sectional variances in four aspects, litigation risks, country-level audit quality, alliance characteristics, and whether the audit firm joins networks or associations. Third, the market domination by Big Four on international level is not as serious as that in the US. Second-tier or small audit firms have more opportunities to audit public firms in non-US countries. Therefore, exploring whether alliance members could provide higher-quality audits is very critical in international accounting. Fourth, by identifying the joint dates manually, I could compare the change in audit pricing and audit quality after audit firms join audit firm alliances to their audit quality prior to the joining. I also use Heckman two-stage regression and include the inverse mills ratio in the second stage to correct the potential self-selection problem. Furthermore, I match treatment firms and control firms based on client size to conduct a standard difference-in-differences analysis. Thus, to a larger extent, I could draw causality between the increased audit fees and audit quality and the action taken by member firms to join alliances. In sum, my dissertation is different from Bills

et al. (2016a), and my major contribution lies in the cross-country variation of the average effect using international data.

## **Chapter 2 Literature Review**

### **2.1. Audit Quality and Audit Pricing**

Audit quality is critical since it directly influences clients' financial reporting quality. Auditors provide assurance to firm's financial reporting behaviors, and greater assurance is demanded by financial statement users as they will use financial statements to make decisions and allocate resources. Theories on auditing literature perceive audit quality as the joint probability of auditor detecting the misreporting behaviors in client's financial reports and reporting them.

Simunic (1980) defines audit quality from the perspective of independence. Using a theoretical model, he decomposes expected audit fee into two components, a cost component and a risk component. The cost component is comprised of a quantity part and a price part. The quantity part captures auditor efforts, while the price component captures the unit price of auditor efforts. The risk component captures the likelihood of losses from auditing the client and the present value of the losses. Therefore, audit service is an economic good to the clients, and clients will consider both costs and benefits when choosing audit services. DeAngelo (1981a) suggests audit quality to be the joint likelihood that auditor could detect GAAP violations and report the violations. Such definition has been followed by most studies. DeAngelo (1981b) defines audit services as a product of agency problems between investors and management. Because of existence of agency problem, investors need auditors to supply assurance on the financial reporting quality of firms provided by management. The paper defines audit services as a product of auditor inputs and outputs. In a very comprehensive literature review on audit quality by DeFond and Zhang (2014), they perceive audit quality as "greater assurance that the financial statements faithfully reflect the firm's underlying economics, conditioned on its financial reporting system

and innate characteristics.” They challenge that the definition suggested by DeAngelo (1981a, 1981b), who simply emphasize the importance of financial reporting’s accordance with GAAP, ignores the benefits from assurance provided by auditors. Such benefits arise from the fact that high-quality audits could assure that financial reporting behaviors in clients truly and faithfully reflect the underlying economic situations of clients (DeFond and Zhang, 2014).

The two perspectives, independence and competency, are the primary motivations for auditors to provide high-quality audits (Watts and Zimmerman, 1981). Competencies indicate that auditors could discover misreporting behaviors in clients’ financial reportings, and independence means that auditors would report the misreportings once detected. Prior literature usually refer competencies as “ability”, and refer independence as “incentive”. Thus, auditors could increase competencies by increasing their abilities to deliver high-quality audit services, such as use of more advanced technology, more expertise etc. The motivations for auditors to remain independent of their clients come mainly from reputation risks and litigation risks (Dye, 1993).

Because audit service is one type of assurance, it involves risk. When there is undocumented, or documented but unreported, financial reporting error in the clients’ financial statements, auditors need to be responsible for such errors, and there could be potential loss related to it (SAS, 106). Auditors are exposed to litigations with or without audit failure (Palmrose, 1988; Stice, 1991; Sullivan, 1992). Prior literature generally find three lines of determinants for litigation risks. The first line is auditor characteristics. Litigation risk is higher for large auditors, auditors who have short tenure, and non-industry specialist (DeFond and Zhang, 2014). The second line is client characteristics. Litigation risks are higher for larger clients, financially

constrained clients, clients who are aggressive in financial reporting, riskier clients, and clients with poorer information environment (Stice, 1991; Carcello and Palmrose, 1994; Lys and Watts, 1994; Shu, 2000; Heninger, 2001). The third line is engagement characteristics. Litigation risks are higher for clients with high business risks, when auditors deal with non-expert industry clients (Gibbins and Trotman, 2002; Yim, 2009). Financial statement users could file complaints against auditors even if there is no audit failures. There are many cases where auditors are significantly damaged because of litigations. In 2013, PwC UK was sued by its former client Cattles over alleged audit mistakes. Cattles, a sub-prime consumer finance company in UK, had its shares suspended in 2009. In 2012, Financial Services Authority in UK fined and banned two of the company's former management for misleading investors. After that, Cattles filed a suit against PwC UK, for its negligence as the company's auditor. In 2014, PwC US was sued in New York for \$1 billion lawsuit. The reason is that PwC's advice caused the bankruptcy of its client, MF Global Holdings. Damages from litigations are fatal to auditors as they are faced with financial as well as reputational losses. In recent years, the rising amount of litigation risks have motivated auditors to increase audit quality, or to compensate the risks by increasing audit fees. Auditors would make decisions based on the *ex ante* litigation risks of clients, becoming more conservative in choosing new clients and keeping existing ones. Pratt and Stice (1994) find that clients' financial characteristics are the basis in the auditor's evaluation of litigations risk and determinants of audit fees. Auditors perceive lower financial performance as higher likelihood of litigation risks. Heninger (2001) finds that the likelihood of litigation risk is positively associated with upward earnings management. Seetharaman et al. (2002) finds that UK auditors charge a fee premium for UK firms cross-listed in US market, as the US market has the most litigious environment in the world. Using IPO setting, Venkataraman et al. (2008) finds that earnings quality before



IPO are higher than earnings quality in post-IPO period. Also, audit fees are higher for IPO audits, and a contributing factor of the fee premium is from litigation exposure. Their results are consistent with the notion that litigation risk drives auditor to provide high-quality audits and auditors incorporate a compensation in fees in case of high litigation risks. To compensate for the high litigation risk, auditors usually invest more audit efforts, or charge higher audit fees. Kinney et al. (2004) find that auditors charge a fee premium after firms restated their financial statements. Caramanis and Lennox (2008) find that accounting quality improved when audit firms demonstrate more time to the audit works. The evidence is consistent with the notion that increased audit efforts decrease litigation risks.

Part of reputation risks overlap with litigation risks. When there is a lawsuit happening, the brand name of the audit firm is hurt. Therefore, the ability to maintain existing clients and attracting new clients are hurt. Auditors value reputation also because it is a capital that they could use. DeAngelo (1981a) argues that auditor size could proxy for reputation and better-named auditors could use their brand names as a signal to differentiate themselves from other auditors. The damage to brand names will not only cause financial loss to the firm, but also decrease its reputation capital. Correspondingly, Beatty (1989) find that the Big Four auditors use reputational capital to differentiate themselves. Barton (2005) find that after the collapse of Arthur Anderson, clients who are more visible in the capital market switch to more reputable auditors. Using an accounting scandal in Germany about KPMG and clients of KPMG German, Weber et al. (2008) find that KPMG's clients have negative abnormal return during the event period, and the negative effect is stronger for firms that demand high-quality audits. This evidence is consistent with argument that reputation capital is valuable to auditors. Skinner and Srinivasan (2012) find that after an audit failure of

ChuoAoyama, PwC's Japanese affiliate, one-fourth of clients switch auditors. Collectively, these evidences provide supports to the argument that reputation risk motivates auditors to provide high-quality audits.

Regulation risks are increasing recently since there are more and more regulation interventions regarding auditors, especially in the U.S. after SOX. After the establishment of PCAOB, audit firms are subject to public inspection and monitoring (Government Accountability Office, 2008). Anecdotal evidence suggests that PCAOB is effective and efficient in regulating audit firms. Similar to PCAOB, there are regulations and official institutions to monitor and regulate audit firms in many other countries. For example, the International Forum of Independent Audit Regulators (IFIAR) is comprised of 50 independent audit regulators from different countries. Countries such as Australia, Austria, UK etc all join IFIAR to help each other inspect auditors and audit firms. The strict monitoring from regulators and potential losses from audit failures motivate auditors to provide higher-quality audits. Hermanson et al. (2007) find that among the PCAOB-inspected small audit firms, 60% have audit deficiencies. Offermanns and Peek (2011) find that there is significant market reaction when PCAOB inspection reports are issued. Lamoreaux (2013) find that non-US audit firms who are inspected by PCAOB issue more going-concern opinions and report more internal control weakness. Fung et al. (2017) find that PCAOB regulation and monitoring help foreign audit firms to provide higher-quality audit services. Shroff (2015) finds clients of PCAOB inspected non-US auditors increase investments and the sensitivity of investment to investment opportunities increase after the inspection. Overall, prior literature finds that reputation risk is a critical factor in influencing audit quality.

So far, most prior literature talks about audit quality from the perspective of

increasing auditor independence. In the survey paper, DeFond and Zhang (2014) call for future research on examining audit quality from the perspective of competency. Auditor competency means the ability of the auditor to provide high-quality services (DeFond and Zhang, 2014). Unlike independence, competencies could be improved by mass investment. Investment in human capital, technology, and expertise could all increase auditor competencies. Most literature examining auditor competencies focus on auditor industry expertise. DeFond et al. (2000) find that reputational effect from Big N names are essential for industry experts to increase their audit pricings. For non-Big N specialists, they try to compete with Big N auditor by charging lower fees to secure clients. Balsam et al. (2003) find that firms' earnings quality is higher, as well as ERC is higher if their audit firms are experts in the industry. Knechel et al. (2007) find that market reacts positively when clients change from non-specialist to specialist, and negatively when change from specialist to non-specialist. Specifically, the negative effect is most pronounced when clients switch from Big Four specialists to non-Big Four auditors. Using international data, Kwon et al. (2007) find that clients of industry specialists have lower discretionary accruals and higher ERC, and the effect is more pronounced in countries with weak legal environments. Romanus et al. (2008) finds that firms who are audited by industry experts have a reduced probability of earnings misstatement. Collectively, these results suggest that audit clients receive high-quality audits if they choose audit firms who are industry specialists. Other literature examining the relation between auditor competencies and audit quality use data from audit process. Papers in this area usually rely on experimental data or confidential datasets. Cohen et al. (2002) find that auditors perceive corporate governance factor as critical when choosing clients. Research on how to improve audit quality from the perspective of audit competencies is limited due to the data availability.

## **2.2. Big Four vs. Non-Big Four**

Prior literature generally find that Big N auditors provide higher-quality audits to clients, compared with non-Big N auditors (Watts and Zimmerman, 1981; Becker et al. 1998; Francis et al. 1999) . The motivation for Big N auditors to provide higher quality audits comes from their need to protect their reputation, to compensate for the litigation risks, and stricter monitoring from regulators (DeAngelo, 1981a). DeAngelo (1981b) find that audit quality is directly related to audit firm size, because of the “deep pocket” of large audit firms. Large auditors also have more resources to allocate to auditor process, which increases their competencies. Francis (1984) find that Big Eight auditors in Australian market have higher auditing pricing compared with non-Big Eight auditors (Balsam et al. 2003). Francis et al. (1999) find that although total accruals could be higher for clients of large auditors, the discretionary parts are lower, which still suggests that clients of large auditors have higher earnings quality. De Franco et al. (2011) find that there is “deal value reduction” on the sale proceeds of non-public firms if they do not hire Big Four auditors.

Regulators and practitioners have been recently calling for the use of non-Big Four audit firms as suppliers of audit services. If the market is dominated by several large audit firms, those auditors’ motivations to supply essential audit services are low. Also, the domination of audit market will further restrict resource allocations to mid-tier and small auditors, thus preventing them from improving their abilities. Based on Audit Analytics in 2016, only the top six accounting firms are believed to have the ability to audit multinational firms. The six biggest accounting firms audit 96.8% of US market, according to Audit Analytics. This has raised concern in audit market. In 2016, Financial Reporting Council, the independent regulator who is responsible for setting up accounting stanards and corporate governance guidance in UK, expressed

its worries about audit market domination by Big Four. Big Four audit firms audit 97.4% of FTSE 350 firms. Although UK has required auditor retendering at at least every 10 years by all FTSE 350 companies, and up to 2016, there has been more than 150 retenders, the market domination by Big Four is still high (Developments in Audit, 2015/2016)<sup>2</sup>. One of the purposes of the retendering is to introduce non-Big Four auditors to market competition with Big Four auditors. Simon Michaels, director of the BDO International Global Board and CEO of BDO UK LLP, has expressed concern that it takes at least another 5-10 years for leading mid-tier auditors to compete with Big Four:

*“While the Competition Commission has been really helpful in pushing open the door (to compete with Big 4), institutional prejudice is going to take a bit longer to break” (Simon Michaels, BDO UK LLP, 2016).*

In 2016, European Commission proposed its wish for leading public firms to change auditors every 6 to 12 years. While most prior literature provide evidence suggesting that clients of Big Four auditors have higher financial reporting quality, there are other studies providing opposite evidence. Petroni and Beasley (1996) find that the earnings attributes between Big Eight firms and non-Big Eight firms are similar. Chaney et al. (2004) finds that after controlling for self-selection bias, there is no audit fee premiums for Big Five auditors. Furthermore, after controlling for self-selection bias, the paper finds that firms choose Big Five firms would also have higher audit fees if they had chosen non-Big Five auditors. Boone et al. (2010) find that there is no difference in actual audit quality between clients of Big Four and middle-tier audit firms. The difference only exists in perceived audit quality by investors. In a

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<sup>2</sup>[https://www.ifiar.org/IFIAR/media/Documents/IFIARMembersArea/PlenaryMeetings/September%202012%20\(London\)/Developments-in-Audit-2015-16-Full-report.pdf](https://www.ifiar.org/IFIAR/media/Documents/IFIARMembersArea/PlenaryMeetings/September%202012%20(London)/Developments-in-Audit-2015-16-Full-report.pdf)

recent paper by Keune et al. (2015), the authors argue that prior findings that large auditors like Big Four provide higher-quality audits ignore the fact that local non-Big Four firms also possess large local office size including both public and non-public customers. They find that local market leaders, even if they are not large audit firms, could also differentiate themselves from other small audit firms and get fee premium. The findings are critical because it provides a way for non-Big Four auditors to compete with Big Four auditors. Although Big Four auditors have size advantage nationally or globally, non-Big Four auditors can build up their reputation at local market level. Another way for non-Big Four auditors to compete Big Fours is to develop industry specialization, as I have discussed before. Chang et al. (2010) find that after several regulatory changes such as SOX 404 enforcement, the startup of PCAOB inspection, and more strict 8-K filing announcement dates, investors' reactions to firm's switch from Big Four auditors to non-Big Four auditors become more positive. Lawrence et al. (2011) find that after matching based on propensity-score matching and other characteristics, there is no significant difference in audit quality measures between Big Four audit firms and non-Big Four audit firms. They refer the previous documented audit quality difference between Big Four audit firms and non-Big Four audit firms to client-level characteristics, not audit firm attributes. Furthermore, they find that the dominating attribute in client characteristics is client size. Bills and Stephens (2015) find that it is hard for Big Four to earn fee premiums when there is large local market share from non-Big Four audit firms at city level. These anecdotes as well as empirical evidence suggest that the audit quality provided by non-Big Four auditors are increasing and become more and more comparable to those provided by Big Four auditors.

### **2.3.Audit Firm Alliances and Audit Quality**

Since the audit market is dominated by Big Four auditors so far, non-Big Four auditors, especially mid-tier audit firms like BDO Global, Baker Tilly, Grant Thornton, are eager to become reliable auditors of big public firms. Both regulators and practitioners are looking for effective ways to increase audit quality provided by non-Big Four auditors. The rising trend of joining audit firm associations or networks has drawn attention recently. To overcome the weakness in resources and reputations, many small audit firms choose to join audit firm alliances, such as BDO International, Baker Tilly International, AGN International, Crowe Horwath etc. Based on *International Accounting Bulletin World Survey 2017*<sup>3</sup>, in 2016, the global market share for Big Four is 66.6%, while the global market share for top six mid-tier networks is 14.3%. The market share for non-Big Four networks in 2016 has increased compared with that in 2015. There are 22 audit firm networks, and 21 audit firm associations, with fee income excess \$100 million USD in 2016. The largest three audit firm networks are BDO International, RSM, and Grant Thornton, while the largest three audit firm associations are Praxity, Leading Edge Alliance, and PrimeGlobal, based on the fee income. Also in 2016, almost all audit firm networks and associations undertake rapid growth.

Since regulators and practitioners have been promoting the use of non-Big Four audit firms as a reliable supplier of high-quality audits to public companies, both small audit firms as well as associations and networks are making efforts toward the step. The professional assistance from leading audit firms, and information and resources exchanges among member firms could help small audit firms to improve their audit inputs. For example, when appointed as the new global technical and quality manager in Nexia in 2009, Simon Riley described his role as:

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<sup>3</sup> <http://www.internationalaccountingbulletin.com/countrysurvey/world-survey-2017-data-5739534/>

*“A significant amount of the work time will be spent performing quality control reviews directly, training other people to perform reviews and setting up a quality control programme for the network, which will ensure member firms are reviewed routinely and up to international standards...” (International Accounting Bulletin, 2009).*

Within each alliance, member firms could work with other member firms globally. Typical forms of knowledge sharing are global conferences, meetings and trainings. Leading firms will also provide supporting services and practice frameworks to member firms. These benefits will help non-Big Four audit firms to increase the quality of their audit services, from the perspective of competency (Frankel et al., 2001).

Another benefit of joining audit firm alliances is that they could use the brand names of the alliances. Such brand names send signals to clients that they could provide high quality audits. Also, by permitting allied audit firms to use the brand names, audit firm alliances need to set up control systems and review programs among its allied auditors. Although member firms work independently without sharing litigation risks, audit failure of certain member firms will affect the reputation of alliances negatively. Prior studies find that reputational costs of audit failures are very important incentives for firms to supply high-quality audit services. Negative reactions to audit failure, such as higher cost of capital (Hribar and Jenkins, 2004; Graham et al., 2008), negative stock reactions (Palmrose et al., 2004; Myers et al., 2013) and decreased compensation (Burks, 2010) are costly to clients. To prevent audit failures, clients will choose high-quality audit firms. The brand names provided by audit firm alliances help non-Big Four auditors, especially small auditors, to send signal to clients that they are capable of providing high-quality services.



Despite the increasing importance of audit firm associations and networks, little attention is paid to them in academic works. Two recent paper have examined the research question using US data (Bills et al. 2016a, 2016b). So far to my knowledge, there is no study looking at the audit quality provided by audit firm associations and networks worldwide. Bills et al. (2016a) investigates audit quality provided by small audit firms in the US. They find that compared with other small auditors who are not association or network members, member auditors have fewer PCAOB inspection deficiencies and misstatements. Performance-matched discretionary accruals are also smaller for member auditors. This is the first paper looking at whether joining accounting associations is beneficial to small auditors. Their findings are important in that small auditors should consider joining audit firm alliances as an effective way to increase their audit quality. Another paper by Bills et al. (2016b) focused on the benefits and challenges confronted by member auditors using survey data. In the paper, they separate audit firm alliances into three types. The first type is audit firm alliances whose members are mainly large audit firms. Members within such kind of alliances perceive global reach to be the key benefit of joining. By joining alliances, they can get exposure to global customers and get international coordination when necessary. These members are usually mid-tier auditors, who are more aggressive in increasing market share. The second type of audit firm alliances usually have several leading organizations within the alliances. Such leading organizations could be either local or global. Members within such alliances perceive shared technologies and resources to be the key benefit. When there are barriers or difficulties for smaller members, leading organizations in the alliance could provide expertise and training to them. The third type is audit firm alliance who are mainly comprised of smaller auditors. These members usually have small market share, so they rely on each other to share resources, assistance and technologies. The two papers provide very important classifications,

benefits and challenges in this area. I contribute to the literature by using alliance data at international level.

#### **2.4. The Mediating Role of Country-level Institutional Factors**

Prior literature implies that the differences in country-level institutional factors influence the variations in financial reporting practices, firm behaviors, and auditors' behaviors. Alford et al. (1993) suggests that information asymmetries between firm insiders and outsiders are determined by the differences in disclosure and taxation regulation and practices across countries. Pope and Walker (1999) find that accounting conservatism is different between UK and the U.S. In U.S., the timeliness in earnings is not sensitive to the inclusion or exclusion of extraordinary items in earnings. The authors suggest that such difference is due to the disclosure and legal environment differences between the two countries. Leuz et al. (2003) find that earnings quality are different across different countries. The contributing factor to those differences is the level of investor protection in different legal regimes. In countries with stronger investor protection level, earnings management behaviors are less severe, while in countries with weak investor protection level, earnings management behaviors are more serious. They provide a score for each country on the country's earnings management level. Rossi and Volpin (2004) find that the number of merger and acquisition activities is associated with accounting standards firms are following and investor protection level in the country. Moreover, they find that acquirers are more likely to acquire targets from countries whose investor protection is worse than their home countries, and such evidence indicates that cross-country merger and acquisition activities are helpful in serving as a tool of external monitoring. Choi et al. (2008) find that auditors earn a fee premium in countries with strict legal environment. Also, they find that Big Fours have fee premiums internationally. The paper further finds that in

countries with strict legal environment, the Big Four charge relatively lower audit fees. Francis et al. (2015) find that although there is audit market concentration in most countries, audit quality and earnings quality is higher for Big Fours than non-Big Fours in all countries included in their sample. Frost and Pownall (1994) find that market liquidity and market reactions to annual earnings announcement is higher for U.S. firms than for UK firms that cross-listed in the U.S. market. Shi et al. (2013) find that strict IPO disclosure regulations negatively affect IPO underpricing. They also find that such negative effect is less pronounced in countries with more developed stock markets. Ball et al. (2000) find that firms from common-law countries report losses more timely and their earnings are more conservative. Therefore, they conclude that agency problem is less severe in common-law countries than in code-law countries. Banker et al. (2013) find that firm's cost stickiness is related to the country-level employment protection legislation, which is a measure for country-level labor adjustment costs. DeFond et al. (2007) find that the information content of earnings announcements are larger from countries with better accounting quality, more strict enforcement of insider trading laws, and in countries with higher-level of investor protections. Guenther and Young (2000) predict that earnings in common-law countries, countries with high investor protection level, countries whose capital market is market-oriented, countries which do not require earnings and taxable income to conform are better able to faithfully and truly represent the economic situations of the firms, compared with earnings in code-law countries, countries with low investor protection level, countries whose capital market is bank-oriented and countries whose taxable income is based on earnings. Accordingly, they find that earnings in the UK and the US reflect the true economic situations better than earnings in Japan, France, and Germany. Ball et al. (2003) find that although influenced by accounting standards in common law countries significantly, the accounting quality, proxied by timeliness

of losses, is not higher than the accounting quality in code law countries. Thus, they conclude that manager incentives and monitoring from auditors, rather than the accounting standard itself, play the most important role in shaping financial reporting practices. Guedhami et al. (2009) find that the extent of state ownership negatively affects the likelihood the Big Four auditor appointment when firms privatize, and such negative association is more pronounced in countries with weak country-level corporate governance. Guedhami et al. (2014) find that politically connected public firms prefer Big Fours as their auditors. Moreover, Big Fours are more likely to become those firms' auditors if the country-level corporate governance is low. Lang et al. (2012) find that the positive associations between liquidity and transparency is more pronounced if the firm is from a country with strict legal environment, high level of investor protection, and strict disclosure requirements. Hail and Leuz (2006) find that cost of equity capital is lower in countries with more strict legal environment, disclosure requirement, investor protections. DeFond and Hung (2004) find that the CEO turnover is significantly related to poor firm performances across countries, but this relation is less pronounced in countries with strong legal enforcement. Young and Guenther (2003) find that countries with high financial accounting quality and better information environment have better international mobility. Hope (2003) find that analyst forecast is more accurate in countries with better disclosure quality. Haw et al. (2012) find that information content of stock prices about future earnings is higher in countries with better disclosure quality, better accounting quality, better media coverage. However, they find that information content of stock prices about future earnings decrease in countries with strong enforcement of insider trading laws. Chen et al. (2015) find that there is a positive relation between country-level economic freedom and firm equity value. Dou et al. (2013) find that firms use income smoothing, especially the "informational" content of income smoothing, increases in countries

with weak contract enforceability because income smoothing is used by firms to send signals about their willingness to maintain long-term relationships to suppliers. Lamoreaux et al. (2015) find that the allocation of international development aid loans provided by World Bank is positively related to country-level accounting quality, accounting standards quality, and audit quality, and this relation only exists in countries with high corruption. Also, managers tend to issue more “good-news” voluntary forecasts in less litigious environment. Khurana and Raman (2002) find that perceived audit quality, proxied by cost of equity capital, is only lower for clients’ of Big Fours in the U.S., not in other Anglo-American countries such as Australia, Canada, or UK. They conclude that litigation risks, not reputation risks, are the main incentives for Big Fours to provide higher-quality audit services. Michas (2011) find that clients prefer Big Four audit firms over non-Big Four audit firms in developing countries with high country-level development of audit profession, compared with clients in developing countries with low development of audit profession.

Given the great importance of country-level institutional factors on accounting and auditing practices, I will also examine the mediating role of country-level factors on the effect of joining audit firms alliances on audit pricing and audit quality. Following prior literature, I will explore the mediating role of country-level litigation risks and country-level audit quality.

## Chapter 3 Hypothesis Development

### 3.1. Audit Firm Alliances and Audit Quality – Competency and Independence

Auditor competency captures the ability of auditors to provide high-quality audit services. Such abilities could be affected by many factors, such as human capital within the audit firm, auditor industry specialization, technology, local and global resources. Competency is important to auditors since it facilitates auditor motivation. In other words, if auditors are motivated by litigation risk, reputational risk and regulation risk to provide high-quality audits, they need necessary resources and ability to implement the motivations (DeFond and Zhang, 2014).

Joining audit firm alliances provides the setting to test how audit quality is affected when competency is improved. In the field study by Bills et al. (2016b), they find that interviewees generally identify three benefits of joining audit firm alliances: shared resources, overcome of market segments, and improved efficiency. This is consistent with anecdotal evidence. For example, in 2016, Baker Tilly starts to use a new audits software, *TeamMate*, as internal audit technology among members. The purpose of the adoption is to increase the accuracy and efficiency of audit works. Such actions indicate that alliances will help to promote advanced technologies among members, which is very important to improve audit competency. Also, global reach is another important advantage of joining audit firm alliances. Moreover, members could share information and resources using different channels, such as annual conference and regional meetings. Therefore, with more advanced technology, coordinations and assistance among member firms, and shared information and global reach, the competencies of member firms would be improved.

Apart from competencies, auditor independence could also be improved after non-Big 4 auditors join audit firm alliances. From the perspective of reputational risks,

after joining audit firm alliances, non-Big Four auditors are confronted with the restrictions and monitorings from alliances. Member firms usually use the brand name of alliances as a signal to differentiate themselves with other non-Big Four auditors. Meanwhile, since alliances allow members to use their brands, they need to assure that the audit services provided by their members are in accordance with the quality required by the alliance. Although no risk is shared by alliances if there is audit failure or lawsuits filed to its clients, the brand name of the alliance would be damaged if such negative events happen. The larger the alliance, the more concerned the alliance is to its brand name because of the “deep pocket”. Also, since the global reach is expanded after non-Big 4 auditors join audit firm alliances, the auditors themselves are also more concerned with their reputation. With regard to motivations from litigation risks, after joining audit firm alliances, non-Big 4 auditors can attract large clients or overseas clients. Also, the exposure to litigation risks is also increased if overseas clients are from a country with strict legal environment. With the increased investment in competencies, as well as increased audit efforts on client’s financial reports, audit fees are also likely to increase. Also, alliances require members to submit member fees. Non-Big Four audit firms are most likely to allocate the extra member fees to their clients. Therefore, the audit fees will increase. Also, if clients perceive that they would receive higher-quality audit services after their audit firms join alliances, they are willing to pay the fee premium since the assurance on clients’ financial reports will also be higher.

In sum, after joining audit firm alliances, auditors could improve both auditor competencies and auditor independence, from expanded resources and global reach, increased reputational risks and litigation risks, so both their incentives and abilities will be improved. Since audit quality increases, audit pricing should also increase

correspondingly. Thus, my first hypothesis is as follows:

*H1: Both audit fees and audit quality of non-Big Four audit firms will increase after they join audit firm alliances.*

### **3.2. Audit Firm Alliances and Audit Quality - The Role of Litigation Risks**

My previous argument suggests that audit quality improves because of increased investment on auditor ability benefited from audit firm alliances. However, I cannot omit litigations since it is critical in affecting auditor motivations. Venkataraman et al. (2008) find that auditors are less tolerant of firms' earnings management behaviors during IPO process, and auditors earn higher audit fees for IPO engagements than post-engagements, suggesting that audit quality and audit fees are higher in a more litigious setting. Seetharaman et al. (2002) find that UK firms cross-listed in U.S. pay higher audit fees. Bronson et al. (2017) find that auditors request higher audit pricing for U.S cross-listing firms. However, in Australia, Canada and UK, clients of Big Four auditors do not have lower cost of equity capital. In sum, prior literature suggests that litigation risk is a critical incentive for auditors to provide high audit quality.

However, the most litigious environment still exists in the US worldwide. Since my study excludes US firms, I use litigation risks as a partition variable, instead of using it as a factor of how it affects audit pricing and quality. My prediction is that the effect of joining audit firm alliances is more pronounced in countries with low litigation risks. There are two reasons. First, in environments with low litigation risks, clients are more likely to conduct misreporting behaviors in the first place. The negative consequences from financial misreportings are less harmful to firms. Moreover, in an environment with low litigation risks, auditors are more likely to compromise with the misreporting behaviors of their clients, since the likelihood of



lawsuits is lower. Therefore, audit quality is lower in less litigious environment. However, after auditors join audit firm alliances, they are confronted with restrictions from alliances. Alliances will intervene with the quality control program since they need to protect their brand names. Once restrictions become more strict from the auditor side, the likelihood of clients' misreporting behaviors being reported is higher. Thus, the marginal increase in audit quality is higher in less litigious environment. Second, in less litigious environments, clients will care more about reputations of auditors, and based on the signal theory, they use auditors' reputation to differentiate themselves from other firms. Thus, they are willing to pay for the audit fee premiums to choose a higher-quality audit firm, and such clients usually are better firms, so their earnings quality is higher, thus audit quality higher. Also, prior studies suggest that the two main factors for audit pricing are litigation exposure and audit efforts (Simunic, 1980; Dopuch and Simunic, 1982; Seetharaman et al., 2002). When litigation exposure is not a concern, audit efforts are the driving factors for auditor pricing. Thus, in countries where litigation risks are lower, client will pay more attention to audit efforts and auditor reputation. Since joining audit firm alliances will increase non-Big Four audit firms' reputation capital, the marginal increase in audit quality will be higher for those firms from less litigious countries.

Besides the role of cross-country litigation environments, I also examine the role of litigation risks at industry level. Francis et al. (1994) defines four industries, biotechnology, computing, electronic, and retailing, as industries with higher likelihood of litigations (Francis et al., 1994). I also predict that for clients operating in less litigious industries, the effect of their auditors joining audit firm alliances on improving audit quality will be more pronounced, as auditor efforts and reputational capital is more critical to them.

Thus, my second hypothesis is:

*H2: The positive impact of joining audit firm alliances on audit quality and audit pricing is more pronounced for auditors from countries or industries with lower litigation risks.*

### **3.3. Audit Firm Alliances and Audit Quality - The Role of Country-level Audit quality**

Following the establishment and success of PCAOB, many countries have been motivated to build their own local auditor oversight bodies. PCAOB has also started to work closely with some non-U.S. audit regulators to improve the efficiency and effectiveness of inspection process and audit quality (Lamoreaux, 2016). Country-level audit regulations, which mainly consists of the auditing standards the country adopts and a local audit oversight body, are influenced by the country's legal system and financial development. Therefore, audit regulations vary significantly across different countries.

Prior studies have shown that the creation of PCAOB has improved audit quality significantly. Section 104 of Sarbanes-Oxley Act (SOX) required PCAOB to oversee and regulate auditors of public companies. (Aobdia and Shroff, 2017; Fung et al., 2017; Lamoreaux, 2016; Shroff, 2015). By analyzing the audit works, and investigating the quality control systems, PCAOB will issue a report, briefing about whether the audit firms have been performed in accordance with PCAOB standards (Aobdia and Shroff, 2017). So far, PCAOB inspection process has influenced audit regulation and practices in both the U.S. and other countries. Following PCAOB, other countries started to pay attention to the audit standards and regulations.

In 2005, European Union switched to International Standards on Auditing. Issued by the International Auditing and Assurance Standards Board (IAASB), the

purpose of ISAs is to provide guidance to auditors and improve audit quality. Under the EU Audit Directive in 2014, the European Commission (EC) has the power to mandate the ISAs for all statutory audits across the EU (International Accounting Bulletin, 2015)<sup>4</sup>. Though the adoption is voluntary basis, by 2015, 25 countries have adopted ISAs. Canada also adopted ISAs in 2009. Recently, Malaysia has also decided to adopt ISAs from December 2016. Bill Gradison, board member of PCAOB, said that,

*“Unless PCAOB modifies the format of its standards writing, it may, in two-year time, be the only major standards writer not to use international standards as a base”, (Gradison, 2008; Abodia and Shroff, 2017)*

A recent analytical paper by Simunic et al. (2017) develops a model to draw implications about whether countries should adopt International Standards on Auditing. Because of the great importance of ISAs, I use whether the country has adopted ISAs to proxy for the country-level audit quality. For those countries that adopt ISAs, their overall audit quality are considered to be higher than those countries without adopting ISA. Therefore, the incremental effect of joining audit firm alliances should be smaller for clients in these countries.

The second country-level audit quality measure I use is whether the country has a local audit oversight body. Krishnan et al. (2014) find that both stand-alone PCAOB inspections and joint inspections of PCAOB and local audit oversight body will help to increase earnings quality of clients of inspected non-US auditors. The establishment of audit oversight body reflects that regulators in the government is making efforts to oversee and monitor local audit firms. For countries with local audit

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<sup>4</sup> <http://www.internationalaccountingbulletin.com/news/three-eu-members-yet-to-adopt-international-auditing-standards-4562247/>

oversight bodies, the country-level audit quality should be higher than that in the countries without local audit oversight bodies. Thus, the increase in audit quality after non-Big Four audit firms join audit firm alliances should be higher in countries without any local audit oversight bodies.

The third country-level audit quality measure I use is the country-level earnings management score. Since audit quality is the joint probability that there is financial misreporting behavior in the financial statement and such misreporting behaviors being detected and reported, high earnings management level in a country indicates that auditors in the country overall do not constrain earnings management behaviors. Therefore, high earnings management level indicates low country-level audit quality. Leuz et al. (2003) examines the accounting quality in 31 countries. They find that in countries where shareholder rights are stronger, earnings management score is smaller. A country with high audit quality should have low earnings management score. Thus, my prediction is that the increase in audit quality should be higher in countries where earnings management behaviors are more severe.

Collectively, my third hypothesis is as follows:

*H3: The increase in audit quality and audit pricing after non-Big Four auditors join audit firm alliances is more pronounced in countries with low country-level audit quality.*

### **3.4. Audit Firm Alliances and Audit Quality - The role of alliance characteristics**

*International Accounting Bulletin*, where I collect the information related to association and networks data, publishes a rank of all the accounting associations and networks each year. The rank is based on multiple factors, such as fee income, fee growth, total fee split (audit services, accounting services, tax services, advisory services, and other), number of staff, partners, and offices each year etc. In 2016, BDO,

RSM and Grant Thornton are among the top three accounting networks by fee income, and Praxity, Leading Edge Alliance, and GGI are among the top three accounting associations by fee income. Alliance characteristics reflect unique features in each alliance. To differentiate themselves from others, each alliance has its own uniqueness and feedbacks to allied audit firms. Audit firm alliances with large number of fee income could provide more resources to member firms. With high fee income, alliances have more resources to apply advanced technology, call for meetings, and invest in reputational capital. Bills et al. (2016a) find that greater access to resources contributes to higher-quality audits for member firms, and reputation of the association contributes to the audit fee premiums that association member firms enjoy.

Another important characteristic of alliances is the growth speed of the alliances. There are both pros and cons of joining an alliance expanding aggressively. The benefits of joining high-growth alliances are that the total amount of resources available for members will be more in expanding alliances, since one extra member could contribute to the information and resources within the alliance. However, with more members in an alliance, the average amount of resources to each member might be limited. The case for low-growth alliances is exactly the opposite. The total amount of resources and information within the alliance might be less, but the average resources each firm enjoys could be more. Another important characteristics of alliances is the number of staff per office. Number of staff per office is important since it reflects the supports members could get from the alliances. On average, my prediction is that member firms from high-growth audit firm alliances, from alliances with high fee income, and from alliances with large number of staff per office, provide higher audit quality, because the three factors reflect amount of resources available to member firms. Also, with more fee income, the alliances could have more total income

from member fees, so the alliances are capable of purchasing more advanced facilities and hire experts. Therefore, my fourth hypothesis is:

*H4: The increase in audit quality and audit pricing after joining audit firm alliances is more pronounced in audit firms joining high-growth audit firm alliances, alliances with high fee income, or alliances with more number of staff per office.*

### **3.5. Audit Firm Alliances and Audit Quality - Networks and Associations**

There are two types of accounting firms alliances, one in the form of associations, the other in the form of networks (Bills et al., 2016a). The two types of audit firm alliances are all independent audit firms working together, but the operations within each type are different. Members within audit firm networks work more tightly together compared with members within audit firm associations. For example, large audit firm networks may even adopt the same brand name. Also, based on anecdotal evidence, networks usually have more resources to allocate to members, compared with associations. Another important characteristic of networks is that there are usually leading organizations or leading firms in a network (Bills et al. 2016b). On the contrary, audit firm associations are usually a number of small auditors working together. There are no leading organizations or leading firms in an association. Some associations will take turns to hold chair and call for meeting. Thus, members in networks usually focus on global reach and international expertise, while members in associations more focus on shared information and technology (Bills et al. 2016b). However, there are few papers in prior literature examining the differences between audit firm networks and audit firm associations.

Based on the tight work, global reach, signal from brand names, and existence and help from leading firms or organizations between audit firm alliances and audit firm networks, my prediction is that it is more beneficial for non-Big Four audit firms

to join audit firm networks, compared to joining audit firm associations. Therefore, my fifth hypothesis is:

*H5: The increase in audit quality and audit pricing after joining audit firm alliances is more pronounced if non-Big Four audit firms join audit firm networks.*

## Chapter 4 Sample and research design

### 4.1. Research Design

I use the following two regression specifications to examine the effect of joining audit firm alliances:

$$\begin{aligned} & \text{Audit quality (Audit pricing)} \\ & = b_0 + b_1 All + b_2 All * Post + Firm\ controls \\ & + Country\ F.E. + Industry\ F.E. + Year\ F.E. + \varepsilon \end{aligned} \quad (1)$$

$$\begin{aligned} & \text{Audit quality (Audit pricing)} \\ & = b_0 + b_1 All * Post + Firm\ controls \\ & + Firm\ F.E. + Year\ F.E. + \varepsilon \end{aligned} \quad (2)$$

$i$  and  $t$  are indicators for the firm and year, respectively. Equation (1) includes country, industry, and year fixed effect.  $All$  is a dummy variable, which equals to one for the treatment sample (if the client is audited by an audit firm who joins audit firm alliances), and zero for the control sample (the client is audited by an audit firm who does not join any audit firm alliances).  $Post$  is a dummy variable, which equals to one for treatment firms for the years after which their auditors join audit firm alliances (the post-event period), and 0 otherwise (the pre-event period). For example, WanLongAsia, the seventh-largest firm in China, joined Crowe Horwath in September 2009 (International Accounting Bulletin). So  $Post$  equals to 1 for clients of WanLongAsia if their fiscal year ends after September 2009. Since the event year could not be identified for control sample,  $Post$  equals to zero for all years for control sample. The interaction term between the two dummy variables,  $All * Post$ , captures the change in audit quality and audit pricing in treatment sample from pre-event period to post-event period, compared with the audit quality and audit pricing of control



sample. Both *All* and *All\*Post* are included in the Equation (1). *Post* dummy variable is omitted because there is no variation in *Post* in the control sample. In Equation (2), we drop country and industry fixed effect, and include firm and year fixed effect in the regression. Therefore, both *All* and *Post* are omitted because *All* is a firm-level variable and it has no variation after firm fixed effect is included. In both regressions, standard error determining the statistical significance of the coefficients are based on robust standard errors clustered at the firm level.

Following prior literature, I use absolute discretionary accruals to proxy for audit quality and audit fees to proxy for audit pricing (Baiman et al., 1987; Becker et al., 1998; DeFond and Subramanyam, 1998; Bedard and Johnstone, 2004; Frankel et al., 2002; Ashbaugh et al., 2003; Balsam et al., 2003; Ghosh and Moon, 2005; Su et al., 2007; Chen et al., 2008; Lawrence et al., 2011; Lobo and Zhao, 2013). Since audit quality cannot be directly observed, and audit quality is defined as the joint probability that an existing material error is detected and reported by an auditor (DeAngelo, 1981; Caramanis and Lennox, 2008), so if audit quality increases, clients' earnings management behaviors will be more likely to be detected, and earnings quality will increase. I use *Audit fees* as the proxy for audit pricing. Increased audit efforts from auditors will decrease financial reporting errors (Shibano, 1990). Caramanis and Lennox (2008) find that the chance of detecting a material defect depends on the audit efforts from auditors.

I control for firm-level characteristics that prior literature considers to have impact on audit quality (Lawrence et al., 2011; Eshleman and Guo, 2014; Bills et al., 2016a). Different firm controls are included in audit quality and audit pricing regressions. When audit quality is the dependent variable, I control for *Log(MV)* (the natural logarithm of market capitalization in millions of US dollars), *ROA* (income

before extraordinary items divided by total assets), *LEV* (total leverage divided by total assets), *CURR* (current assets divided by current liabilities), *CFO* (operating cash flow divided by total assets), *LOSS* (an indicator equals to 1 if the company reported a loss in year  $t-1$ , and 0 otherwise), *MTB* (market value of equity divided by book value of equity), *SG* (sales growth from year  $t-1$  to year  $t$ ), *FG* (finished goods divided by total assets), *ZSCORE* (client's bankruptcy risk using Altman's (1968) Z-score), *Taccr* (the absolute value of total accruals in year  $t-1$ , divided by total assets in year  $t-1$ ), *AST* (an indicator equal to 1 if the client uses IFRS to report, and 0 otherwise), *Tenure* (audit-client tenure to date), *Audsz* (the natural logarithm of the number of publicly traded clients audited by the company's audit firm during the fiscal year), *Mktshr* (the auditor's market share, proxied by the audit fees charged from its clients in the same industry, measured using 2-digit SIC), *Audinf* (client's influence to the auditor, measure by client's audit fees divided by the total audit fees of the auditor). When *Audit fees* is the dependent variable, the control variables are *Log(Assets)* (natural logarithm of total assets in million US dollars), *CATA* (current assets divided by total assets), *QUICK* (quick ratio, current assets minus inventories, divided by current liabilities), *LEV*, *ROA*, *LOSS*, *SG*, *FG*, *GC* (an indicator variable set to 1 if the company received a going concern opinion in year  $t-1$ , and 0 otherwise), *AST*, *FOREIGN* (an indicator variable equal to 1 if the company has income from foreign operations, and 0 otherwise), *Tenure*, *Audsz*, *Mktshr*, *Audinf*. The coefficient of *All\*Post* captures the effect of joining audit firm alliances on audit quality and audit pricing on treatment sample, compared with those of control sample.

## 4.2. Sample

To identify the member firms of audit firm alliances, first, I follow Bills et al. (2016a) using the association and network lists in the "Annual Directory of CPA Firms

Associations and Networks,” by CCH and *CPA Practice Management Forum* (Bills et al., 2016a). CCH is a professional provider of software and information services for taxation, accounting and auditing. Every year, CCH will issue a directory of CPA firm alliances. Information contained in the report includes the number of U.S. and international member firms, as well as alliance characteristics. Also, I identify the audit firm alliances rank on fee income, number of staff and offices, audit firm alliances growth from *World Survey 2016* by *International Accounting Bulletin*. After identifying the alliances, I went to those alliances’ websites to collect the full lists of member firms in each alliance. Then I collect the joint dates from *International Accounting Bulletin*. *International Accounting Bulletin* issues news about accounting firms, networks and association globally. I could identify 854 audit firms with exact joint dates from *International Accounting Bulletin*.

I collect the joint dates mainly for the purpose of comparing the change in audit quality and audit pricing for treatment firms from pre-event period to post-event period. Without the joint dates, I could only compare the difference in audit quality and audit pricing between treatment sample and control sample, without any time-series analysis. A standard difference-in-differences analysis would require a pseudo-event date identified for control firms. A pseudo-event date could be identified for control sample if the event is exogenous shock and have a clear event date. For example, most studies in IFRS literature use mandatory adoption of IFRS in European Union in 2005. So 2005 could be used as the pseudo-event year for control sample, and the time-series dummy (*Post*) could be included in the regression. However, since the event year in my sample is not the same across years, I could not use a single date as the pseudo-event date for control firms. This is common in literature involving staggered adoption or staggered firm-level decisions (DeFond et al. 2015; Li and Yang 2016). Therefore,

although I do not use a standard difference-in-differences analysis, I could still capture the difference-in-differences effect using *All\*Post*. Also, with joint dates, and if clients' audit quality and audit pricing are increased, I could draw some causality that such improvement is caused because clients' audit firms join audit firm alliances. My treatment sample is comprised of clients of member firms, while my control sample is comprised of clients of non-member firms. I exclude clients of Big Four firms from my sample, since there are fundamental differences between the clients of the two groups of auditors.

Table 1 has the summary statistics for each alliance. Panel A contains the number of member firms in each alliance in 2015. The data is from CCH's *2015 Directory of CPA Firm Associations and Networks* report. Specifically, since CCH's 2015 report does not contain BDO International (only BDO Alliance USA), as well as Mazars, the information for the two alliances are from the global directory at BDO's and Mazars' websites. Moreover, in 2015, McGladrey Alliance decided to change its name into RSM US Alliance. Thus, the 75 RSM member firms in US refer to those members originally under McGladrey Alliance USA. Among the 22 alliances, GGI Geneva Group International has the largest number of international member firms (417 members), while BDO has the largest number of total member firms (509 members). Panel B presents the number of client-year observations in each alliance used in the sample. For example, I could identify Huang Yan Teo & Co, an audit firm from Malaysia, joined Baker Tilly in November, 2014. Then I identify its clients from *Capital IQ*. BDO has the largest number of client-years in the sample (3,388 client-year observations), since it has been long considered as the fifth biggest audit firms in the world. PrimeGlobal has the smallest number of client-year observations in the sample (3 client-years).

Table 2 presents the distribution of treatment and control sample by country and by year. There are 13,380 client-years for treatment firms, while there are 32,133 client-years for control firms. The sum of client-year observations for the full sample is 45,513. Specifically, the treatment sample is comprised clients of member firms, while the control sample is comprised of clients of non-member firms. Combining the treatment sample and control sample together, the two countries with the largest number of observations are India and China, with 15,004 firm-year observations and 12,512 firm-year observations. With respect to treatment sample, China has the largest number of observations (7,533 firm-year observations). Panel B is the sample distribution in each year. The number of clients of member firms is increasing rapidly in recent years, indicating that more and more non-Big Four audit firms are joining the accounting firm alliances.

Table 3 shows the summary statistics for the final sample. The mean value of *Audit fees* for clients of member firms is higher than the mean value of *Audit fees* for clients of non-member firms, indicating that member firm clients pay more audit fees than non-member firm clients. The median of *Audit fees* is also higher in treatment sample. When firm size is proxied by  $\log(Assets)$ , the mean and median value of  $\log(Assets)$  are higher in treatment sample, suggesting that large firms are more likely to choose member firms as their auditors. Similarly, when firm size is proxied by  $\log(MV)$ , both mean and median values are higher in treatment sample. Thus, alliance members are more attractive to bigger clients. The mean value for *Audsz* is 4.344 for treatment sample and 1.947 for control sample, indicating that member firms are generally much larger in terms of client size than non-member firms. The *Audinf*, which measures the influence of clients to audit firms, is 0.386 for control firms and 0.07 for treatment firms. Thus, member firms are much more independent than non-

member firms. Panel B presents the correlation coefficients for all variables used in the two models. The magnitude and signs of the correlation coefficients are similar to those in previous studies.

*<Insert Table 1>*

*<Insert Table 2>*

*<Insert Table 3>*

## Chapter 5 Audit Firm Alliances and Audit Quality

### 5.1. Main Evidence

Regression results based using Equation (1) and Equation (2) are presented in Table 4. Panel A are regression results including country-, year-, and industry-dummies, and panel B have regression results using firm- and year-dummies. The two regressions examine whether audit quality or audit pricing of clients increase after member firms join alliances. Results of regressing *Audit fees* on independent and control variables are listed in the first two columns. In column (1), when no control variable is included, the coefficient on *All\*Post* is significantly positive (0.332,  $t=6.10$ ), indicating that after member firms join audit firm alliances, clients pay higher audit fees than before, thus audit pricing increases significantly. Controlling further by including control variables, in column (2), the coefficient on *All\*Post* remains significantly positive (0.216,  $t=4.88$ ). This evidence is consistent with the first hypothesis. The signs of the coefficients on the control variables are largely consistent with prior literature (Lawrence et al., 2011; Eshleman and Guo, 2014). The results show that *Audit fees* are positively associated with firm size, finished goods, accounting standards, foreign sales, auditor tenure, auditor size, auditor market share, and client influence, and negatively associated with quick ratio, leverage, ROA, sales growth, and audit opinion.

Regression results using *Discretionary accruals* to proxy for audit quality are presented in the last two columns. In column (3), when no control variable is included, the coefficient on *All\*Post* is significantly negative (-0.011,  $t=-2.85$ ), indicating that discretionary accruals decrease in clients of member firms after their auditors join audit firm alliances, compared with clients choosing non-member firms as their auditors. In column (4), independent variables that are normally used in discretionary

accruals models from prior literature are included. The coefficient on *All\*Post* is still significantly negative (-0.011,  $t=-3.11$ ). Therefore, the evidence is consistent with my first hypothesis, that audit pricing and audit quality increase for clients after member firms join alliances.

Panel B of Table 4 has regression outcomes from Equation (2). The results are consistent with those presented in the Panel A. In the first two columns using *Audit fees* as the dependent variable, the coefficient on *All\*Post* is significantly positive (0.359,  $t=6.93$ ). When regressing *Discretionary accruals* on the independent and control variables, the coefficient on *All\*Post* is significantly negative (-0.02,  $t=-3.59$ ). Hence, clients pay more audit fees, and clients' discretionary accruals decrease after their audit firms join audit firm alliances.

In sum, both results on audit pricing and audit quality provide evidence that is consistent with my first hypothesis, that audit quality improves for clients of member firms after members join audit firm alliances, compared with clients of non-member firms. Also, non-Big Four member firms earn a fee premium and their clients are willing to pay the audit fee premium after audit firms become a member of audit firm alliances.

< *Insert Table 4* >

## **5.2. Robustness Checks**

### **5.2.1. Alternative Dependent Variables**

To check if the main evidence still holds using other audit quality measures, I re-estimate Equation (1) and Equation (2), using three alternative dependent variables, meet/beat the earnings targets, going-concern opinions, and performance matched



discretionary accruals, as proxies for audit quality.

Prior literature commonly uses earnings quality measure to proxy for audit quality, similar to the use of discretionary accruals. I use one commonly used accounting quality proxy, meeting or beating analyst targets, to proxy for audit quality (Bartov et al., 2002). A company's earnings target is defined using forecasted EPS median consensus by its analysts. If earnings at year  $t$  meet the analyst forecasts, investors will make positive reactions. For example, Bartov et al. (2002) finds that if firms just meet or beat their analysts' targets, such firms will have better stock market performance, compared with those firms who miss the targets. Consistent with my main hypothesis, I expect that for clients whose auditors are alliance member firms, their audit quality will be improved, thus earnings management behaviors be constrained. Hence, the probability of small positive accounting numbers over analysts' consensus will be lower for member firms' clients.

The regression outcome of Equation (1) is presented in column (1) of Table 5. The dependent variable is a dummy variable, which equals to 1 if the firm has small positive earnings surprise in the fiscal year. If the difference between the company's actual EPS and analyst-forecasted EPS is smaller than 0.01 dollars, then the company has small positive earnings surprise in the fiscal year. Small positive earnings surprise is more likely to be the outcome of earnings management. Thus, the dependent variable captures the likelihood of earnings management towards targets. The evidence is consistent with my prediction. The likelihood of small positive earnings surprises decreases significantly in their clients after member firms joined audit firm alliances ( $-0.017, t=-1.82$ ). Thus, my main evidence still holds using another earnings quality measure to proxy for audit quality.

I then use another more direct audit quality measure, the auditing opinions

clients receive from their audit firms, as the dependent variable (Carcello and Neal, 2003). Auditors use audit opinions to provide their evaluations of the firms to both corporate insiders and outsiders (DeFond and Zhang, 2014). Auditors issue GC opinions when they have "doubt about the entity's ability to continue as a going concern for a reasonable period of time, not to exceed one year beyond the date of the financial statements being audited" (AU 341, PCAOB, 2012; DeFond and Zhang, 2014). Audit opinion is also a critical indicator for auditor independence. Carcello and Neal (2000) find that auditors are less likely to issue going-concern reports to financially constrained clients, because audit committees in these firms are short of independence. Also, if an auditor is concerned that a going-concern report will result in its dismissal, the auditor may be reluctant in issuing going-concern opinions (Carcello and Neal, 2003). Li (2009) find that in the post-SOX period, clients paying higher audit fees and total fees are more likely to have going-concern opinions. Such evidence suggests that auditor independence increases after in the post-SOX period.

Consistent with prior literature, I predict that an improvement in audit quality will increase the likelihood of clients receiving going-concern opinions. After audit firms join audit alliances, the audit independence will increase, since firms will have more resources, and information, and support from leading firms. So member firms will rely less on certain clients. With increased audit independence, clients are more likely to have going-concern opinions from audit firms. The result is consistent with my prediction. In column (2), panel A of Table 5, after member firms join audit alliance, their clients are more likely to receive going-concern opinions (0.019,  $t=3.67$ ), consistent with the main evidence.

The third dependent variable is performance matched discretionary accruals, calculated following Kothari et al. (2005). In column (3), Panel A of Table 5, the

coefficient on *All\*Post* is significantly negative (-0.008,  $t=-2.87$ ), indicating that after controlling for performance, performance-matched discretionary accruals decrease in clients after their member firms join audit alliances.

The results using Equation (2) is presented in Panel B. The evidence is consistent with that provided in Panel A. When audit quality is proxied by meet or beat the analyst target, the coefficient on *All\*Post* is significantly negative (-0.033,  $t=-2.45$ ). When audit quality is proxied by the likelihood that clients receive going-concern report, the coefficient on *All\*Post* is significantly positive (0.021,  $t=3.42$ ). When audit quality is proxied by performance matched discretionary accruals, the coefficient on *All\*Post* is significantly negative (-0.014,  $t=-3.15$ ). Therefore, after controlling for firm fixed effects and year fixed effects, the likelihood to meet or beat analyst target decreased for the clients, and the likelihood for the clients to receive going-concern report increased, and the performance-matched discretionary accruals decrease for the client firm, indicating that audit quality improves significantly after audit firms join audit firm alliances.

In sum, my previous results that clients' audit quality increases after member firms join audit firm alliances are not sensitive to alternative measures of audit quality.

*<Insert Table 5>*

### **5.2.2. Alternative Samples and Time Period**

I then check whether the main evidence that audit fees and audit quality for the clients increase after their audit firms join audit firm alliances is sensitive to different sample compositions and time period.

As discussed above, India has the largest number of firm observations in the

sample. Also, the number of observation of India is not distributed evenly between treatment sample and control sample. To eliminate the concern that the previous results are driven by India, I drop the clients from India and re-estimate Equation (1) and Equation (2). The results are reported in Panel A and Panel B, respectively. The results using Equation (1) is presented in Panel A. When the *Audit fees* is the dependent variable, the coefficient on *All\*Post* is significantly positive (0.095,  $t=2.12$ ). When regressing *Discretionary accruals* on the independent variable and other control variables, the coefficient on *All\*Post* is significantly negative (-0.009,  $t=-2.27$ ). When firm fixed effect is included, I continue to find a significant increase in audit fees (0.105,  $t=1.98$ ) and a significant decrease in discretionary accruals (-0.016,  $t=-2.57$ ). Thus, the main evidence is not driven by the largest country India in the sample.

Furthermore, I examine if the main result is sensitive to different sample period. The time period for the main regression is from 1999 to 2015. I then re-estimate the main regression by focusing on a shorter window, which is five years before member firms joining audit firm alliances, and five years after. I change to the shorter window to eliminate the concern that confounding events could happen in the long window, and these events could contaminate the results. The results are reported in column (2) in Panel A and Panel B. In Panel A, I continue to find a significantly positive coefficient on *All\*Post* when *Audit fees* is dependent variable (0.226,  $t=5.05$ ), and a significantly negative coefficient on *All\*Post* when *Discretionary accruals* is dependent variable (-0.012,  $t=-2.77$ ). In Panel B, the results are similar to those presented in Panel A. I continue to find a significantly positive coefficient on *All\*Post* when *Audit fees* is dependent variable (0.398,  $t=7.46$ ), and a significantly negative coefficient on *All\*Post* when *Discretionary accruals* is dependent variable (-0.019,  $t=-3.24$ ). Therefore, my previous findings on audit fees and audit quality are not

sensitive to the shorter time period.

I further examine if my results are driven by the audit firms with large numbers of observations in my sample. I drop the clients of BDO, Crowe Horwath, and Praxity from my sample, since the three audit firms have the largest number of clients in my sample. The results remain unchanged. In Panel A, the coefficient on *All\*Post* is significantly positive when *Audit fees* is dependent variable (0.126,  $t=2.35$ ), and the coefficient on *All\*Post* is significantly negative when *Discretionary accruals* is dependent variable (-0.013,  $t=-2.79$ ). Similarly, in Panel B, the coefficient on *All\*Post* is significantly positive when *Audit fees* is dependent variable (0.332,  $t=4.82$ ), and the coefficient on *All\*Post* is significantly negative when *Discretionary accruals* is dependent variable (-0.024,  $t=-3.04$ ).

Overall, the analysis in Table 6 show that my main findings that audit fees and audit quality increase for the clients after audit firms join audit firm alliances are not sensitive to different sample compositions and different time period.

<Insert Table 6>

### **5.2.3. Comparison between Alliance Members and Big Four Auditors**

The results so far show that compared with non-Big Four non-member audit firms, non-Big Four member firms charge higher audit fees and provide higher-quality audits to their clients after they join audit firm alliances. ACAP (2008) calls to increase audit market competition by enabling small audit firms to audit large public firms (ACAP, 2008; Bills et al., 2016a). In the foreseeable future, Big Fours are still audit market leaders. Thus, I conduct analysis to examine whether member firms could provide higher-quality audits to clients after they join alliances, using Big Four as

benchmark sample.

Equation (1) and Equation (2) are re-estimated using clients of member firms as treatment sample, and clients of Big Four auditors as control sample. A similar analysis is conducted in Bills et al. (2016a). However, in their study, a matched control sample of Big Four clients based on client size is used. Their reason to use size-matched sample is because prior studies find that client size is the main driving factor of auditor choice (Lawrence et al., 2011). I do not use size-matched sample for two reasons. First, in the main regression, there is no matching between clients of member firms and clients of non-member firms. To keep consistency, I do not implement matching when using clients of Big Four auditors as control sample. Second, I use difference-in-differences analysis, so company size is already controlled. Also, in Bills et al. (2016a), they only include the largest quartile of clients of the member firms. As shown in the descriptive statistics, large firms are more likely to choose member firms as their auditors. Thus, I include all clients in the treatment sample, not only the largest quartile of clients, to eliminate the concern that the evidence documented using larger clients may not apply to smaller clients.

The results are shown in Panel A and Panel B of Table 7. In Panel A, I continue to find a significantly positive coefficient on *All\*Post* when *Audit fees* is dependent variable (0.380,  $t=7.84$ ), and a significantly negative coefficient on *All\*Post* when *Discretionary accruals* is the dependent variable (-0.013,  $t=-4.01$ ). In Panel B, the results are similar. When *Audit fees* is the dependent variable, the coefficient on *All\*Post* is 0.327, with  $t$ -value equal to 6.13. When *Discretionary accruals* is dependent variable, the coefficient on *All\*Post* is -0.015, with  $t$ -value equal to -2.90. Therefore, compared with clients of Big Four auditors, clients of member firms receive higher-quality audits after their auditors join audit firm alliances.

Bills et al. (2016a) finds that for similarly sized firms, the quality of audits provided by alliance member firms is not significantly different from that provided by Big Four auditors (Bills et al., 2016a). However, Big Fours still have audit fee premiums compared with small audit firms (Bills et al., 2016a). The key difference between my study and Bills et al. (2016a) is that I do not directly compare the audit quality and audit pricing between the two types of auditors. Instead, I am comparing whether there is change in audit quality and audit pricing after member firms join alliances. If there is also a concurrent improvement in audit quality and audit pricing provided by Big Four auditors, my previous findings could be driven by the market competition from other auditors, not because of joining alliances. However, the results in Table 7 shows that there is no concurrent volatility in audit quality and audit pricing provided by Big Four auditors. Thus, joining audit firm alliances could improve audit quality provided by member firms.

*<Insert Tale 7>*

#### **5.2.4. Controlling for Self-selection Bias**

Joining audit firm alliances or not is a voluntary decision by the audit firms. As suggested by prior studies, firms that make voluntary decisions do not represent a randomly selected sample (Leuz and Verrecchia, 2000; Li, 2010). If such decision is related to omitted factors that are not included in the model, and those factors are related to audit quality, then there is potential endogeneity problem from the selection bias. Since I have the joint dates for each members, my primary analysis could to a large extent solve the endogeneity problem. However, to further mitigate the endogeneity concern, I implement the Heckman (1979) two-stage regression procedure. In the first stage, I use a probit model to estimate the decisions of audit

firms to join alliances (Harris and Muller, 1999; Leuz and Verrecchia, 2000; Li, 2010). Following prior literature, the variables included in the first stage are size (natural logarithm of total assets in US dollars), asset turnover (sales divided by total assets), ROA, leverage, and current assets (Eshleman and Guo, 2014). The dependent variable is a dummy variable, which equals to one for clients of member firms, and zero for clients of non-member firms. In the second stage, I re-estimate Equation (1) by adding the *inverse Mills Ratio* from the first stage as a control variable in the second stage. The calculation and inclusion of *inverse Mills Ratio* is to correct the endogeneity problem.

Table 8 has the regression results using the Heckman two-stage approach. In Panel A, when *Audit fees* is the dependent variable, the coefficient on *All\*Post* remains significantly positive (0.190,  $t=4.25$ ). Also, when regressing *Discretionary accruals* on the independent variables and control variables, the coefficient on *All\*Post* remains significantly negative (-0.010,  $t=-2.73$ ). In Panel B, when *Audit fees* is the dependent variable, the coefficient on *All\*Post* is also significantly positive (0.226,  $t=4.39$ ). Also, when *Discretionary accruals* is the dependent variable, the coefficient on *All\*Post* is significantly negative (-0.016,  $t=-2.85$ ). The results remain unchanged. Thus, my previous finding that audit quality improves after audit firms join audit firm alliances is not influenced by the potential endogeneity problem.

<Insert Table 8>

### **5.2.5. Matching Sample Approach**

As previous discussed, a standard difference-in-differences analysis should involve both *All* and *Post*, as well as the interaction term *All\*Post* in the regression. To conduct the difference-in-differences analysis, matching between treatment sample and control sample is required because I need to identify the pseudo-event date for the



control sample. The most popular matching approach now is the *Propensity Score Matching* (DeFond and Zhang, 2015; Li and Yang, 2016). *Propensity Score Matching* is commonly used in accounting research to address endogeneity in non-experimental data. However, introducing matching approach in the main regression could cause problem. According to Shipman et al. (2016), propensity score matching could not solve self-selection problem as well as omitted variable problem. Also, it is not appropriate to consider that propensity score matching generates experimental conditions. This is because the matching is generally based on observed factors. However, an experimental setting require both observed and unobserved factors to be controlled and randomly distributed. Moreover, the results based on propensity score matching can be largely driven by the matching variables chosen. The major endogeneity concerns in my research design are self-selection problem and omitted variable problem, so I do not involve matching in the main regression, and use Heckman two-stage regression to overcome self-selection problem, as well as use different fixed effects model to solve the omitted variable problem. In this section, I use a matching approach, mainly to identify the pseudo-event year for the control sample, so a standard difference-in-differences analysis could be conducted. The difference-in-differences could furthermore capture the change in audit pricing and audit quality of treatment sample from pre-event period to post-event period, compared with control sample.

I use clients' size, proxied by firm assets at the year before event year to match the control sample. Treatment firms and matched control firms are required to be in the same country, industry, year, and have the smallest difference in size. Matching without replacement is used to eliminate the concern that duplicate matched control firms could drive the results.

The results are presented in Table 9. The matched treatment firm and control firm are in the same country and same industry. In Panel A, where country fixed effects, year fixed effects and industry fixed effects are included, both *All* and *Post*, as well as the interaction term *All\*Post* are included in the regression. The definition for *Post* is the same for treatment sample. For the control sample, *Post* equals to one for the pseudo-post-event period, and zero otherwise. The pseudo-event year is defined as the event year of its matched treatment sample. Therefore, *Post* can be included in the regression. The results remain unchanged. The coefficient on *All\*Post* on *Audit fees* is significantly positive (0.349,  $t=5.61$ ), while the coefficient of *All\*Post* on *Discretionary accruals* is significantly negative (-0.016,  $t=-3.26$ ). In Panel B, where firm fixed effect is included, *All* is omitted since it is a firm-level variable, and *Post* is included since it has variations on year level. The coefficient on *All\*Post* on *Audit fees* is significantly positive (0.470,  $t=6.42$ ), while the coefficient of *All\*Post* on *Discretionary accruals* is significantly negative (-0.021,  $t=-2.85$ ).

Collectively, after matching the treatment sample and control sample based on country, year, industry and client size, and using a standard difference-in-differences analysis, my previous findings that audit pricing and audit quality improved after audit firms join alliances remain robust.

<Insert Table 9>

## **Chapter 6 Cross-sectional variations**

### **6.1. The Role of Litigation Risks**

Litigation risk is a very important concern to auditors. Though US has the most litigious environment in the world, audit firms in non-US countries still need to consider about the potential litigation risks. In countries with high litigation risks, audit fees reflect both litigation risk premium and audit effort component. The higher the litigation risks, the higher the litigation risk premium. In less litigious countries, audit effort is the major consideration when charging audit fees (Simunic, 1980). Thus, my prediction is that for clients in less litigious setting, the effect of their audit firms joining audit firm alliances will be more pronounced, since audit efforts and reputational capital are their major concerns. When litigation exposure is not a concern, audit efforts are the driving factors for auditor pricing. In other words, in countries where litigation risks are lower, clients will pay more attention to audit efforts and auditor reputation. Since joining audit firm alliances will increase non-Big Four audit firms' reputation capital, the marginal increase in audit quality will be higher for those firms from less litigious countries. Also, in environments with low litigation risks, the likelihood of earnings management is higher at client level because the probability that they are punished by the earnings management behaviors is lower. Similarly, in an environment with low litigation risks, auditors are less likely to report the misreporting behaviors of their clients, since the likelihood of lawsuits is lower. Therefore, audit quality is lower in less litigious environment. However, after audit firms join audit firm alliances, they are monitored by alliances. Since monitoring become more strict from the audit firm's side, the likelihood of clients' misreporting behaviors being detected and reported is higher. Thus, the marginal increase in audit quality is higher in less litigious environment.

I use two litigation risk proxies, country-level and industry-level, respectively. Country law system is the first country-level litigation risk proxy. There are mainly two types of legal systems, common law and code law (La Porta et al., 1997; Glaeser and Shleifer, 2002). Common law is based on “custom and general principles that serves as precedent or is applied to situations not covered by statute” (Britannica Concise Encyclopedia; Habib, 2007). Code law system is based on statute, not custom (Britannica Concise Encyclopedia). The common law countries have many formal enforcements, such legal rule, regulations, institutions to protect the rights of shareholders (La Porta et al., 2002; North and Weingast, 1989; Habib, 2007). Code law countries do not have much formal enforcement. Instead, informal networks and relationships are used to enforcement rules and regulations. Therefore, prior literature agrees that the litigation risk is higher in common law countries. The second litigation risk proxy I use is industry-level litigation risks, following Francis et al. (1994). In Francis et al. (1994), they define four industries, biotechnology, computers, electronics, and retailing, as industries with high litigation risks.

To differentiate the effect of joining audit firm alliances between more litigious subsample and less litigious subsample, I separate the whole sample based on litigation risks, and run Equation (1) and Equation (2) in each subsample. The results are presented in Table 10. In Panel A1 and B1, where *Audit fees* is the dependent variable, column (1) and column (2) present results using country-level legal origins. In column (1), where the subsample is comprised of common law countries, the coefficient on *All\*Post* is significantly positive (0.142,  $t=2.33$ ). In column (2), where the subsample is comprised of code law countries, the coefficient on *All\*Post* is also significantly positive (0.161,  $t=2.69$ ). The *F*-test reported indicates that the two coefficients are not equal. The results are consistent with my second hypothesis, that the increase in audit

fee is more pronounced in code law countries, where the litigation risk is lower. The results in Panel A2 and Panel B2, Table 10 are also consistent with my predictions. In common law countries, the coefficient on *All\*Post* is -0.005, with *t*-value equal to -1.14; in code law countries, the coefficient on *All\*Post* is -0.019, with *t*-value equal to -3.04. The *F*-test shows that the coefficients between the two subsamples are significantly different from each other. Therefore, the effect is more pronounced in countries with low litigation risks. The increase in audit fees and the decrease in discretionary accruals are more pronounced in code law countries.

The evidence is qualitatively the same at industry level. The coefficient on *All\*Post* is more significant in industries with low litigation risks, in both Equation (1) and Equation (2). Therefore, the results are consistent with my prediction, that the increase in audit pricing is more pronounced in countries and industries with low litigation risks. Collectively, my results show that the effect of joining audit firm alliances on audit pricing and audit quality is more pronounced in countries and industries with low litigation risks.

<Insert Table 10>

## **6.2. Country-level Audit Quality**

There has been a debating about how country-level characteristics and firm-level characteristics complementary or substitute with each other. Similar to such debate, there is a debating in the literature about whether firm-level and country-level audit quality play a complementary or substitutive relation to each other. Durnev and Kim (2005) find that firm-level governance and disclosure quality impacts firm growth, financing and ownership concentration positively, and this positive impact is more important in countries with low country-level legal environment. This is consistent

with their hypothesis that firm-level and country-level corporate governance interact with each other substitutively. Bonetti et al. (2016) find that the effect of IFRS adoption in increasing financial reporting quality is only effective in firms with strong corporate governance, given that country-level enforcement and governance is low. Thus, they also conclude that country-level and firm-level corporate governance play a substitutive effect on each other. Based on prior literature, auditors also play a similar monitoring role. Therefore, based on their argument, country-level audit quality and firm-level audit quality should also play a substitutive role. In countries with low country-level audit quality, the value from high-quality auditors is higher because strong firm-level audit quality mitigates the negative effect of country-level audit quality on corporate.

My hypothesis predicts that the effect of joining audit firm alliances will be more pronounced in countries where country-level audit quality is lower. To test the hypothesis, I use three country-level audit quality proxies, the extent to which the country complies with International Standards on Auditing (ISAs), whether there is a local audit oversight body in the country, and country-level earnings management score. If the country has complied with ISAs, or there is a local audit oversight body in the country, or the country has lower earnings management score, then the country-level audit quality is higher.

The results are shown in Table 11. Panel A1 and Panel B1 shows the regression results using *Audit fees* as dependent variable. In column (1) and column (2), the partition variable is the country's compliance level with ISAs. The data is based on *Basis of ISA Adoption by Jurisdiction* in 2012, issued by IFAC Member Body Compliance Program. Based on the report, there are four levels of compliance: required by law or regulation, which means that country law or regulation requires the

use of ISAs in the auditing of general purpose financial statements; ISAs are adopted, which means that a national standard-setter has adopted ISAs as the audit standards to be used in the country, and there are no other local auditing standards; national standards are ISAs, which means that ISAs has been generally adopted with modifications; and other, which means that the country has not converged with ISAs. I categorize the first two types as adoption of ISAs, while the last two types as non-adoption. Based on prior literature, the adoption countries have higher country-level audit quality compared with non-adoption countries. The results are consistent with my prediction. In Panel A1, the coefficient on *All\*Post* is more significant in countries who do not adopt International Standards on Auditing (0.267,  $t=4.94$ ), compared with countries who comply with International Standards on Auditing (0.092,  $t=1.29$ ). The results are similar in Panel B1. Therefore, the evidence is consistent with my prediction, that the effect of joining audit firm alliances on audit pricing is more pronounced in countries with lower country-level audit quality.

The results using *Discretionary accruals* as dependent variable is presented in column (3) and column (4) in Panel A2 and Panel B2. In Panel B1, the coefficient of *All\*Post* is more significant in countries who do not comply with International Standards on Auditing (-0.018,  $t=-2.34$ ). The results are similar in Panel B2. Therefore, similar to results on audit pricing, the increase in audit quality after audit firms join audit firm alliances is more pronounced in countries with lower country-level audit quality. Collectively, both results on audit quality and audit pricing show that the benefits of joining audit alliances is larger for clients from countries where country-level audit quality is low, and country-level audit quality and firm-level audit quality plays a substitutive role with each other.

The results using other two partition variables are similar to the results using

ISAs. The increase in auditing fees and decrease in discretionary accruals are more significant in countries where there is no local audit oversight body, or where earnings management score is higher. Collectively, the findings are consistent with my third hypothesis. I find that firm-level audit quality plays a substitutive role with country-level audit quality. The findings are consistent with prior literature on firm-level corporate governance and country-level corporate governance.

*<Insert Table 11>*

### **6.3. The Role of Alliance Characteristics**

The main results show that after joining audit firm alliances, alliance members provide higher-quality audits to their clients, compared with non-member audit firms. Next, I examine whether such increase in quality varies across different types of audit alliances. To test the third hypothesis, specifically, I choose three alliance characteristics, number of staff per office, alliance member growth, and alliance income. The number of staff per office is calculated by using the number of total staff in each alliance divided by the total number of office. Number of staff per office is very important since it reflects the human capital and assistant supports members could get from the alliance. Those staff are administrative staff, technical staff, as well as professional staff. With greater number of staff per office, members could get more human capital supports from their alliance. Alliance growth refers to the growth of member firms in each alliance. Alliance income refers to the total fee income collected by the alliance. Both characteristics reflect the supports members could get from the alliance. In a high-growth alliance, with more members joining each year, members could get more assistance and shared technology from other members. Similarly, with more fee income, alliances could get more advanced technology and spend more



resources on members. With respect to audit fees, if client's auditors joining alliances requiring higher member fees, it is highly likely that the high fees are allocated to clients, so the increase in auditing pricing on clients should be higher. Therefore, my prediction is that the increase in audit fees and audit quality is larger if the clients' auditors are joining alliances with more staff per office, or alliances with higher growth, or alliances with more fee income. The data about number of staff in the alliance, number of office, alliance growth, and alliance fee income are from *International Accounting Bulletin*.

The results are presented in Table 12. Panel A1 and Panel B1 of Table 12 shows the results using *Audit fees* as dependent variable. Consistent with my prediction, the coefficient on *All\*Post* is more significant in the subsample with high number of staff per office, with high alliance growth, and in alliances with high income. The coefficient is less significant if clients' audit firms are from alliances with low number of staff per office, low alliance growth, or alliance with relatively low fee income. The results using Discretionary accruals as dependent variable are shown in Panel A2 and Panel B2. Similarly, the decrease in discretionary accruals (increase in audit quality) is more pronounced if clients' auditors join alliances with high number of staff per office, alliance with high growth, or alliance with high fee income. Collectively, the evidence is consistent with the fourth hypothesis, that clients benefit more if their audit firms join audit firm alliances with more human resources, higher growth, and more fee income.

<Insert Table 12>

#### **6.4. Networks and Associations**

As I have talked before, there are two types of audit firm alliances, accounting

networks and accounting associations. Member firms within audit firm networks work more tightly together compared with member firms within audit firm associations. Some audit firm networks even adopt the same brand name, such as BDO International, Baker Tilly International, and RSM, to recognize themselves as part of the networks. Several large audit firm networks are referred to as “second-tier auditors”. Also, based on anecdotal evidence, the quality control and application process are more strict within audit firm networks. Compared with audit firm networks, members within audit firm associations work less tightly together. An accounting association is probably comprised of small auditors, and there is no leading firm or organization inside the association. The quality control and application requirements are lower. Thus, based on the anecdotal evidence, my prediction is that the benefit of joining audit firm alliances is larger if an audit firm joins audit firm networks or audit firm associations.

To test the prediction, I separate the audit firm alliances into audit firm networks and audit firm associations, based on the category provided by *International Accounting Bulletin*. The results are presented in Table 13. The results using *Audit fees* as dependent variable are presented in Panel A1 and Panel B1. The coefficient on *All\*Post* is more significant in the network subsample (0.270,  $t=5.50$ ), and the coefficients between the two subsamples are significantly different. The results are similar in Panel B1. Therefore, the evidence is consistent with my prediction, that the increase in audit fee is larger if the clients’ audit firm joins audit firm networks.

The results using *Discretionary accruals* as dependent variable is presented in Panel A2 and Panel B2. Similarly, the coefficient on *All\*Post* in both panels are more significant in the network subsample, indicating that the decrease in discretionary accruals is larger if clients’ audit firms join audit firm networks.

In sum, the results in Table 13 are consistent with my fifth hypothesis, that the

benefits of joining audit firm alliances on audit pricing and audit are more significant if the audit firms are joining audit firm networks.

*<Insert Table 13>*

## Chapter 7 Conclusion

The paper examines whether non-Big Four audit firms provide higher-quality audits to their clients after they join audit firm alliances, compared with those audit firms who do not join audit firm alliances, using international data. On average, my paper investigates how clients' audit fees and discretionary accruals, two proxies for audit pricing and audit quality used by prior literature, change after their auditors join audit firm alliances. Using a manually collected data of alliance member firms and their specific joint dates, I document that after non-Big Four audit firms join audit alliances, their clients' pay audit fee premiums and clients' discretionary accruals decrease. The evidence is consistent with my prediction that audit pricing and audit quality provided by non-Big Four member firms increase after they join audit firm alliances. The main evidence is not sensitive to different measures of audit quality, different control sample, different sample period, and remains significant after correcting endogeneity concern using Heckman two-stage model and inverse Mills Ratio, and difference-in-differences analysis based on matching sample. Moreover, I find the audit pricing and audit quality increase more in countries and industries with lower litigation risks. Also, I find the effect of joining audit firm alliances on audit pricing and audit quality is more pronounced in countries where country-level audit quality is lower, proxied by whether the country has complied with International Standards on Auditing, whether there is a local audit oversight body, and country-level earnings management score from Leuz et al. (2003). I further investigate whether alliance characteristics affect the documented average effect. Specifically, I find that the incremental increase in audit quality is larger in members who join audit firm alliances with high number of staff per office, with high member growth, and with high fee income. Moreover, I find that the effect of joining audit firm alliances is more

pronounced if the audit firm joins audit firm networks than joining audit firm associations. These findings support my predictions that joining audit firm alliances is effective in increasing non-Big Four firms' audit quality.

As noted earlier, this study corresponds to Bills et al. (2016a) and to my knowledge, my study is the first paper to study such effect on international level. Compared to firms in the US, non-US firms are exposed to lower litigation risks, different institutional backgrounds, and smaller dominance from Big Four companies. Therefore, my thesis contributes to both auditing literature and international accounting literature.

My study also corresponds to the calls by regulators and practitioners, that audit market competition should be increased, and non-Big Four companies should become competitive in providing high-quality audits. I provide evidence suggesting that joining audit firm alliances is an effective way to enable non-Big Four firms to provide higher-quality audits on international level.

## Appendix

### Variable Definitions and Sources

| Variable                      | Definition  | Source                          |
|-------------------------------|---|---------------------------------|
| <i>All</i>                    | Dummy variable equal to 1 if the client is audited by audit firm alliance member firms, and zero otherwise                  | Manually collection; Capital IQ |
| <i>Post</i>                   | Dummy variable equal to 1 for years after which clients' auditors join audit firm alliances, and zero otherwise             | Manually collection; Capital IQ |
| <i>Audit fees</i>             | Natural logarithm of audit fees in millions of US dollars   | Worldscope                      |
| <i>Discretionary accruals</i> | Discretionary accruals calculated using <i>Modified Jones model</i>   | Worldscope                      |
| <i>Log(Assets)</i>            | Natural logarithm of total assets in million US dollars   | Worldscope                      |
| <i>Log(MV)</i>                | Natural logarithm of market capitalization in millions of US dollars  | Worldscope                      |
| <i>CURR</i>                   | Current assets divided by current liabilities   | Worldscope                      |
| <i>CATA</i>                   | Current assets divided by total assets  | Worldscope                      |
| <i>CFO</i>                    | Operating cash flow divided by total assets   | Worldscope                      |
| <i>MTB</i>                    | Market value of equity divided by book value of equity  | Worldscope                      |
| <i>QUICK</i>                  | quick ratio, current assets minus inventories, divided by current liabilities   | Worldscope                      |
| <i>LEV</i>                    | Total leverage divided by total assets  | Worldscope                      |
| <i>ROA</i>                    | Income before extraordinary items divided by total assets   | Worldscope                      |
| <i>Loss</i>                   | An indicator equal to 1 if the company reported a loss in year t-1, and 0 otherwise   | Worldscope                      |
| <i>SH</i>                     | Sales growth from year t-1 to year t  | Worldscope                      |
| <i>Taccr</i>                  | The absolute value of total accruals in year t-1, divided by total assets in year t-1                                       | Worldscope                      |
| <i>FG</i>                     | Finished goods from year t-1 to year t  | Worldscope                      |
| <i>GC</i>                     | An indicator variable set to 1 if the client received a going concern opinion in the last year, and 0 otherwise             | Capital IQ                      |
| <i>AST</i>                    | An indicator equal to 1 if the company uses IFRS, and 0 otherwise   | Worldscope                      |
| <i>Foreign</i>                | An indicator variable equal to 1 if the company has income from foreign operations, and 0 otherwise                         | Capital IQ/Worldscope           |
| <i>Tenure</i>                 | Audit-client tenure to date   | Worldscope                      |
| <i>Audsz</i>                  | Natural logarithm of the number of publicly traded clients audited by the company's audit firm during the fiscal year       | Worldscope                      |
| <i>Mktshr</i>                 | Auditor's market share, proxied by the audit fees charged from its clients in the same industry, measured using 2-digit SIC | Worldscope                      |

|   |  |            |
|---|--|------------|
| <i>Audinf</i>                                   | Client influence to the auditor, measure by client's audit fees divided by the total audit fees of the auditor           | Worldscope |
| <i>Meet/Beat the Target Performance matched</i> | Dummy variable equal to 1 if the difference between actual EPS and forecasted EPS is between 0 and 0.01, and 0 otherwise | Capital IQ |
| <i>discretionary accrual</i>                    | Absolute value of discretionary accruals calculated following Kothari et al. (2005)                                      | Worldscope |

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**Table 1. Audit Firm Association Descriptive Statistics**

| <b>Panel A. Number of member firms in each alliances in 2015</b> |                        |                                   |                                  |
|--|------------------------|-----------------------------------|----------------------------------|
| <b>Alliance Name</b>   | <b>US Member Firms</b> | <b>International Member Firms</b> | <b>Total No. of Member Firms</b> |
| AGN International-North America                                  | 38                     | 142                               | 180                              |
| Baker Tilly International  | 14                     | 140                               | 154                              |
| BDO  | 251                    | 258                               | 509                              |
| BKR International  | 46                     | 113                               | 159                              |
| Crowe Horwath International                                      | 4                      | 187                               | 191                              |
| GGI Geneva Group International                                   | 51                     | 417                               | 468                              |
| Grant Thornton International                                     | 1                      | 129                               | 130                              |
| HLB International  | 15                     | 217                               | 232                              |
| IAPA   | 14                     | 192                               | 206                              |
| Kreston International  | 2                      | 190                               | 192                              |
| LEA Global/Leading Edge Alliance                                 | 46                     | 174                               | 220                              |
| Mazars   | 9                      | 90                                | 99                               |
| Moore Stephens North America                                     | 24                     | 22                                | 46                               |
| Morison International  | 3                      | 92                                | 95                               |
| MSI Global Alliance  | 47                     | 192                               | 239                              |
| Nexia International  | 14                     | 211                               | 225                              |
| PKF North America (Allinial Global)                              | 74                     | 26                                | 100                              |
| Praxity  | 8                      | 61                                | 69                               |
| PrimeGlobal  | 50                     | 250                               | 300                              |
| RSM  | 75                     | 120                               | 195                              |
| Russell Bedford USA  | 9                      | 85                                | 94                               |
| UHY International  | 1                      | 161                               | 162                              |

**Panel B. Number of clients in each alliance used in the sample**

| Alliance Name                       | Frequency | Percent |
|-------------------------------------|-----------|---------|
| AGN International-North America     | 109       | 1       |
| BDO                                 | 3,388     | 25      |
| BKR International                   | 168       | 1       |
| Baker Tilly International           | 920       | 7       |
| Crowe Horwath International         | 1,429     | 11      |
| GGI Geneva Group International      | 35        | 0       |
| Grant Thornton International        | 334       | 3       |
| HLB International                   | 693       | 5       |
| IAPA                                | 76        | 1       |
| Kreston International               | 625       | 5       |
| LEA Global/Leading Edge Alliance    | 16        | 0       |
| Mazars                              | 205       | 2       |
| MSI Global Alliance                 | 15        | 0       |
| Moore Stephens North America        | 1,119     | 8       |
| Morison International               | 155       | 1       |
| Nexia International                 | 817       | 6       |
| PKF North America (Allinial Global) | 904       | 7       |
| Praxity                             | 1,385     | 10      |
| PrimeGlobal                         | 3         | 0       |
| RSM                                 | 944       | 7       |
| Russell Bedford USA                 | 4         | 0       |
| UHY International                   | 36        | 0       |
| Total                               | 13,380    | 100     |

Note: Table 1 presents audit firm alliance descriptive statistics. Panel A presents the number of members in each alliance in 2015. Panel B presents the number of clients used in the paper for each alliance.

**Table 2. Sample Distribution****Panel A. Sample distribution by country**

| Country        | Treatment Sample |         | Control Sample |         | Full Sample |         |
|----------------|------------------|---------|----------------|---------|-------------|---------|
|                | Frequency        | Percent | Frequency      | Percent | Frequency   | Percent |
| Belgium        | 100              | 0.75    | 153            | 0.48    | 253         | 0.56    |
| Canada         | 2,204            | 16.47   | 1,354          | 4.21    | 3,558       | 7.82    |
| China          | 7,533            | 56.30   | 4,979          | 15.49   | 12,512      | 27.49   |
| France         | 53               | 0.40    | 833            | 2.59    | 886         | 1.95    |
| Germany        | 78               | 0.58    | 1,313          | 4.09    | 1,391       | 3.06    |
| Hong Kong      | 619              | 4.63    | 666            | 2.07    | 1,285       | 2.82    |
| India          | 750              | 5.61    | 14,254         | 44.36   | 15,004      | 32.97   |
| Ireland        | 26               | 0.19    | 19             | 0.06    | 45          | 0.1     |
| Israel         | 159              | 1.19    | 218            | 0.68    | 377         | 0.83    |
| Japan          | 827              | 6.18    | 3,838          | 11.94   | 4,665       | 10.25   |
| Malaysia       | 46               | 0.34    | 2,107          | 6.56    | 2,153       | 4.73    |
| Pakistan       | 61               | 0.46    | 470            | 1.46    | 531         | 1.17    |
| Singapore      | 198              | 1.48    | 251            | 0.78    | 449         | 0.99    |
| South Africa   | 75               | 0.56    | 70             | 0.22    | 145         | 0.32    |
| Sri Lanka      | 15               | 0.11    | 82             | 0.26    | 97          | 0.21    |
| Switzerland    | 20               | 0.15    | 67             | 0.21    | 87          | 0.19    |
| United Kingdom | 616              | 4.60    | 1,459          | 4.54    | 2,075       | 4.56    |
| Total          | 13,380           | 100.00  | 32,133         | 100.00  | 45,513      | 100     |

**Panel B. Sample distribution by year**

| Year  | Treatment Sample |         | Control Sample |         | Full Sample |         |
|-------|------------------|---------|----------------|---------|-------------|---------|
|       | Frequency        | Percent | Frequency      | Percent | Frequency   | Percent |
| 1999  | 5                | 0.04    | 17             | 0.05    | 22          | 0.05    |
| 2000  | 4                | 0.03    | 21             | 0.07    | 25          | 0.05    |
| 2001  | 3                | 0.02    | 236            | 0.73    | 239         | 0.53    |
| 2002  | 10               | 0.07    | 570            | 1.77    | 580         | 1.27    |
| 2003  | 121              | 0.90    | 739            | 2.30    | 860         | 1.89    |
| 2004  | 193              | 1.44    | 944            | 2.94    | 1,137       | 2.5     |
| 2005  | 356              | 2.66    | 2,195          | 6.83    | 2,551       | 5.6     |
| 2006  | 730              | 5.46    | 2,904          | 9.04    | 3,634       | 7.98    |
| 2007  | 873              | 6.52    | 3,142          | 9.78    | 4,015       | 8.82    |
| 2008  | 1,004            | 7.50    | 3,203          | 9.97    | 4,207       | 9.24    |
| 2009  | 1,172            | 8.76    | 3,198          | 9.95    | 4,370       | 9.6     |
| 2010  | 1,538            | 11.49   | 3,264          | 10.16   | 4,802       | 10.55   |
| 2011  | 1,727            | 12.91   | 3,248          | 10.11   | 4,975       | 10.93   |
| 2012  | 1,803            | 13.48   | 3,300          | 10.27   | 5,103       | 11.21   |
| 2013  | 1,867            | 13.95   | 2,852          | 8.88    | 4,719       | 10.37   |
| 2014  | 1,974            | 14.75   | 2,300          | 7.16    | 4,274       | 9.39    |
| Total | 13,380           | 100.00  | 32,133         | 100.00  | 45,513      | 100     |

Note: Table 2 presents the firm-year distribution of treatment sample, control sample and full sample. Panel A provides a breakdown of sample firms by country. Panel B presents the sample's composition by firm fiscal year.

**Table 3. Descriptive Statistics****Panel A1. Descriptive statistics - treatment sample**

| Variable           | N      | Mean   | Std Dev | Median |
|--------------------|--------|--------|---------|--------|
| <i>Audfees</i>     | 13,380 | 2.631  | 2.446   | 3.258  |
| <i>DA</i>          | 13,380 | 0.113  | 0.154   | 0.058  |
| <i>log(Assets)</i> | 13,380 | 11.884 | 1.925   | 12.095 |
| <i>log(MV)</i>     | 13,380 | 4.997  | 2.045   | 5.53   |
| <i>CURR</i>        | 13,380 | 3.811  | 6.644   | 1.604  |
| <i>CATA</i>        | 13,380 | 0.503  | 0.274   | 0.535  |
| <i>CFO</i>         | 13,380 | 0.031  | 0.119   | 0.053  |
| <i>MTB</i>         | 13,380 | 2.082  | 1.667   | 1.544  |
| <i>QUICK</i>       | 13,380 | 3.371  | 6.467   | 1.155  |
| <i>LEV</i>         | 13,380 | 0.194  | 0.193   | 0.145  |
| <i>ROA</i>         | 13,380 | -0.019 | 0.182   | 0.023  |
| <i>Loss</i>        | 13,380 | 0.278  | 0.448   | 0      |
| <i>SG</i>          | 13,380 | 0.214  | 0.767   | 0.066  |
| <i>Taccr</i>       | 13,380 | 0.079  | 0.128   | 0.043  |
| <i>FG</i>          | 13,380 | 0.255  | 0.811   | 0.076  |
| <i>GC</i>          | 13,380 | 0.065  | 0.246   | 0      |
| <i>AST</i>         | 13,380 | 0.235  | 0.424   | 0      |
| <i>Foreign</i>     | 13,380 | 0.247  | 0.431   | 0      |
| <i>Tenure</i>      | 13,380 | 3.226  | 2.821   | 2      |
| <i>Audsz</i>       | 13,380 | 4.344  | 1.28    | 4.454  |
| <i>Mktshr</i>      | 13,380 | 0.001  | 0.014   | 0.000  |
| <i>Audinf</i>      | 13,380 | 0.07   | 0.257   | 0.002  |



**Panel A2. Descriptive statistics - control sample**

| Variable           | N      | Mean   | Std Dev | Median |
|--------------------|--------|--------|---------|--------|
| <i>Audfees</i>     | 32,133 | 2.512  | 2.154   | 2.708  |
| <i>DA</i>          | 32,133 | 0.136  | 0.169   | 0.077  |
| <i>log(Assets)</i> | 32,133 | 11.389 | 1.839   | 11.364 |
| <i>log(MV)</i>     | 32,133 | 3.875  | 1.995   | 3.735  |
| <i>CURR</i>        | 32,133 | 2.633  | 4.939   | 1.413  |
| <i>CATA</i>        | 32,133 | 0.488  | 0.263   | 0.512  |
| <i>CFO</i>         | 32,133 | 0.047  | 0.109   | 0.055  |
| <i>MTB</i>         | 32,133 | 1.517  | 1.333   | 1.075  |
| <i>QUICK</i>       | 32,133 | 2.135  | 4.652   | 0.962  |
| <i>LEV</i>         | 32,133 | 0.24   | 0.205   | 0.214  |
| <i>ROA</i>         | 32,133 | 0.009  | 0.145   | 0.027  |
| <i>Loss</i>        | 32,133 | 0.231  | 0.421   | 0      |
| <i>SG</i>          | 32,133 | 0.203  | 0.738   | 0.072  |
| <i>Taccr</i>       | 32,133 | 0.059  | 0.098   | 0.036  |
| <i>FG</i>          | 32,133 | 0.174  | 0.661   | 0.043  |
| <i>GC</i>          | 32,133 | 0.029  | 0.168   | 0      |
| <i>AST</i>         | 32,133 | 0.172  | 0.377   | 0      |
| <i>Foreign</i>     | 32,133 | 0.218  | 0.413   | 0      |
| <i>Tenure</i>      | 32,133 | 4.27   | 3.368   | 4      |
| <i>Audsz</i>       | 32,133 | 1.947  | 1.507   | 1.792  |
| <i>Mktshr</i>      | 32,133 | 0.002  | 0.017   | 0      |
| <i>Audinf</i>      | 32,133 | 0.386  | 0.427   | 0.144  |

**Panel B. Pearson correlation of variables (N=45,513)**

|                    | <i>Audfees</i> | <i>DA</i>    | <i>log(Assets)</i> | <i>log(MV)</i> | <i>CURR</i>  | <i>CATA</i>  | <i>CFO</i>   | <i>MTB</i>   | <i>QUICK</i> | <i>LEV</i>   | <i>ROA</i>   | <i>Loss</i>  | <i>SG</i>   | <i>Taccr</i> | <i>FG</i>    | <i>GC</i>    | <i>AST</i>   | <i>Foreign</i> | <i>Tenure</i> | <i>Audsz</i> | <i>Mktshr</i> | <i>Audinf</i> |
|--------------------|----------------|--------------|--------------------|----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|----------------|---------------|--------------|---------------|---------------|
| <i>Audfees</i>     | 1              | <b>-0.01</b> | <b>0.42</b>        | <b>0.33</b>    | -0.13        | <b>-0.01</b> | 0.1          | <b>-0.07</b> | <b>-0.13</b> | <b>0.06</b>  | <b>0.1</b>   | -0.12        | -           | <b>-0.08</b> | <b>0</b>     | -0.1         | <b>0.09</b>  | <b>0.42</b>    | <b>0.04</b>   | <b>-0.07</b> | <b>0.13</b>   | <b>0.29</b>   |
| <i>DA</i>          |                | 1            | <b>0.03</b>        | <b>0.07</b>    | <b>-0.01</b> | <b>0.2</b>   | <b>0</b>     | <b>0.09</b>  | <b>-0.01</b> | 0.09         | <b>-0.01</b> | <b>-0.01</b> | <b>0.09</b> | <b>0.09</b>  | <b>0.16</b>  | <b>0.01</b>  | <b>-0.03</b> | <b>0.03</b>    | <b>-0.04</b>  | <b>0.08</b>  | -             | <b>-0.03</b>  |
| <i>log(Assets)</i> |                |              | 1                  | <b>0.83</b>    | <b>-0.22</b> | <b>-0.02</b> | <b>0.29</b>  | <b>-0.08</b> | <b>-0.23</b> | <b>0.27</b>  | <b>0.32</b>  | <b>-0.35</b> | 0           | <b>-0.21</b> | <b>0.02</b>  | <b>-0.21</b> | <b>-0.18</b> | <b>0.22</b>    | <b>-0.08</b>  | <b>0.18</b>  | <b>0.07</b>   | <b>-0.05</b>  |
| <i>log(MV)</i>     |                |              |                    | 1              | <b>-0.08</b> | <b>0.07</b>  | <b>0.29</b>  | <b>0.35</b>  | <b>-0.08</b> | <b>0.01</b>  | <b>0.28</b>  | <b>-0.35</b> | <b>0.05</b> | <b>-0.1</b>  | <b>0.09</b>  | <b>-0.17</b> | <b>-0.16</b> | <b>0.22</b>    | <b>-0.19</b>  | <b>0.37</b>  | <b>0.05</b>   | <b>-0.18</b>  |
| <i>CURR</i>        |                |              |                    |                | 1            | <b>0.22</b>  | <b>-0.14</b> | <b>0.14</b>  | <b>0.99</b>  | <b>-0.31</b> | <b>-0.12</b> | <b>0.17</b>  | -           | <b>0.11</b>  | <b>0.06</b>  | <b>0.02</b>  | <b>0.09</b>  | <b>-0.05</b>   | <b>-0.02</b>  | <b>0.12</b>  | -             | <b>-0.09</b>  |
| <i>CATA</i>        |                |              |                    |                |              | 1            | <b>0.12</b>  | <b>0.15</b>  | <b>0.19</b>  | <b>-0.13</b> | <b>0.11</b>  | <b>-0.17</b> | -           | <b>-0.08</b> | <b>0.02</b>  | <b>-0.13</b> | <b>-0.08</b> | <b>0.13</b>    | <b>-0.04</b>  | <b>0.05</b>  | -             | <b>-0.04</b>  |
| <i>CFO</i>         |                |              |                    |                |              |              | 1            | <b>-0.04</b> | <b>-0.16</b> | <b>0.04</b>  | <b>0.79</b>  | <b>-0.59</b> | <b>0.09</b> | <b>-0.23</b> | <b>0.01</b>  | <b>-0.32</b> | <b>-0.18</b> | <b>0.08</b>    | <b>0</b>      | <b>-0.06</b> | <b>0.03</b>   | <b>0.07</b>   |
| <i>MTB</i>         |                |              |                    |                |              |              |              | 1            | <b>0.15</b>  | <b>-0.21</b> | <b>-0.08</b> | <b>0.01</b>  | <b>0.09</b> | <b>0.15</b>  | <b>0.11</b>  | <b>0.06</b>  | <b>-0.03</b> | <b>0</b>       | <b>-0.15</b>  | <b>0.26</b>  | -             | <b>-0.15</b>  |
| <i>QUICK</i>       |                |              |                    |                |              |              |              |              | 1            | <b>-0.32</b> | <b>-0.14</b> | <b>0.19</b>  | -           | <b>0.13</b>  | <b>0.06</b>  | <b>0.04</b>  | <b>0.1</b>   | <b>-0.05</b>   | <b>-0.03</b>  | <b>0.13</b>  | -             | <b>-0.1</b>   |
| <i>LEV</i>         |                |              |                    |                |              |              |              |              |              | 1            | <b>0.04</b>  | <b>-0.04</b> | -           | <b>-0.1</b>  | <b>-0.03</b> | <b>-0.07</b> | <b>-0.17</b> | <b>-0.02</b>   | <b>0.08</b>   | <b>-0.16</b> | <b>0.03</b>   | <b>0.13</b>   |
| <i>ROA</i>         |                |              |                    |                |              |              |              |              |              |              | 1            | <b>-0.63</b> | <b>0.09</b> | <b>-0.41</b> | <b>0.02</b>  | <b>-0.37</b> | <b>-0.21</b> | <b>0.05</b>    | <b>0.01</b>   | <b>-0.09</b> | <b>0.02</b>   | <b>0.09</b>   |
| <i>Loss</i>        |                |              |                    |                |              |              |              |              |              |              |              | 1            | -           | <b>0.25</b>  | <b>-0.01</b> | <b>0.3</b>   | <b>0.22</b>  | <b>-0.06</b>   | <b>0.02</b>   | <b>0.05</b>  | -             | <b>-0.07</b>  |
| <i>SG</i>          |                |              |                    |                |              |              |              |              |              |              |              |              | 1           | <b>0.14</b>  | <b>0.2</b>   | <b>-0.03</b> | <b>0.01</b>  | <b>-0.02</b>   | <b>-0.04</b>  | <b>-0.01</b> | -             | <b>0.02</b>   |
| <i>Taccr</i>       |                |              |                    |                |              |              |              |              |              |              |              |              |             | 1            | <b>0.15</b>  | <b>0.21</b>  | <b>0.17</b>  | <b>-0.04</b>   | <b>-0.04</b>  | <b>0.1</b>   | -             | <b>-0.07</b>  |
| <i>FG</i>          |                |              |                    |                |              |              |              |              |              |              |              |              |             |              | 1            | <b>-0.02</b> | <b>0</b>     | <b>0</b>       | <b>-0.06</b>  | <b>0.06</b>  | <b>0</b>      | <b>0</b>      |
| <i>GC</i>          |                |              |                    |                |              |              |              |              |              |              |              |              |             |              |              | 1            | <b>0.28</b>  | <b>-0.06</b>   | <b>0</b>      | <b>0.1</b>   | -             | <b>-0.08</b>  |
| <i>AST</i>         |                |              |                    |                |              |              |              |              |              |              |              |              |             |              |              |              | 1            | <b>0.11</b>    | <b>0</b>      | <b>0.04</b>  | <b>0.06</b>   | <b>0</b>      |
| <i>Foreign</i>     |                |              |                    |                |              |              |              |              |              |              |              |              |             |              |              |              |              | 1              | <b>0</b>      | <b>0.07</b>  | <b>0.05</b>   | <b>0.04</b>   |
| <i>Tenure</i>      |                |              |                    |                |              |              |              |              |              |              |              |              |             |              |              |              |              |                | 1             | <b>-0.22</b> | <b>0.01</b>   | <b>0.14</b>   |
| <i>Audsz</i>       |                |              |                    |                |              |              |              |              |              |              |              |              |             |              |              |              |              |                |               | 1            | -             | <b>-0.72</b>  |
| <i>Mktshr</i>      |                |              |                    |                |              |              |              |              |              |              |              |              |             |              |              |              |              |                |               |              | <b>0.04</b>   | <b>1</b>      |
| <i>Audinf</i>      |                |              |                    |                |              |              |              |              |              |              |              |              |             |              |              |              |              |                |               |              |               | <b>0.09</b>   |
|                    |                |              |                    |                |              |              |              |              |              |              |              |              |             |              |              |              |              |                |               |              |               | <b>1</b>      |

Note: Table 3 presents descriptive statistics for variables. Panel A1 presents descriptive statistics for the treatment sample. Panel A2 presents descriptive statistics for the control sample. Panel B presents Pearson correlations for the full sample. The numbers in boldface indicate a significant correlation at 1%. See the appendix for variable definitions.

**Table 4. The Effect of Joining Audit Firm Alliance on Audit Quality**

| <b>Panel A. Country fixed effect regression</b> |                                  |                                  |                               |                                    |                                    |
|---|----------------------------------|----------------------------------|-------------------------------|------------------------------------|------------------------------------|
| Variables                                       | <i>Audit fees</i>                |                                  | <i>Discretionary accruals</i> |                                    |                                    |
|   | (1)                              | (2)                              | (3)                           | (4)                                |                                    |
| <i>All</i>                                      | -0.075<br>(-1.27)                | -0.200***<br>(-4.30)             | <i>All</i>                    | 0.002<br>(0.70)                    | 0.004<br>(1.30)                    |
| <i>All*Post</i>                                 | <b>0.332***</b><br><b>(6.10)</b> | <b>0.216***</b><br><b>(4.88)</b> | <i>All*Post</i>               | <b>-0.011***</b><br><b>(-2.85)</b> | <b>-0.011***</b><br><b>(-3.11)</b> |
| <i>log(Assets)</i>                              |                                  | 0.453***<br>(39.19)              | <i>log(MV)</i>                |                                    | -0.002***<br>(-2.86)               |
| <i>CATA</i>                                     |                                  | 0.033<br>(0.55)                  | <i>ROA</i>                    |                                    | 0.050***<br>(4.30)                 |
| <i>QUICK</i>                                    |                                  | -0.007***<br>(-3.26)             | <i>LEV</i>                    |                                    | 0.120***<br>(20.15)                |
| <i>LEV</i>                                      |                                  | -0.303***<br>(-4.01)             | <i>CURR</i>                   |                                    | -0.000<br>(-1.01)                  |
| <i>ROA</i>                                      |                                  | -0.383***<br>(-4.77)             | <i>CFO</i>                    |                                    | -0.071***<br>(-4.57)               |
| <i>Loss</i>                                     |                                  | 0.005<br>(0.18)                  | <i>Loss</i>                   |                                    | 0.003<br>(0.97)                    |
| <i>SG</i>                                       |                                  | -0.031***<br>(-3.21)             | <i>MTB</i>                    |                                    | 0.006***<br>(7.52)                 |
| <i>FG</i>                                       |                                  | 0.052***<br>(4.71)               | <i>SG</i>                     |                                    | 0.009***<br>(5.77)                 |
| <i>GC</i>                                       |                                  | -0.220***<br>(-3.66)             | <i>FG</i>                     |                                    | 0.031***<br>(16.77)                |
| <i>AST</i>                                      |                                  | 0.300***<br>(6.19)               | <i>Taccr</i>                  |                                    | 0.146***<br>(10.84)                |
| <i>Foreign</i>                                  |                                  | 1.095***<br>(29.24)              | <i>AST</i>                    |                                    | -0.005<br>(-1.59)                  |
| <i>Tenure</i>                                   |                                  | 0.020***<br>(4.76)               | <i>Tenure</i>                 |                                    | -0.000<br>(-0.36)                  |
| <i>Audsz</i>                                    |                                  | 0.323***<br>(13.57)              | <i>Audsz</i>                  |                                    | -0.001<br>(-1.11)                  |
| <i>Mktshr</i>                                   |                                  | 9.247***<br>(6.59)               | <i>Mktshr</i>                 |                                    | 0.013<br>(0.34)                    |
| <i>Audinf</i>                                   |                                  | 2.267***<br>(20.12)              | <i>Audinf</i>                 |                                    | 0.005<br>(1.33)                    |
| Country F.E.                                    | Yes                              | Yes                              | Country F.E.                  | Yes                                | Yes                                |
| Industry F.E.                                   | Yes                              | Yes                              | Industry F.E.                 | Yes                                | Yes                                |
| Year F.E.                                       | Yes                              | Yes                              | Year F.E.                     | Yes                                | Yes                                |
| N   | 45,513                           | 45,513                           | N                             | 45,513                             | 45,513                             |
| <i>Adj-R<sup>2</sup></i>                        | 0.2568                           | 0.5184                           | <i>Adj-R<sup>2</sup></i>      | 0.08626                            | 0.1345                             |

**Panel B. Firm fixed effect regression**

| Variables                | <i>Audit fees</i>         |                           | <i>Discretionary accruals</i> |                             |                             |
|--------------------------|---------------------------|---------------------------|-------------------------------|-----------------------------|-----------------------------|
|                          | (1)                       | (2)                       | (3)                           | (4)                         |                             |
| <i>All*Post</i>          | <b>0.543***</b><br>(8.99) | <b>0.359***</b><br>(6.93) | <i>All*Post</i>               | <b>-0.022***</b><br>(-3.84) | <b>-0.020***</b><br>(-3.59) |
| <i>log(Assets)</i>       |                           | 0.420***<br>(15.49)       | <i>log(MV)</i>                |                             | 0.009***<br>(4.38)          |
| <i>CATA</i>              |                           | 0.106<br>(1.17)           | <i>ROA</i>                    |                             | 0.064***<br>(4.66)          |
| <i>QUICK</i>             |                           | -0.003<br>(-1.41)         | <i>LEV</i>                    |                             | 0.110***<br>(8.42)          |
| <i>LEV</i>               |                           | 0.036<br>(0.34)           | <i>CURR</i>                   |                             | 0.000<br>(0.26)             |
| <i>ROA</i>               |                           | -0.211***<br>(-2.78)      | <i>CFO</i>                    |                             | -0.093***<br>(-4.42)        |
| <i>Loss</i>              |                           | -0.107***<br>(-3.96)      | <i>Loss</i>                   |                             | -0.001<br>(-0.31)           |
| <i>SG</i>                |                           | -0.025***<br>(-2.61)      | <i>MTB</i>                    |                             | -0.001<br>(-0.34)           |
| <i>FG</i>                |                           | 0.056***<br>(5.07)        | <i>SG</i>                     |                             | 0.008***<br>(4.08)          |
| <i>GC</i>                |                           | -0.219***<br>(-3.68)      | <i>FG</i>                     |                             | 0.026***<br>(11.65)         |
| <i>AST</i>               |                           | -0.293***<br>(-6.55)      | <i>Taccr</i>                  |                             | 0.148***<br>(8.95)          |
| <i>Foreign</i>           |                           | 1.553***<br>(26.94)       | <i>AST</i>                    |                             | -0.025***<br>(-4.80)        |
| <i>Tenure</i>            |                           | -0.017**<br>(-2.56)       | <i>Tenure</i>                 |                             | 0.000<br>(0.07)             |
| <i>Audsz</i>             |                           | 0.338***<br>(7.19)        | <i>Audsz</i>                  |                             | -0.004*<br>(-1.93)          |
| <i>Mktshr</i>            |                           | 11.278***<br>(3.90)       | <i>Mktshr</i>                 |                             | -0.042<br>(-0.79)           |
| <i>Audinf</i>            |                           | 2.141***<br>(7.72)        | <i>Audinf</i>                 |                             | -0.001<br>(-0.19)           |
| Firm F.E.                | Yes                       | Yes                       | Firm F.E.                     | Yes                         | Yes                         |
| Year F.E.                | Yes                       | Yes                       | Year F.E.                     | Yes                         | Yes                         |
| N                        | 45,513                    | 45,513                    | N                             | 45,513                      | 45,513                      |
| <i>Adj-R<sup>2</sup></i> | 0.6519                    | 0.7315                    | <i>Adj-R<sup>2</sup></i>      | 0.2281                      | 0.2538                      |

Note: Table 4 presents the regression results of the effect of joining audit firm alliance on audit pricing and audit quality. \*, \*\* and \*\*\* indicate statistical significance at the 0.1, 0.05 and 0.01 levels. The dependent variables are audit fees and discretionary accruals. See the appendix for variable definitions.

**Table 5. Alternative Dependent Variables**

| <b>Panel A. Country fixed effect regression</b> |                                  |                                  |   |
|---|----------------------------------|----------------------------------|---|
|   | <i>Meet/beat the target</i>      | <i>Going-concern report</i>      | <i>Performance matched discretionary accruals</i> |
|   | (1)                              | (2)                              | (3)   |
| <i>All</i>                                      | 0.021**<br>(2.46)                | -0.011***<br>(-2.62)             | 0.002<br>(0.78)                                   |
| <i>All*Post</i>                                 | <b>-0.017*</b><br><b>(-1.82)</b> | <b>0.019***</b><br><b>(3.67)</b> | <b>-0.008***</b><br><b>(-2.87)</b>                |
| <i>log(MV)</i>                                  | -0.027***<br>(-13.88)            | -0.009***<br>(-10.85)            | -0.001**<br>(-2.42)                               |
| <i>ROA</i>                                      | -0.103***<br>(-5.33)             | -0.183***<br>(-8.68)             | 0.027***<br>(3.03)                                |
| <i>LEV</i>                                      | 0.011<br>(0.74)                  | 0.005<br>(0.71)                  | 0.098***<br>(20.91)                               |
| <i>CURR</i>                                     | 0.002***<br>(3.96)               | -0.004***<br>(-11.80)            | -0.000<br>(-0.91)                                 |
| <i>CFO</i>                                      | -0.299***<br>(-10.06)            | -0.082***<br>(-3.28)             | -0.032***<br>(-2.70)                              |
| <i>Loss</i>                                     | -0.320***<br>(-46.24)            | 0.018***<br>(4.27)               | 0.003<br>(1.61)                                   |
| <i>MTB</i>                                      | 0.020***<br>(9.93)               | 0.009***<br>(6.84)               | 0.005***<br>(7.30)                                |
| <i>SG</i>                                       | 0.007***<br>(2.86)               | -0.002<br>(-1.18)                | 0.005***<br>(4.80)                                |
| <i>FG</i>                                       | -0.005**<br>(-2.17)              | -0.008***<br>(-4.86)             | 0.022***<br>(17.12)                               |
| <i>Taccr</i>                                    | -0.228***<br>(-12.60)            | 0.074***<br>(4.57)               | 0.094***<br>(9.92)                                |
| <i>AST</i>                                      | -0.049***<br>(-5.77)             | 0.146***<br>(21.17)              | -0.006**<br>(-2.25)                               |
| <i>Tenure</i>                                   | -0.003***<br>(-3.84)             | -0.002***<br>(-4.50)             | 0.000<br>(1.35)                                   |
| <i>Audsz</i>                                    | -0.008***<br>(-2.85)             | 0.000<br>(0.19)                  | -0.001<br>(-0.76)                                 |
| <i>Mktshr</i>                                   | -0.104<br>(-1.18)                | 0.030<br>(0.39)                  | -0.022<br>(-0.64)                                 |
| <i>Audinf</i>                                   | -0.014<br>(-1.55)                | 0.001<br>(0.15)                  | 0.004<br>(1.53)                                   |
| Country F.E.                                    | Yes                              | Yes                              | Yes   |
| Industry F.E.                                   | Yes                              | Yes                              | Yes   |
| Year F.E.                                       | Yes                              | Yes                              | Yes   |
| N   | 28,749                           | 45,513                           | 45,513  |
| <i>Adj-R<sup>2</sup></i>                        | 0.1715                           | 0.2634                           | 0.1433  |

**Panel B. Firm fixed effect regression**

|                          | <i>Meet/beat the target</i> | <i>Going-concern report</i> | <i>Performance matched discretionary accruals</i> |
|--------------------------|-----------------------------|-----------------------------|---|
|                          | (1)                         | (2)                         | (3)   |
| <i>All*Post</i>          | <b>-0.033**</b><br>(-2.45)  | <b>0.021***</b><br>(3.42)   | <b>-0.014***</b><br>(-3.15)                       |
| <i>log(MV)</i>           | -0.060***<br>(-13.66)       | -0.019***<br>(-7.83)        | 0.005***<br>(3.34)                                |
| <i>ROA</i>               | -0.126***<br>(-5.24)        | -0.094***<br>(-4.57)        | 0.033***<br>(3.08)                                |
| <i>LEV</i>               | 0.031<br>(1.22)             | 0.029**<br>(2.12)           | 0.085***<br>(8.37)                                |
| <i>CURR</i>              | 0.002***<br>(3.57)          | -0.003***<br>(-6.72)        | 0.000<br>(0.23)                                   |
| <i>CFO</i>               | -0.174***<br>(-4.37)        | -0.028<br>(-1.11)           | -0.046***<br>(-2.91)                              |
| <i>Loss</i>              | -0.372***<br>(-38.15)       | -0.000<br>(-0.03)           | -0.000<br>(-0.08)                                 |
| <i>MTB</i>               | 0.018***<br>(6.81)          | 0.004**<br>(2.04)           | 0.000<br>(0.14)                                   |
| <i>SG</i>                | -0.002<br>(-0.77)           | -0.002<br>(-1.60)           | 0.005***<br>(3.84)                                |
| <i>FG</i>                | 0.002<br>(0.71)             | -0.006***<br>(-3.45)        | 0.018***<br>(11.86)                               |
| <i>Taccr</i>             | -0.178***<br>(-8.15)        | 0.021<br>(1.25)             | 0.091***<br>(7.92)                                |
| <i>AST</i>               | -0.023*<br>(-1.89)          | 0.192***<br>(13.54)         | -0.020***<br>(-5.02)                              |
| <i>Tenure</i>            | -0.001<br>(-0.53)           | 0.001<br>(1.04)             | 0.000<br>(0.94)                                   |
| <i>Audsz</i>             | -0.015***<br>(-2.87)        | -0.003<br>(-1.50)           | -0.002<br>(-1.34)                                 |
| <i>Mktshr</i>            | -0.161<br>(-1.05)           | 0.013<br>(0.17)             | -0.038<br>(-0.87)                                 |
| <i>Audinf</i>            | -0.018<br>(-1.55)           | -0.007<br>(-1.43)           | 0.002<br>(0.48)                                   |
| Firm F.E.                | Yes                         | Yes                         | Yes   |
| Year F.E.                | Yes                         | Yes                         | Yes   |
| N                        | 28,749                      | 45,513                      | 45,513  |
| <i>Adj-R<sup>2</sup></i> | 0.3579                      | 0.5922                      | 0.2622  |

Note: Table 5 reports the regression results using alternative audit quality measures as the dependent variables. \*, \*\* and \*\*\* indicate statistical significance at the 0.1, 0.05 and 0.01 levels. In column (1), the dependent variable is meet or beat earnings target; in column (2) the dependent variable is issuance of going-concern report. In column (3), the dependent variable is performance-matched discretionary accruals. See the appendix for variable definitions.

**Table 6. Alternative Sample**

| <b>Panel A. Country fixed effect regression</b> |                           |                            |                                     |
|---|---------------------------|----------------------------|-------------------------------------|
| <b>Panel A1. Audit fees</b>                     |                           |                            |                                     |
|   | Drop India                | Short Window<br>(-5, +5)   | Drop BDO, Crowe<br>Horwath, Praxity |
|   | (1)                       | (2)                        | (3)                                 |
| <i>All</i>                                      | -0.102**<br>(-2.18)       | -0.223***<br>(-4.48)       | -0.211***<br>(-4.07)                |
| <i>All*Post</i>                                 | <b>0.095**<br/>(2.12)</b> | <b>0.226***<br/>(5.05)</b> | <b>0.126**<br/>(2.35)</b>           |
| <i>log(Assets)</i>                              | 0.424***<br>(26.89)       | 0.449***<br>(37.69)        | 0.453***<br>(37.29)                 |
| <i>CATA</i>                                     | -0.036<br>(-0.50)         | 0.060<br>(0.95)            | 0.060<br>(0.97)                     |
| <i>QUICK</i>                                    | -0.001<br>(-0.64)         | -0.010***<br>(-4.60)       | -0.007***<br>(-3.27)                |
| <i>LEV</i>                                      | -0.248***<br>(-2.61)      | -0.288***<br>(-3.63)       | -0.274***<br>(-3.43)                |
| <i>ROA</i>                                      | -0.435***<br>(-5.27)      | -0.335***<br>(-3.81)       | -0.361***<br>(-4.35)                |
| <i>Loss</i>                                     | 0.081**<br>(2.33)         | 0.012<br>(0.40)            | -0.009<br>(-0.31)                   |
| <i>SG</i>                                       | -0.016<br>(-1.37)         | -0.037***<br>(-3.59)       | -0.030***<br>(-3.04)                |
| <i>FG</i>                                       | 0.045***<br>(3.53)        | 0.046***<br>(3.79)         | 0.050***<br>(4.33)                  |
| <i>GC</i>                                       | -0.313***<br>(-5.33)      | -0.198***<br>(-3.08)       | -0.168***<br>(-2.66)                |
| <i>AST</i>                                      | 0.176***<br>(3.44)        | 0.355***<br>(6.74)         | 0.291***<br>(5.79)                  |
| <i>Foreign</i>                                  | 1.230***<br>(28.08)       | 1.092***<br>(27.57)        | 1.076***<br>(25.71)                 |
| <i>Tenure</i>                                   | 0.029***<br>(5.29)        | 0.021***<br>(4.73)         | 0.020***<br>(4.46)                  |
| <i>Audsz</i>                                    | 0.296***<br>(8.24)        | 0.341***<br>(19.05)        | 0.305***<br>(11.04)                 |
| <i>Mktshr</i>                                   | 6.113***<br>(5.10)        | 8.311***<br>(6.58)         | 9.151***<br>(6.41)                  |
| <i>Audinf</i>                                   | 3.216***<br>(12.13)       | 2.349***<br>(34.15)        | 2.171***<br>(18.29)                 |
| Country F.E.                                    | Yes                       | Yes                        | Yes                                 |
| Industry F.E.                                   | Yes                       | Yes                        | Yes                                 |
| Year F.E.                                       | Yes                       | Yes                        | Yes                                 |
| N   | 30,509                    | 39,617                     | 39,311                              |
| <i>Adj-R<sup>2</sup></i>                        | 0.5865                    | 0.5179                     | 0.5233                              |

**Panel A2. Discretionary accruals**

|                          | Drop India                        | Short Window<br>(-5, +5)           | Drop BDO, Crowe<br>Horwath, Praxity |
|--------------------------|-----------------------------------|------------------------------------|-------------------------------------|
|                          | (1)                               | (2)                                | (3)                                 |
| <i>All</i>               | 0.003<br>(0.88)                   | 0.006<br>(1.49)                    | 0.004<br>(0.89)                     |
| <i>All*Post</i>          | <b>-0.009**</b><br><b>(-2.27)</b> | <b>-0.012***</b><br><b>(-2.77)</b> | <b>-0.013***</b><br><b>(-2.79)</b>  |
| <i>log(MV)</i>           | -0.004***<br>(-4.26)              | -0.002**<br>(-2.53)                | -0.001*<br>(-1.76)                  |
| <i>ROA</i>               | 0.058***<br>(4.57)                | 0.052***<br>(4.06)                 | 0.039***<br>(3.32)                  |
| <i>LEV</i>               | 0.140***<br>(18.18)               | 0.123***<br>(19.21)                | 0.119***<br>(18.76)                 |
| <i>CURR</i>              | -0.000<br>(-1.32)                 | -0.000<br>(-0.28)                  | -0.000<br>(-1.30)                   |
| <i>CFO</i>               | -0.059***<br>(-3.27)              | -0.078***<br>(-4.66)               | -0.067***<br>(-4.18)                |
| <i>Loss</i>              | 0.001<br>(0.47)                   | 0.002<br>(0.65)                    | 0.002<br>(0.80)                     |
| <i>MTB</i>               | 0.008***<br>(8.38)                | 0.006***<br>(6.74)                 | 0.006***<br>(6.35)                  |
| <i>SG</i>                | 0.009***<br>(4.73)                | 0.008***<br>(4.62)                 | 0.009***<br>(5.42)                  |
| <i>FG</i>                | 0.029***<br>(14.12)               | 0.033***<br>(15.71)                | 0.033***<br>(16.11)                 |
| <i>Taccr</i>             | 0.154***<br>(10.31)               | 0.151***<br>(10.20)                | 0.139***<br>(9.95)                  |
| <i>AST</i>               | 0.007*<br>(1.95)                  | -0.007*<br>(-1.76)                 | -0.008**<br>(-2.27)                 |
| <i>Tenure</i>            | -0.001<br>(-1.54)                 | -0.000<br>(-0.08)                  | -0.000<br>(-0.53)                   |
| <i>Audsz</i>             | 0.000<br>(0.36)                   | -0.001<br>(-0.55)                  | -0.001<br>(-1.25)                   |
| <i>Mktshr</i>            | -0.032<br>(-0.85)                 | 0.020<br>(0.51)                    | 0.007<br>(0.17)                     |
| <i>Audinf</i>            | 0.009**<br>(2.00)                 | 0.007*<br>(1.69)                   | 0.004<br>(1.04)                     |
| Country F.E.             | Yes                               | Yes                                | Yes                                 |
| Industry F.E.            | Yes                               | Yes                                | Yes                                 |
| Year F.E.                | Yes                               | Yes                                | Yes                                 |
| N                        | 30,509                            | 39,617                             | 39,311                              |
| <i>Adj-R<sup>2</sup></i> | 0.1483                            | 0.1357                             | 0.1337                              |



**Panel B. Firm fixed effect regression**

| <b>Panel B1. Audit fees</b> |                                 |                                  |                                     |
|-----------------------------|---------------------------------|----------------------------------|-------------------------------------|
|                             | Drop India                      | Short Window<br>(-5, +5)         | Drop BDO, Crowe<br>Horwath, Praxity |
|                             | (1)                             | (2)                              | (3)                                 |
| <i>All*Post</i>             | <b>0.105**</b><br><b>(1.98)</b> | <b>0.398***</b><br><b>(7.46)</b> | <b>0.332***</b><br><b>(4.82)</b>    |
| <i>log(Assets)</i>          | 0.324***<br>(9.77)              | 0.406***<br>(13.72)              | 0.410***<br>(14.37)                 |
| <i>CATA</i>                 | 0.018<br>(0.17)                 | 0.170*<br>(1.67)                 | 0.123<br>(1.29)                     |
| <i>QUICK</i>                | 0.000<br>(0.12)                 | -0.003<br>(-1.02)                | -0.003<br>(-1.19)                   |
| <i>LEV</i>                  | 0.108<br>(0.78)                 | 0.041<br>(0.37)                  | -0.008<br>(-0.07)                   |
| <i>ROA</i>                  | -0.149*<br>(-1.80)              | -0.191**<br>(-2.25)              | -0.204***<br>(-2.64)                |
| <i>Loss</i>                 | -0.025<br>(-0.75)               | -0.108***<br>(-3.81)             | -0.114***<br>(-4.15)                |
| <i>SG</i>                   | -0.034***<br>(-2.73)            | -0.027***<br>(-2.77)             | -0.022**<br>(-2.34)                 |
| <i>FG</i>                   | 0.050***<br>(3.74)              | 0.054***<br>(4.44)               | 0.052***<br>(4.57)                  |
| <i>GC</i>                   | -0.324***<br>(-5.24)            | -0.211***<br>(-3.06)             | -0.197***<br>(-3.13)                |
| <i>AST</i>                  | 1.654***<br>(24.33)             | 1.515***<br>(24.16)              | -0.248***<br>(-5.37)                |
| <i>Foreign</i>              | -0.540***<br>(-10.25)           | -0.285***<br>(-5.98)             | 1.503***<br>(23.02)                 |
| <i>Tenure</i>               | -0.001<br>(-0.16)               | -0.019***<br>(-2.66)             | -0.011<br>(-1.54)                   |
| <i>Audsz</i>                | 0.295***<br>(4.16)              | 0.357***<br>(9.60)               | 0.272***<br>(4.66)                  |
| <i>Mktshr</i>               | 8.493***<br>(3.34)              | 10.155***<br>(3.60)              | 12.428***<br>(3.78)                 |
| <i>Audinf</i>               | 2.594***<br>(4.41)              | 2.513***<br>(15.11)              | 2.019***<br>(7.18)                  |
| Firm F.E.                   | Yes                             | Yes                              | Yes                                 |
| Year F.E.                   | Yes                             | Yes                              | Yes                                 |
| N                           | 30,509                          | 39,617                           | 39,311                              |
| <i>Adj-R<sup>2</sup></i>    | 0.7589                          | 0.7469                           | 0.7429                              |

**Panel B2. Discretionary accruals**

|                          | Drop India                        | Short Window<br>(-5, +5)           | Drop BDO, Crowe Horwath,<br>Praxity |
|--------------------------|-----------------------------------|------------------------------------|-------------------------------------|
|                          | (1)                               | (2)                                | (3)                                 |
| <i>All*Post</i>          | <b>-0.016**</b><br><b>(-2.57)</b> | <b>-0.019***</b><br><b>(-3.24)</b> | <b>-0.024***</b><br><b>(-3.04)</b>  |
| <i>log(MV)</i>           | 0.011***<br>(3.99)                | 0.009***<br>(3.96)                 | 0.009***<br>(4.06)                  |
| <i>ROA</i>               | 0.064***<br>(4.23)                | 0.071***<br>(4.49)                 | 0.063***<br>(4.33)                  |
| <i>LEV</i>               | 0.108***<br>(5.96)                | 0.117***<br>(8.11)                 | 0.114***<br>(8.22)                  |
| <i>CURR</i>              | 0.000<br>(0.58)                   | 0.000<br>(0.72)                    | -0.000<br>(-0.16)                   |
| <i>CFO</i>               | -0.081***<br>(-3.20)              | -0.088***<br>(-3.77)               | -0.086***<br>(-3.92)                |
| <i>Loss</i>              | -0.005<br>(-1.26)                 | -0.001<br>(-0.29)                  | 0.000<br>(0.09)                     |
| <i>MTB</i>               | 0.000<br>(0.09)                   | -0.001<br>(-0.72)                  | -0.001<br>(-0.67)                   |
| <i>SG</i>                | 0.008***<br>(3.34)                | 0.006***<br>(2.71)                 | 0.007***<br>(3.67)                  |
| <i>FG</i>                | 0.023***<br>(9.24)                | 0.027***<br>(10.72)                | 0.027***<br>(11.18)                 |
| <i>Taccr</i>             | 0.147***<br>(7.96)                | 0.155***<br>(8.24)                 | 0.140***<br>(8.09)                  |
| <i>AST</i>               | -0.004<br>(-0.82)                 | -0.028***<br>(-4.56)               | -0.025***<br>(-4.76)                |
| <i>Tenure</i>            | -0.000<br>(-0.60)                 | 0.000<br>(0.06)                    | -0.000<br>(-0.16)                   |
| <i>Audsz</i>             | -0.002<br>(-0.88)                 | -0.004<br>(-1.34)                  | -0.005*<br>(-1.79)                  |
| <i>Mktshr</i>            | -0.073<br>(-1.50)                 | -0.014<br>(-0.26)                  | -0.066<br>(-1.15)                   |
| <i>Audinf</i>            | 0.007<br>(1.02)                   | 0.003<br>(0.36)                    | -0.001<br>(-0.08)                   |
| Firm F.E.                | Yes                               | Yes                                | Yes                                 |
| Year F.E.                | Yes                               | Yes                                | Yes                                 |
| N                        | 30,509                            | 39,617                             | 39,311                              |
| <i>Adj-R<sup>2</sup></i> | 0.2755                            | 0.2583                             | 0.255                               |

Note: Table 6 reports the regression results using different samples and time periods. \*, \*\* and \*\*\* indicate statistical significance at the 0.1, 0.05 and 0.01 levels. The dependent variables are audit fees and discretionary accruals. In column (1) and (4), the control sample is sample after dropping India. In column (2) and (5), the time period is shorter, including only the five years before and after audit firms join audit firm alliances. In column (3) and (6), clients of BDO, Praxity and Crowe Horwath. See the appendix for variable definitions.

**Table 7. Comparison with Big Four**

| <b>Panel A. Country fixed effect regression</b> |                                  |                          |                                    |
|---|----------------------------------|--------------------------|------------------------------------|
|   | <i>Audit fees</i>                |                          | <i>Discretionary accruals</i>      |
|   | (1)                              |                          | (2)                                |
| <i>All</i>                                      | -0.643***<br>(-9.22)             | <i>All</i>               | -0.004<br>(-1.07)                  |
| <i>All*Post</i>                                 | <b>0.380***</b><br><b>(7.84)</b> | <i>All*Post</i>          | <b>-0.013***</b><br><b>(-4.01)</b> |
| <i>log(Assets)</i>                              | 0.553***<br>(58.28)              | <i>log(MV)</i>           | -0.003***<br>(-8.67)               |
| <i>CATA</i>                                     | 0.328***<br>(4.99)               | <i>ROA</i>               | 0.047***<br>(5.65)                 |
| <i>QUICK</i>                                    | -0.012***<br>(-3.60)             | <i>LEV</i>               | 0.120***<br>(27.65)                |
| <i>LEV</i>                                      | -0.585***<br>(-7.34)             | <i>CURR</i>              | -0.001***<br>(-4.44)               |
| <i>ROA</i>                                      | -0.561***<br>(-6.37)             | <i>CFO</i>               | -0.030***<br>(-2.89)               |
| <i>Loss</i>                                     | 0.098***<br>(3.52)               | <i>Loss</i>              | 0.004**<br>(2.18)                  |
| <i>SG</i>                                       | -0.054***<br>(-4.88)             | <i>MTB</i>               | 0.007***<br>(11.04)                |
| <i>FG</i>                                       | 0.046***<br>(2.91)               | <i>SG</i>                | 0.009***<br>(8.21)                 |
| <i>GC</i>                                       | -0.145***<br>(-2.63)             | <i>FG</i>                | 0.037***<br>(23.54)                |
| <i>AST</i>                                      | 0.292***<br>(10.00)              | <i>Taccr</i>             | 0.170***<br>(16.91)                |
| <i>Foreign</i>                                  | 1.173***<br>(38.07)              | <i>AST</i>               | -0.005***<br>(-3.27)               |
| <i>Tenure</i>                                   | 0.099***<br>(26.67)              | <i>Tenure</i>            | -0.001***<br>(-3.37)               |
| <i>Audsz</i>                                    | 0.075***<br>(4.62)               | <i>Audsz</i>             | -0.000<br>(-0.35)                  |
| <i>Mktshr</i>                                   | 16.773***<br>(15.11)             | <i>Mktshr</i>            | -0.073***<br>(-3.24)               |
| <i>Audinf</i>                                   | 2.690***<br>(11.71)              | <i>Audinf</i>            | 0.005<br>(1.22)                    |
| Country F.E.                                    | Yes                              | Country F.E.             | Yes                                |
| Industry F.E.                                   | Yes                              | Industry F.E.            | Yes                                |
| Year F.E.                                       | Yes                              | Year F.E.                | Yes                                |
| N   | 98,485                           | N                        | 98,485                             |
| <i>Adj-R<sup>2</sup></i>                        | 0.4625                           | <i>Adj-R<sup>2</sup></i> | 0.1763                             |

**Panel B. Firm fixed effect regression**

|                          | <i>Audit fees</i>                |                          | <i>Discretionary accruals</i>      |
|--------------------------|----------------------------------|--------------------------|------------------------------------|
|                          | (1)                              |                          | (2)                                |
| <i>All*Post</i>          | <b>0.327***</b><br><b>(6.13)</b> | <i>All*Post</i>          | <b>-0.015***</b><br><b>(-2.90)</b> |
| <i>log(Assets)</i>       | 0.284***<br>(10.45)              | <i>log(MV)</i>           | 0.002<br>(1.26)                    |
| <i>CATA</i>              | 0.220**<br>(2.29)                | <i>ROA</i>               | 0.065***<br>(6.98)                 |
| <i>QUICK</i>             | -0.016***<br>(-4.16)             | <i>LEV</i>               | 0.147***<br>(16.77)                |
| <i>LEV</i>               | 0.039<br>(0.33)                  | <i>CURR</i>              | 0.000<br>(0.56)                    |
| <i>ROA</i>               | -0.127<br>(-1.47)                | <i>CFO</i>               | -0.078***<br>(-5.96)               |
| <i>Loss</i>              | -0.015<br>(-0.60)                | <i>Loss</i>              | -0.001<br>(-0.72)                  |
| <i>SG</i>                | -0.034***<br>(-3.24)             | <i>MTB</i>               | 0.006***<br>(4.89)                 |
| <i>FG</i>                | 0.064***<br>(4.12)               | <i>SG</i>                | 0.008***<br>(6.34)                 |
| <i>GC</i>                | -0.139**<br>(-2.46)              | <i>FG</i>                | 0.031***<br>(17.22)                |
| <i>AST</i>               | -0.814***<br>(-22.76)            | <i>Taccr</i>             | 0.163***<br>(14.59)                |
| <i>Foreign</i>           | 1.244***<br>(26.36)              | <i>AST</i>               | -0.007***<br>(-3.09)               |
| <i>Tenure</i>            | -0.025***<br>(-3.82)             | <i>Tenure</i>            | -0.000<br>(-0.36)                  |
| <i>Audsz</i>             | 0.131***<br>(4.87)               | <i>Audsz</i>             | 0.000<br>(0.21)                    |
| <i>Mktshr</i>            | 17.076***<br>(10.54)             | <i>Mktshr</i>            | 0.035<br>(1.53)                    |
| <i>Audinf</i>            | 2.845***<br>(5.41)               | <i>Audinf</i>            | -0.002<br>(-0.34)                  |
| Firm F.E.                | Yes                              | Firm F.E.                | Yes                                |
| Year F.E.                | Yes                              | Year F.E.                | Yes                                |
| N                        | 98,485                           | N                        | 98,485                             |
| <i>Adj-R<sup>2</sup></i> | 0.6800                           | <i>Adj-R<sup>2</sup></i> | 0.3196                             |

Note: Table 7 reports the regression results using clients of Big Four auditors as control sample. \*, \*\* and \*\*\* indicate statistical significance at the 0.1, 0.05 and 0.01 levels. The dependent variables are audit fees and discretionary accruals. See the appendix for variable definitions.

**Table 8. Heckman Two-stage Regression**

| <b>Panel A. Country fixed effect regression</b> |                                  |                            |                                    |
|---|----------------------------------|----------------------------|------------------------------------|
|   | <i>Audit fees</i>                |                            | <i>Discretionary accruals</i>      |
| <i>All</i>                                      | -0.193***<br>(-4.15)             | <i>All</i>                 | 0.004<br>(1.18)                    |
| <i>All*Post</i>                                 | <b>0.190***</b><br><b>(4.25)</b> | <i>All*Post</i>            | <b>-0.010***</b><br><b>(-2.73)</b> |
| <i>log(Assets)</i>                              | 0.497***<br>(30.25)              | <i>log(MV)</i>             | -0.003***<br>(-3.78)               |
| <i>CATA</i>                                     | 0.050<br>(0.85)                  | <i>ROA</i>                 | 0.047***<br>(4.08)                 |
| <i>QUICK</i>                                    | -0.005**<br>(-2.43)              | <i>LEV</i>                 | 0.117***<br>(19.37)                |
| <i>LEV</i>                                      | -0.308***<br>(-4.07)             | <i>CURR</i>                | -0.000<br>(-1.34)                  |
| <i>ROA</i>                                      | -0.341***<br>(-4.16)             | <i>CFO</i>                 | -0.069***<br>(-4.48)               |
| <i>Loss</i>                                     | 0.007<br>(0.26)                  | <i>Loss</i>                | 0.002<br>(0.93)                    |
| <i>SG</i>                                       | -0.033***<br>(-3.38)             | <i>MTB</i>                 | 0.007***<br>(7.91)                 |
| <i>FG</i>                                       | 0.050***<br>(4.54)               | <i>SG</i>                  | 0.009***<br>(5.80)                 |
| <i>GC</i>                                       | -0.237***<br>(-3.92)             | <i>FG</i>                  | 0.031***<br>(16.76)                |
| <i>AST</i>                                      | 0.287***<br>(5.85)               | <i>Taccr</i>               | 0.148***<br>(10.95)                |
| <i>Foreign</i>                                  | 1.057***<br>(27.54)              | <i>AST</i>                 | -0.005<br>(-1.47)                  |
| <i>Tenure</i>                                   | 0.021***<br>(4.99)               | <i>Tenure</i>              | -0.000<br>(-0.58)                  |
| <i>Audsz</i>                                    | 0.318***<br>(13.30)              | <i>Audsz</i>               | -0.001<br>(-0.92)                  |
| <i>Mktshr</i>                                   | 9.291***<br>(6.52)               | <i>Mktshr</i>              | 0.008<br>(0.21)                    |
| <i>Audinf</i>                                   | 2.258***<br>(20.05)              | <i>Audinf</i>              | 0.005<br>(1.42)                    |
| <i>INVERSE MILLS RATIO</i>                      | 1.083***<br>(3.87)               | <i>INVERSE MILLS RATIO</i> | -0.050**<br>(-2.57)                |
| Country F.E.                                    | Yes                              | Country F.E.               | Yes                                |
| Industry F.E.                                   | Yes                              | Industry F.E.              | Yes                                |
| Year F.E.                                       | Yes                              | Year F.E.                  | Yes                                |
| N   | 45,463                           | N                          | 45,463                             |
| <i>Adj-R<sup>2</sup></i>                        | 0.5187                           | <i>Adj-R<sup>2</sup></i>   | 0.1346                             |

**Panel B. Firm fixed effect regression**

|                            | <i>Audit fees</i>         |                            | <i>Discretionary accruals</i> |
|----------------------------|---------------------------|----------------------------|-------------------------------|
| <i>All*Post</i>            | <b>0.226***</b><br>(4.39) | <i>All*Post</i>            | <b>-0.016***</b><br>(-2.85)   |
| <i>log(Assets)</i>         | 0.569***<br>(18.75)       | <i>log(MV)</i>             | 0.008***<br>(3.69)            |
| <i>CATA</i>                | 0.073<br>(0.82)           | <i>ROA</i>                 | 0.055***<br>(3.98)            |
| <i>QUICK</i>               | 0.007***<br>(2.94)        | <i>LEV</i>                 | 0.106***<br>(8.09)            |
| <i>LEV</i>                 | 0.028<br>(0.26)           | <i>CURR</i>                | -0.000<br>(-0.86)             |
| <i>ROA</i>                 | 0.012<br>(0.14)           | <i>CFO</i>                 | -0.089***<br>(-4.28)          |
| <i>Loss</i>                | -0.091***<br>(-3.40)      | <i>Loss</i>                | -0.002<br>(-0.48)             |
| <i>SG</i>                  | -0.026***<br>(-2.71)      | <i>MTB</i>                 | 0.001<br>(0.39)               |
| <i>FG</i>                  | 0.057***<br>(5.11)        | <i>SG</i>                  | 0.008***<br>(3.97)            |
| <i>GC</i>                  | -0.313***<br>(-5.17)      | <i>FG</i>                  | 0.025***<br>(11.49)           |
| <i>AST</i>                 | -0.408***<br>(-8.86)      | <i>Taccr</i>               | 0.155***<br>(9.30)            |
| <i>Foreign</i>             | 1.365***<br>(23.56)       | <i>AST</i>                 | -0.021***<br>(-3.99)          |
| <i>Tenure</i>              | -0.015**<br>(-2.26)       | <i>Tenure</i>              | -0.000<br>(-0.10)             |
| <i>Audsz</i>               | 0.294***<br>(6.24)        | <i>Audsz</i>               | -0.003<br>(-1.26)             |
| <i>Mktshr</i>              | 11.494***<br>(3.79)       | <i>Mktshr</i>              | -0.056<br>(-1.01)             |
| <i>Audinf</i>              | 2.091***<br>(7.68)        | <i>Audinf</i>              | 0.001<br>(0.09)               |
| <i>INVERSE MILLS RATIO</i> | 4.911***<br>(13.83)       | <i>INVERSE MILLS RATIO</i> | -0.154***<br>(-4.54)          |
| Firm F.E.                  | Yes                       | Firm F.E.                  | Yes                           |
| Year F.E.                  | Yes                       | Year F.E.                  | Yes                           |
| N                          | 45,463                    | N                          | 45,463                        |
| Adj-R <sup>2</sup>         | 0.7349                    | Adj-R <sup>2</sup>         | 0.2543                        |

Note: Table 8 reports the regression results using Heckman two stage regression. Inverse mills ratio is calculated from the first stage and included in the second stage. \*, \*\* and \*\*\* indicate statistical significance at the 0.1, 0.05 and 0.01 levels. The dependent variable in the first stage is a dummy variable, which equal to one if the client is from treatment sample, and zero if the clients is from control sample. Dependent variables in the second stage are audit fees and discretionary accruals. See the appendix for variable definitions.

**Table 9. Matching Sample Approach**  
**Panel A. Country fixed effect regression**

|                          | <i>Audit fees</i>          |                          | <i>Discretionary accruals</i> |
|--------------------------|----------------------------|--------------------------|-------------------------------|
| <i>All</i>               | -0.176***<br>(-3.02)       | <i>All</i>               | 0.010**<br>(2.34)             |
| <i>Post</i>              | -0.079*<br>(-1.83)         | <i>Post</i>              | 0.006*<br>(1.82)              |
| <b><i>All*Post</i></b>   | <b>0.349***<br/>(5.61)</b> | <b><i>All*Post</i></b>   | <b>-0.016***<br/>(-3.26)</b>  |
| <i>log(Assets)</i>       | 0.441***<br>(27.49)        | <i>log(MV)</i>           | -0.003***<br>(-3.63)          |
| <i>CATA</i>              | 0.006<br>(0.08)            | <i>ROA</i>               | 0.057***<br>(4.04)            |
| <i>QUICK</i>             | -0.006**<br>(-2.51)        | <i>LEV</i>               | 0.124***<br>(15.35)           |
| <i>LEV</i>               | -0.379***<br>(-3.62)       | <i>CURR</i>              | -0.001***<br>(-2.90)          |
| <i>ROA</i>               | -0.412***<br>(-4.04)       | <i>CFO</i>               | -0.054***<br>(-2.78)          |
| <i>Loss</i>              | -0.008<br>(-0.21)          | <i>Loss</i>              | 0.003<br>(0.75)               |
| <i>SG</i>                | -0.008<br>(-0.63)          | <i>MTB</i>               | 0.009***<br>(7.98)            |
| <i>FG</i>                | 0.061***<br>(4.32)         | <i>SG</i>                | 0.010***<br>(4.70)            |
| <i>GC</i>                | -0.310***<br>(-4.16)       | <i>FG</i>                | 0.032***<br>(13.80)           |
| <i>AST</i>               | 0.256***<br>(3.72)         | <i>Taccr</i>             | 0.147***<br>(8.65)            |
| <i>Foreign</i>           | 1.121***<br>(23.11)        | <i>AST</i>               | -0.006<br>(-1.48)             |
| <i>Tenure</i>            | 0.019***<br>(3.35)         | <i>Tenure</i>            | -0.000<br>(-0.77)             |
| <i>Audsz</i>             | 0.295***<br>(8.81)         | <i>Audsz</i>             | -0.001<br>(-1.04)             |
| <i>Mktshr</i>            | 10.684***<br>(4.07)        | <i>Mktshr</i>            | -0.065<br>(-0.92)             |
| <i>Audinf</i>            | 2.271***<br>(12.47)        | <i>Audinf</i>            | 0.007<br>(1.59)               |
| Country Fixed Effects    | Yes                        | Country F.E.             | Yes                           |
| Industry F.E.            | Yes                        | Industry F.E.            | Yes                           |
| Year F.E.                | Yes                        | Year F.E.                | Yes                           |
| N                        | 26,982                     | N                        | 26,982                        |
| <i>Adj-R<sup>2</sup></i> | 0.5156                     | <i>Adj-R<sup>2</sup></i> | 0.1391                        |

**Panel B. Firm fixed effect regression**

|                          | <i>Audit fees</i>                |                          | <i>Discretionary accruals</i>      |
|--------------------------|----------------------------------|--------------------------|------------------------------------|
| <i>Post</i>              | -0.129***<br>(-2.82)             | <i>Post</i>              | 0.004<br>(0.83)                    |
| <i>All*Post</i>          | <b>0.470***</b><br><b>(6.42)</b> | <i>All*Post</i>          | <b>-0.021***</b><br><b>(-2.85)</b> |
| <i>log(Assets)</i>       | 0.417***<br>(12.45)              | <i>log(MV)</i>           | 0.010***<br>(3.52)                 |
| <i>CATA</i>              | 0.137<br>(1.18)                  | <i>ROA</i>               | 0.079***<br>(4.67)                 |
| <i>QUICK</i>             | -0.002<br>(-0.78)                | <i>LEV</i>               | 0.106***<br>(6.12)                 |
| <i>LEV</i>               | -0.059<br>(-0.40)                | <i>CURR</i>              | -0.000<br>(-0.60)                  |
| <i>ROA</i>               | -0.275***<br>(-2.83)             | <i>CFO</i>               | -0.093***<br>(-3.47)               |
| <i>Loss</i>              | -0.128***<br>(-3.45)             | <i>Loss</i>              | -0.001<br>(-0.14)                  |
| <i>SG</i>                | -0.016<br>(-1.36)                | <i>MTB</i>               | 0.002<br>(0.80)                    |
| <i>FG</i>                | 0.062***<br>(4.29)               | <i>SG</i>                | 0.009***<br>(3.50)                 |
| <i>GC</i>                | -0.274***<br>(-3.84)             | <i>FG</i>                | 0.028***<br>(10.21)                |
| <i>AST</i>               | -0.368***<br>(-6.31)             | <i>Taccr</i>             | 0.147***<br>(7.24)                 |
| <i>Foreign</i>           | 1.619***<br>(22.75)              | <i>AST</i>               | -0.021***<br>(-3.20)               |
| <i>Tenure</i>            | -0.013<br>(-1.43)                | <i>Tenure</i>            | -0.000<br>(-0.50)                  |
| <i>Audsz</i>             | 0.309***<br>(4.98)               | <i>Audsz</i>             | -0.004<br>(-1.63)                  |
| <i>Mktshr</i>            | 12.470**<br>(2.31)               | <i>Mktshr</i>            | 0.036<br>(0.39)                    |
| <i>Audinf</i>            | 2.152***<br>(5.18)               | <i>Audinf</i>            | -0.001<br>(-0.11)                  |
| Firm F.E.                | Yes                              | Firm F.E.                | Yes                                |
| Year F.E.                | Yes                              | Year F.E.                | Yes                                |
| N                        | 26,982                           | N                        | 26,982                             |
| <i>Adj-R<sup>2</sup></i> | 0.7107                           | <i>Adj-R<sup>2</sup></i> | 0.2504                             |

Note: Table 9 reports the regression results using size-matched treatment sample and control sample. \*, \*\* and \*\*\* indicate statistical significance at the 0.1, 0.05 and 0.01 levels. The dependent variables are audit fees and discretionary accruals. See the appendix for variable definitions.



**Table 10. The Role of Litigation Risks**  
**Panel A. Country fixed effect regression**  
**Panel A1. Audit fees**

|                    | <i>Legal origin</i>  |                            | <i>Litigious industry</i>                                  |                            |
|--------------------|--|----------------------------|--|----------------------------|
|                    | Common<br>(1)  | Code<br>(2)                | High<br>(3)  | Low<br>(4)                 |
| <i>All</i>         | -0.178***<br>(-2.99)                                       | -0.161***<br>(-2.62)       | -0.192***<br>(-2.13)                                       | -0.270**<br>(-3.86)        |
| <i>All*Post</i>    | <b>0.142**<br/>(2.33)</b>                                  | <b>0.161***<br/>(2.69)</b> | <b>0.212***<br/>(2.59)</b>                                 | <b>0.290***<br/>(4.46)</b> |
| <i>log(Assets)</i> | 0.500***<br>(34.63)  | 0.444***<br>(23.14)        | 0.441***<br>(12.07)  | 0.454***<br>(37.24)        |
| <i>CATA</i>        | 0.285***<br>(4.42)   | -0.195**<br>(-2.02)        | 0.284<br>(1.38)  | 0.012<br>(0.20)            |
| <i>QUICK</i>       | -0.012***<br>(-5.98)                                       | -0.004<br>(-0.77)          | -0.018**<br>(-2.45)  | -0.006***<br>(-2.93)       |
| <i>LEV</i>         | -0.373***<br>(-3.97)                                       | -0.165<br>(-1.44)          | -0.593**<br>(-2.46)  | -0.266***<br>(-3.34)       |
| <i>ROA</i>         | -0.493***<br>(-5.79)                                       | -0.114<br>(-0.67)          | -0.314<br>(-1.12)  | -0.411***<br>(-4.90)       |
| <i>Loss</i>        | -0.031<br>(-0.93)  | 0.087*<br>(1.89)           | -0.141<br>(-1.49)  | 0.019<br>(0.64)            |
| <i>SG</i>          | -0.030***<br>(-3.00)                                       | -0.011<br>(-0.65)          | 0.026<br>(0.72)  | -0.037***<br>(-3.62)       |
| <i>FG</i>          | 0.028**<br>(2.33)  | 0.005<br>(0.26)            | 0.013<br>(0.29)  | 0.052***<br>(4.60)         |
| <i>GC</i>          | 0.115*<br>(1.75)   | -0.049<br>(-0.46)          | -0.255<br>(-1.16)  | -0.196***<br>(-3.15)       |
| <i>AST</i>         | 0.079<br>(1.51)  | 0.610***<br>(8.09)         | 0.867***<br>(4.82)   | 0.245***<br>(4.96)         |
| <i>Foreign</i>     | 0.479***<br>(7.81)   | 1.166***<br>(21.96)        | 0.976***<br>(10.33)  | 1.116***<br>(27.38)        |
| <i>Tenure</i>      | 0.011**<br>(2.19)  | 0.045***<br>(6.34)         | 0.047***<br>(3.59)   | 0.018***<br>(3.88)         |
| <i>Audsz</i>       | 0.311***<br>(12.12)  | 0.299***<br>(6.19)         | 0.324***<br>(8.00)   | 0.323***<br>(12.38)        |
| <i>Mktshr</i>      | 16.081***<br>(4.63)  | 4.861***<br>(3.34)         | 6.317***<br>(3.59)   | 10.024***<br>(5.87)        |
| <i>Audinf</i>      | 1.547***<br>(19.05)  | 3.463***<br>(8.72)         | 2.514***<br>(15.25)  | 2.232***<br>(18.25)        |
| Country F.E.       | Yes  | Yes                        | Yes  | Yes                        |
| Industry F.E.      | Yes  | Yes                        | Yes  | Yes                        |
| Year F.E.          | Yes  | Yes                        | Yes  | Yes                        |
| N                  | 23,324   | 22,189                     | 5,378  | 40,135                     |
| Adj-R <sup>2</sup> | 0.5825   | 0.5892                     | 0.5109   | 0.5224                     |
| Null Hypothesis    | Coefficient of <i>All*Post</i> is the same for [1] and [2] |                            | Coefficient of <i>All*Post</i> is the same for [3] and [4] |                            |
| <i>p</i> -value    | [0.0321]   |                            | [0.0655]   |                            |

**Panel A2. Discretionary accruals**

|                    | <i>Legal origin</i>  |                                    | <i>Litigious industry</i>                                  |                                    |
|--------------------|--|------------------------------------|--|------------------------------------|
|                    | Common   | Code                               | High   | Low                                |
|                    | (1)  | (2)                                | (3)  | (4)                                |
| <i>All</i>         | 0.000<br>(0.11)  | 0.007<br>(1.28)                    | 0.004<br>(1.22)  | 0.004<br>(0.43)                    |
| <i>All*Post</i>    | <b>-0.005</b><br><b>(-1.14)</b>                            | <b>-0.019***</b><br><b>(-3.04)</b> | <b>-0.009**</b><br><b>(-2.42)</b>                          | <b>-0.027***</b><br><b>(-3.01)</b> |
| <i>log(MV)</i>     | 0.000<br>(0.26)  | -0.003***<br>(-3.35)               | -0.003<br>(-1.41)  | -0.002**<br>(-2.52)                |
| <i>ROA</i>         | 0.055***<br>(4.11)   | 0.009<br>(0.41)                    | 0.116**<br>(2.48)  | 0.043***<br>(3.63)                 |
| <i>LEV</i>         | 0.109***<br>(13.14)  | 0.130***<br>(15.13)                | 0.148***<br>(8.20)   | 0.116***<br>(18.38)                |
| <i>CURR</i>        | -0.000<br>(-1.42)  | 0.000<br>(1.36)                    | 0.000<br>(0.33)  | -0.000<br>(-0.99)                  |
| <i>CFO</i>         | -0.076***<br>(-3.95)                                       | -0.039<br>(-1.50)                  | -0.164***<br>(-2.87)                                       | -0.061***<br>(-3.77)               |
| <i>Loss</i>        | 0.002<br>(0.48)  | -0.002<br>(-0.52)                  | 0.006<br>(0.74)  | 0.002<br>(0.63)                    |
| <i>MTB</i>         | 0.006***<br>(5.44)   | 0.007***<br>(5.83)                 | 0.006***<br>(2.67)   | 0.006***<br>(7.23)                 |
| <i>SG</i>          | 0.006***<br>(2.97)   | 0.017***<br>(5.69)                 | 0.029***<br>(3.90)   | 0.008***<br>(4.62)                 |
| <i>FG</i>          | 0.034***<br>(13.40)  | 0.025***<br>(8.86)                 | 0.029***<br>(3.93)   | 0.031***<br>(16.29)                |
| <i>Taccr</i>       | 0.139***<br>(8.87)   | 0.148***<br>(5.56)                 | 0.195***<br>(3.38)   | 0.140***<br>(10.14)                |
| <i>AST</i>         | -0.027***<br>(-5.28)                                       | 0.014***<br>(3.24)                 | 0.028***<br>(2.70)   | -0.009**<br>(-2.56)                |
| <i>Tenure</i>      | 0.000<br>(0.76)  | -0.001<br>(-1.50)                  | 0.000<br>(0.33)  | -0.000<br>(-0.38)                  |
| <i>Audsz</i>       | -0.003<br>(-1.58)  | 0.001<br>(0.99)                    | 0.001<br>(0.31)  | -0.001<br>(-1.09)                  |
| <i>Mktshr</i>      | -0.013<br>(-0.18)  | 0.002<br>(0.04)                    | 0.279*<br>(1.69)   | -0.051<br>(-1.25)                  |
| <i>Audinf</i>      | 0.002<br>(0.48)  | 0.004<br>(0.79)                    | -0.000<br>(-0.04)  | 0.006<br>(1.51)                    |
| Country F.E.       | Yes  | Yes                                | Yes  | Yes                                |
| Industry F.E.      | Yes  | Yes                                | Yes  | Yes                                |
| Year F.E.          | Yes  | Yes                                | Yes  | Yes                                |
| N                  | 23,324   | 22,189                             | 5,378  | 40,135                             |
| Adj-R <sup>2</sup> | 0.1416   | 0.1503                             | 0.1015   | 0.1402                             |
| Null Hypothesis    | Coefficient of <i>All*Post</i> is the same for [1] and [2] |                                    | Coefficient of <i>All*Post</i> is the same for [3] and [4] |                                    |
| <i>p</i> -value    | [<0.0001]  |                                    | [<0.0001]  |                                    |

**Panel B. Firm fixed effect regression**

**Panel B1. Audit fees**

|                    | <i>Legal origin</i>  |                                 | <i>Litigious industry</i>                                  |                                  |
|--------------------|--|---------------------------------|--|----------------------------------|
|                    | Common   | Code                            | High   | Low                              |
|                    | (1)  | (2)                             | (3)  | (4)                              |
| <i>All*Post</i>    | <b>0.134**</b><br><b>(2.02)</b>                            | <b>0.166**</b><br><b>(2.50)</b> | <b>0.333**</b><br><b>(2.31)</b>                            | <b>0.353***</b><br><b>(6.40)</b> |
| <i>log(Assets)</i> | 0.396***<br>(14.71)  | 0.354***<br>(7.87)              | 0.574***<br>(6.41)   | 0.398***<br>(13.90)              |
| <i>CATA</i>        | 0.097<br>(1.23)  | -0.163<br>(-1.02)               | 0.275<br>(0.93)  | 0.090<br>(0.94)                  |
| <i>QUICK</i>       | -0.002<br>(-1.21)  | -0.010<br>(-1.61)               | -0.033**<br>(-2.43)  | -0.002<br>(-0.81)                |
| <i>LEV</i>         | 0.046<br>(0.45)  | 0.119<br>(0.67)                 | 0.245<br>(0.76)  | 0.022<br>(0.19)                  |
| <i>ROA</i>         | -0.333***<br>(-4.40)                                       | 0.213<br>(1.24)                 | -0.559**<br>(-2.05)  | -0.183**<br>(-2.32)              |
| <i>Loss</i>        | -0.061**<br>(-2.27)  | 0.001<br>(0.01)                 | -0.372***<br>(-3.95)                                       | -0.079***<br>(-2.81)             |
| <i>SG</i>          | -0.007<br>(-0.80)  | -0.038**<br>(-2.17)             | -0.013<br>(-0.34)  | -0.027***<br>(-2.75)             |
| <i>FG</i>          | 0.028***<br>(2.65)   | 0.036*<br>(1.79)                | 0.055<br>(1.14)  | 0.055***<br>(4.85)               |
| <i>GC</i>          | 0.066<br>(1.08)  | -0.329***<br>(-2.73)            | -0.206<br>(-0.73)  | -0.203***<br>(-3.36)             |
| <i>AST</i>         | -0.016<br>(-0.34)  | -0.549***<br>(-4.91)            | -0.141<br>(-0.77)  | -0.287***<br>(-6.18)             |
| <i>Foreign</i>     | 0.419***<br>(6.08)   | 1.556***<br>(19.57)             | 1.206***<br>(9.13)   | 1.593***<br>(25.27)              |
| <i>Tenure</i>      | -0.000<br>(-0.03)  | 0.015<br>(1.46)                 | -0.028<br>(-1.38)  | -0.015**<br>(-2.21)              |
| <i>Audsz</i>       | 0.278***<br>(5.51)   | 0.253***<br>(2.99)              | 0.340***<br>(4.76)   | 0.341***<br>(6.68)               |
| <i>Mktshr</i>      | 13.957***<br>(3.02)  | 7.513**<br>(2.25)               | 7.537***<br>(4.30)   | 12.456***<br>(2.99)              |
| <i>Audinf</i>      | 1.630***<br>(9.11)   | 2.644***<br>(3.56)              | 2.867***<br>(9.91)   | 2.073***<br>(7.04)               |
| Firm F.E.          | Yes  | Yes                             | Yes  | Yes                              |
| Year F.E.          | Yes  | Yes                             | Yes  | Yes                              |
| N                  | 23,324   | 22,189                          | 5,378  | 40,135                           |
| Adj-R <sup>2</sup> | 0.8229   | 0.7519                          | 0.7221   | 0.7354                           |
| Null Hypothesis    | Coefficient of <i>All*Post</i> is the same for [1] and [2] |                                 | Coefficient of <i>All*Post</i> is the same for [3] and [4] |                                  |
| <i>p</i> -value    | [<0.0001]  |                                 | [0.0059]   |                                  |

**Panel B2. Discretionary accruals**

|                    | <i>Legal origin</i>  |                                    | <i>Litigious industry</i>                                  |                                   |
|--------------------|--|------------------------------------|--|-----------------------------------|
|                    | Common   | Code                               | High   | Low                               |
|                    | (1)  | (2)                                | (3)  | (4)                               |
| <i>All*Post</i>    | <b>-0.007</b><br><b>(-1.04)</b>                            | <b>-0.035***</b><br><b>(-3.56)</b> | <b>-0.020</b><br><b>(-1.49)</b>                            | <b>-0.023***</b><br><b>(3.33)</b> |
| <i>log(MV)</i>     | 0.007***<br>(2.66)   | 0.016***<br>(4.45)                 | 0.008<br>(1.05)  | 0.009***<br>(4.21)                |
| <i>ROA</i>         | 0.069***<br>(4.30)   | 0.03<br>(1.20)                     | 0.128**<br>(2.28)  | 0.058***<br>(4.10)                |
| <i>LEV</i>         | 0.120***<br>(7.16)   | 0.084***<br>(4.10)                 | 0.194***<br>(4.99)   | 0.101***<br>(7.33)                |
| <i>CURR</i>        | 0.000<br>(0.17)  | 0.000<br>(0.21)                    | 0.002<br>(1.24)  | -0.000<br>(-0.02)                 |
| <i>CFO</i>         | -0.073***<br>(-2.80)                                       | -0.106***<br>(-3.10)               | -0.231***<br>(-3.35)                                       | -0.079***<br>(-3.59)              |
| <i>Loss</i>        | 0.004<br>(0.87)  | -0.011**<br>(-2.23)                | -0.002<br>(-0.17)  | -0.001<br>(-0.30)                 |
| <i>MTB</i>         | 0.001<br>(0.46)  | -0.001<br>(-0.36)                  | -0.001<br>(-0.19)  | -0.000<br>(-0.17)                 |
| <i>SG</i>          | 0.003<br>(1.40)  | 0.017***<br>(4.58)                 | 0.029***<br>(3.24)   | 0.006***<br>(3.21)                |
| <i>FG</i>          | 0.028***<br>(9.77)   | 0.021***<br>(6.12)                 | 0.020**<br>(2.22)  | 0.026***<br>(11.46)               |
| <i>Taccr</i>       | 0.145***<br>(7.50)   | 0.145***<br>(4.57)                 | 0.177***<br>(2.60)   | 0.144***<br>(8.44)                |
| <i>AST</i>         | -0.038***<br>(-5.67)                                       | 0.011<br>(1.42)                    | -0.001<br>(-0.03)  | -0.027***<br>(-4.97)              |
| <i>Tenure</i>      | 0.001<br>(0.79)  | -0.001<br>(-0.83)                  | -0.001<br>(-0.87)  | 0.000<br>(0.42)                   |
| <i>Audsz</i>       | -0.001<br>(-0.33)  | -0.002<br>(-0.80)                  | -0.001<br>(-0.12)  | -0.005**<br>(-2.01)               |
| <i>Mktshr</i>      | -0.017<br>(-0.19)  | -0.069<br>(-1.06)                  | 0.070<br>(0.52)  | -0.094<br>(-1.49)                 |
| <i>Audinf</i>      | 0.001<br>(0.08)  | 0.003<br>(0.47)                    | 0.011<br>(0.64)  | -0.003<br>(-0.38)                 |
| Firm F.E.          | Yes  | Yes                                | Yes  | Yes                               |
| Year F.E.          | Yes  | Yes                                | Yes  | Yes                               |
| N                  | 23,324   | 22,189                             | 5,378  | 40,135                            |
| Adj-R <sup>2</sup> | 0.2616   | 0.257                              | 0.1823   | 0.2628                            |
| Null Hypothesis    | Coefficient of <i>All*Post</i> is the same for [1] and [2] |                                    | Coefficient of <i>All*Post</i> is the same for [3] and [4] |                                   |
| <i>p</i> -value    | [0.0252]   |                                    | [0.0525]   |                                   |

Note: Table 10 reports the regression results examining the role of litigation risks on the effect of audit firm join audit firm alliances. \*, \*\* and \*\*\* indicate statistical significance at the 0.1, 0.05 and 0.01 levels. The dependent variables are audit fees and discretionary accruals. See the appendix for variable definitions.

**Table 11. The Role of Country-level Audit Quality****Panel A. Country fixed effect regression****Panel A1. Audit fees**

|                          | <i>International Standards<br/>on Auditing</i>                   |                                  | <i>Local Audit Oversight<br/>Body</i>                            |                                  | <i>Earnings Management<br/>Score</i>                          |                                 |
|--------------------------|--|----------------------------------|--|----------------------------------|---|---------------------------------|
|                          | Yes  | No                               | Yes  | No                               | High  | Low                             |
|                          | (1)  | (2)                              | (3)  | (4)                              | (5)   | (6)                             |
| <i>All</i>               | -0.161**<br>(-2.25)  | -0.187***<br>(-3.35)             | -0.142*<br>(-1.73)   | -0.193***<br>(-3.53)             | -0.045<br>(-0.41)   | -0.173***<br>(-2.78)            |
| <i>All*Post</i>          | <b>0.092</b><br><b>(1.29)</b>                                    | <b>0.267***</b><br><b>(4.94)</b> | <b>-0.028</b><br><b>(-0.35)</b>                                  | <b>0.313***</b><br><b>(6.08)</b> | <b>0.262**</b><br><b>(2.02)</b>                               | <b>0.129**</b><br><b>(1.97)</b> |
| <i>log(Assets)</i>       | 0.451***<br>(15.62)  | 0.450***<br>(36.38)              | 0.517***<br>(19.78)  | 0.427***<br>(30.44)              | 0.469***<br>(17.63)   | 0.512***<br>(36.64)             |
| <i>CATA</i>              | 0.360***<br>(3.81)   | -0.043<br>(-0.62)                | 0.289***<br>(2.68)   | 0.008<br>(0.11)                  | 0.157<br>(1.04)   | 0.298***<br>(4.60)              |
| <i>QUICK</i>             | -0.010***<br>(-4.07)   | -0.011***<br>(-3.45)             | -0.005<br>(-1.61)  | -0.011***<br>(-3.87)             | 0.006<br>(0.76)   | -0.014***<br>(-6.68)            |
| <i>LEV</i>               | 0.030<br>(0.15)  | -0.296***<br>(-3.62)             | 0.054<br>(0.35)  | -0.377***<br>(-4.30)             | -0.047<br>(-0.26)   | -0.310***<br>(-3.38)            |
| <i>ROA</i>               | -0.552***<br>(-6.06)   | -0.029<br>(-0.22)                | -0.682***<br>(-7.07)   | -0.277**<br>(-2.18)              | -0.457***<br>(-2.77)  | -0.445***<br>(-5.22)            |
| <i>Loss</i>              | 0.055<br>(0.91)  | -0.004<br>(-0.13)                | -0.061<br>(-1.17)  | 0.004<br>(0.11)                  | -0.094<br>(-1.48)   | 0.025<br>(0.80)                 |
| <i>SG</i>                | -0.010<br>(-0.58)  | -0.034***<br>(-3.01)             | -0.014<br>(-0.64)  | -0.034***<br>(-3.15)             | 0.018<br>(0.72)   | -0.040***<br>(-3.86)            |
| <i>FG</i>                | 0.029*<br>(1.85)   | 0.039***<br>(2.79)               | 0.035*<br>(1.81)   | 0.068***<br>(4.82)               | 0.011<br>(0.35)   | 0.028**<br>(2.42)               |
| <i>GC</i>                | -0.064<br>(-0.88)  | 0.084<br>(0.87)                  | -0.345***<br>(-4.83)   | 0.300***<br>(2.86)               | -0.314***<br>(-2.67)  | -0.011<br>(-0.17)               |
| <i>AST</i>               | 0.421***<br>(6.09)   | 0.493***<br>(8.03)               | -0.236***<br>(-3.16)   | 0.573***<br>(7.83)               | -0.370***<br>(-3.61)  | 0.239***<br>(5.11)              |
| <i>Foreign</i>           | 0.477***<br>(5.45)   | 1.103***<br>(27.79)              | 1.207***<br>(12.73)  | 1.031***<br>(22.95)              | 1.213***<br>(14.83)   | 0.458***<br>(8.06)              |
| <i>Tenure</i>            | -0.010<br>(-1.23)  | 0.025***<br>(5.26)               | 0.023***<br>(3.26)   | 0.010*<br>(1.92)                 | 0.059***<br>(5.20)  | 0.009*<br>(1.83)                |
| <i>Audsz</i>             | 0.214***<br>(4.39)   | 0.331***<br>(12.52)              | 0.262***<br>(3.04)   | 0.306***<br>(16.01)              | 0.475***<br>(12.26)   | 0.315***<br>(12.24)             |
| <i>Mktshr</i>            | 191.651***<br>(2.94)   | 8.867***<br>(6.49)               | 3.878***<br>(3.38)   | 17.005***<br>(4.59)              | 4.628**<br>(2.41)   | 11.187***<br>(4.17)             |
| <i>Audinf</i>            | 2.134***<br>(8.49)   | 2.268***<br>(18.35)              | 3.326***<br>(6.45)   | 1.793***<br>(23.77)              | 4.021***<br>(33.38)   | 1.616***<br>(19.50)             |
| Country<br>F.E.          | Yes  | Yes                              | Yes  | Yes                              | Yes   | Yes                             |
| Industry<br>F.E.         | Yes  | Yes                              | Yes  | Yes                              | Yes   | Yes                             |
| Year F. E.               | Yes  | Yes                              | Yes  | Yes                              | Yes   | Yes                             |
| N                        | 5823   | 39690                            | 11975  | 31784                            | 8130  | 24397                           |
| <i>Adj-R<sup>2</sup></i> | 0.7022   | 0.5002                           | 0.6381   | 0.4799                           | 0.5722  | 0.5954                          |
| Null<br>Hypothesis       | Coefficient of <i>All*Post</i><br>is the same for [1] and<br>[2] |                                  | Coefficient of <i>All*Post</i><br>is the same for [3] and<br>[4] |                                  | Coefficient of <i>All*Post</i><br>is the same for [5] and [6] |                                 |
| <i>p</i> -value          | [<0.0001]  |                                  | [<0.0001]  |                                  | [<0.0001]   |                                 |

**Panel A2. Discretionary accruals**

|                    | <i>International Standards<br/>on Auditing</i>            |                                   | <i>Local Audit Oversight<br/>Body</i>                     |                                    | <i>Earnings Management<br/>Score</i>                      |                                   |
|--------------------|---|-----------------------------------|---|------------------------------------|---|-----------------------------------|
|                    | Yes   | No                                | Yes   | No                                 | High  | Low                               |
|                    | (1)   | (2)                               | (3)   | (4)                                | (5)   | (6)                               |
| <i>All</i>         | 0.005<br>(1.39)   | 0.006<br>(0.70)                   | -0.001<br>(-0.16)   | 0.011**<br>(2.45)                  | 0.005<br>(0.74)   | 0.001<br>(0.10)                   |
| <i>All*Post</i>    | <b>-0.009**</b><br><b>(-2.08)</b>                         | <b>-0.018**</b><br><b>(-2.34)</b> | <b>-0.011*</b><br><b>(-1.77)</b>                          | <b>-0.015***</b><br><b>(-3.34)</b> | <b>-0.004</b><br><b>(-0.39)</b>                           | <b>-0.016**</b><br><b>(-2.57)</b> |
| <i>log(MV)</i>     | -0.002<br>(-0.74)   | -0.001**<br>(-2.00)               | -0.003**<br>(-2.21)                                       | -0.002*<br>(-1.93)                 | -0.003**<br>(-2.16)                                       | 0.000<br>(0.05)                   |
| <i>ROA</i>         | 0.079***<br>(4.70)  | (0.17)<br>0.019                   | 0.067***<br>(4.33)  | 0.035*<br>(1.92)                   | 0.044<br>(1.61)   | 0.053***<br>(3.98)                |
| <i>LEV</i>         | 0.202***<br>(7.88)  | (1.15)<br>(17.85)                 | 0.136***<br>(11.14)                                       | 0.112***<br>(15.40)                | 0.140***<br>(9.91)  | 0.109***<br>(13.63)               |
| <i>CURR</i>        | -0.001***<br>(-3.92)                                      | 0.001**<br>(2.02)                 | -0.001**<br>(-2.38)                                       | 0.000<br>(0.53)                    | 0.002***<br>(3.44)  | -0.000**<br>(-2.14)               |
| <i>CFO</i>         | -0.074***<br>(-2.59)                                      | -0.057***<br>(-3.08)              | -0.085***<br>(-3.55)                                      | -0.052**<br>(-2.49)                | -0.063*<br>(-1.91)  | -0.083***<br>(-4.30)              |
| <i>Loss</i>        | 0.009<br>(1.17)   | 0.002<br>(0.59)                   | 0.010**<br>(2.32)   | 0.000<br>(0.08)                    | 0.010**<br>(1.99)   | 0.000<br>(0.04)                   |
| <i>MTB</i>         | 0.008***<br>(3.81)  | 0.004***<br>(4.83)                | 0.008***<br>(4.60)  | 0.005***<br>(4.76)                 | 0.007***<br>(2.71)  | 0.006***<br>(5.02)                |
| <i>SG</i>          | 0.004<br>(1.55)   | 0.011***<br>(5.73)                | 0.004<br>(1.23)   | 0.011***<br>(5.68)                 | -0.001<br>(-0.24)   | 0.007***<br>(3.62)                |
| <i>FG</i>          | 0.030***<br>(8.91)  | 0.030***<br>(13.41)               | 0.028***<br>(9.72)  | 0.032***<br>(12.97)                | 0.023***<br>(5.27)  | 0.034***<br>(13.76)               |
| <i>Taccr</i>       | 0.164***<br>(8.27)  | 0.133***<br>(7.19)                | 0.158***<br>(8.16)  | 0.126***<br>(6.56)                 | 0.140***<br>(4.20)  | 0.143***<br>(8.97)                |
| <i>AST</i>         | 0.000<br>(0.06)   | 0.000<br>(0.02)                   | -0.004<br>(-0.82)   | -0.001<br>(-0.24)                  | 0.008<br>(0.96)   | -0.026***<br>(-5.67)              |
| <i>Tenure</i>      | -0.000<br>(-0.25)   | -0.000<br>(-0.83)                 | -0.001<br>(-1.13)   | -0.000<br>(-0.05)                  | -0.001<br>(-1.44)   | 0.000<br>(1.03)                   |
| <i>Audsz</i>       | -0.004<br>(-1.02)   | -0.001<br>(-1.15)                 | -0.002<br>(-0.89)   | -0.001<br>(-0.74)                  | -0.002<br>(-1.00)   | -0.001<br>(-0.91)                 |
| <i>Mktshr</i>      | 2.316<br>(1.22)   | 0.007<br>(0.17)                   | 0.019<br>(0.38)   | 0.051<br>(0.68)                    | -0.020<br>(-0.25)   | 0.027<br>(0.43)                   |
| <i>Audinf</i>      | 0.010<br>(0.85)   | 0.002<br>(0.55)                   | 0.007<br>(1.24)   | 0.002<br>(0.52)                    | 0.007<br>(0.91)   | 0.003<br>(0.68)                   |
| Country F.E.       | Yes   | Yes                               | Yes   | Yes                                | Yes   | Yes                               |
| Industry F.E.      | Yes   | Yes                               | Yes   | Yes                                | Yes   | Yes                               |
| Year F.E.          | Yes   | Yes                               | Yes   | Yes                                | Yes   | Yes                               |
| N                  | 5,823   | 39,690                            | 11,975  | 31,784                             | 8,130   | 24,397                            |
| Adj-R <sup>2</sup> | 0.188   | 0.1352                            | 0.1656  | 0.1257                             | 0.1624  | 0.1357                            |
| Null Hypothesis    | Coefficient of <i>AllPost</i> is the same for [1] and [2] |                                   | Coefficient of <i>AllPost</i> is the same for [3] and [4] |                                    | Coefficient of <i>AllPost</i> is the same for [5] and [6] |                                   |
| <i>p</i> -value    | [<0.0001]   |                                   | [0.0096]  |                                    | [<0.0001]   |                                   |

**Panel B. Firm fixed effect regression**

| <b>Panel B1. Audit fees</b> |  |                           |  |                           |  |                           |
|-----------------------------|--|---------------------------|--|---------------------------|--|---------------------------|
|                             | <i>International Standards on Auditing</i>                 |                           | <i>Local Audit Oversight Body</i>                          |                           | <i>Earnings Management Score</i>                           |                           |
|                             | Yes  | No                        | Yes  | No                        | High   | Low                       |
|                             | (1)  | (2)                       | (3)  | (4)                       | (5)  | (6)                       |
| <i>All*Post</i>             | <b>0.120</b><br>(1.37)                                     | <b>0.452***</b><br>(7.50) | <b>0.082</b><br>(0.70)                                     | <b>0.463***</b><br>(8.19) | <b>0.376**</b><br>(-2.11)                                  | <b>0.174**</b><br>(-2.31) |
| <i>log(Assets)</i>          | 0.294***<br>(7.06)   | 0.441***<br>(13.94)       | 0.015<br>(0.28)  | 0.586***<br>(18.70)       | -0.094<br>(-1.24)  | 0.410***<br>(14.78)       |
| <i>CATA</i>                 | 0.021<br>(0.18)  | 0.0474<br>(0.43)          | 0.237<br>(1.43)  | 0.014<br>(0.12)           | 0.079<br>(0.30)  | 0.078<br>(0.95)           |
| <i>QUICK</i>                | -0.002<br>(-1.00)  | -0.008*<br>(-1.78)        | -0.001<br>(-0.17)  | -0.005<br>(-1.30)         | 0.015<br>(1.57)  | -0.003<br>(-1.53)         |
| <i>LEV</i>                  | 0.249<br>(1.08)  | 0.012<br>(0.10)           | 0.455*<br>(1.82)   | -0.153<br>(-1.28)         | 0.568**<br>(1.99)  | 0.044<br>(0.44)           |
| <i>ROA</i>                  | -0.243**<br>(-2.57)  | 0.013<br>(0.11)           | 0.204**<br>(2.05)  | -0.411***<br>(-3.54)      | 0.171<br>(1.16)  | -0.340***<br>(-4.28)      |
| <i>Loss</i>                 | 0.025<br>(0.45)  | -0.111***<br>(-3.68)      | -0.031<br>(-0.63)  | -0.111***<br>(-3.33)      | -0.117**<br>(-1.97)  | -0.048**<br>(-1.96)       |
| <i>SG</i>                   | -0.008<br>(-0.46)  | -0.027**<br>(-2.57)       | 0.019<br>(0.83)  | -0.039***<br>(-3.73)      | 0.025<br>(1.02)  | -0.007<br>(-0.81)         |
| <i>FG</i>                   | 0.017<br>(1.12)  | 0.062***<br>(4.34)        | 0.047***<br>(2.66)   | 0.062***<br>(4.30)        | 0.047<br>(1.42)  | 0.036***<br>(3.55)        |
| <i>GC</i>                   | -0.046<br>(-0.61)  | -0.258**<br>(-2.52)       | -0.434***<br>(-5.52)                                       | -0.058<br>(-0.57)         | -0.440***<br>(-3.48)                                       | -0.007<br>(-0.11)         |
| <i>AST</i>                  | 0.163**<br>(2.41)  | -0.329***<br>(-5.14)      | -0.428***<br>(-5.02)                                       | -0.326***<br>(-4.62)      | -0.462***<br>(-3.43)                                       | 0.077*<br>(1.74)          |
| <i>Foreign</i>              | 0.470***<br>(2.74)   | 1.569***<br>(26.21)       | 1.595***<br>(8.83)   | 1.608***<br>(26.18)       | 1.488***<br>(10.21)  | 0.393***<br>(6.25)        |
| <i>Tenure</i>               | -0.004<br>(-0.25)  | -0.015**<br>(-2.07)       | 0.014<br>(1.09)  | -0.025***<br>(-3.14)      | 0.038**<br>(2.26)  | -0.010<br>(-1.64)         |
| <i>Audsz</i>                | 0.363***<br>(3.67)   | 0.325***<br>(6.46)        | 0.166<br>(1.13)  | 0.374***<br>(9.92)        | 0.421***<br>(6.24)   | 0.277***<br>(5.43)        |
| <i>Mktshr</i>               | 223.585<br>(1.34)  | 11.081***<br>(3.89)       | 6.215**<br>(2.13)  | 16.689***<br>(3.26)       | 6.315*<br>(1.92)   | 12.213**<br>(2.22)        |
| <i>Audinf</i>               | 2.030***<br>(3.59)   | 2.147***<br>(7.17)        | 2.502***<br>(2.61)   | 1.971***<br>(10.72)       | 3.948***<br>(17.59)  | 1.642***<br>(9.39)        |
| Firm F.E.                   | Yes  | Yes                       | Yes  | Yes                       | Yes  | Yes                       |
| Year F.E.                   | Yes  | Yes                       | Yes  | Yes                       | Yes  | Yes                       |
| N                           | 5,823  | 39,690                    | 11,975   | 31,784                    | 8,130  | 24,397                    |
| <i>Adj-R<sup>2</sup></i>    | 0.8501   | 0.7188                    | 0.782  | 0.7039                    | 0.7618   | 0.8287                    |
| Null Hypothesis             | Coefficient of <i>All*Post</i> is the same for [1] and [2] |                           | Coefficient of <i>All*Post</i> is the same for [3] and [4] |                           | Coefficient of <i>All*Post</i> is the same for [5] and [6] |                           |
| <i>p</i> -value             | [0.0083]   |                           | [0.0017]   |                           | [0.0184]   |                           |

**Panel B2. Discretionary accruals**

|                    | <i>International Standards on Auditing</i>                 |                                    | <i>Local Audit Oversight Body</i>                          |                                   | <i>Earnings Management Score</i>                           |                                 |
|--------------------|--|------------------------------------|--|-----------------------------------|--|---------------------------------|
|                    | Yes  | No                                 | Yes  | No                                | High   | Low                             |
|                    | (1)  | (2)                                | (3)  | (4)                               | (5)  | (6)                             |
| <i>All*Post</i>    | <b>-0.014**</b><br><b>(-2.18)</b>                          | <b>-0.039***</b><br><b>(-2.81)</b> | <b>-0.017***</b><br><b>(-2.31)</b>                         | <b>-0.027**</b><br><b>(-2.70)</b> | <b>-0.033***</b><br><b>(-3.30)</b>                         | <b>-0.005</b><br><b>(-0.29)</b> |
| <i>log(MV)</i>     | 0.002<br>(0.44)  | 0.010***<br>(4.47)                 | -0.001<br>(-0.20)  | 0.009<br>(3.70)                   | 0.012**<br>(2.21)  | 0.008***<br>(3.14)              |
| <i>ROA</i>         | 0.079***<br>(3.74)   | 0.046**<br>(2.35)                  | 0.073***<br>(3.77)   | 0.056***<br>(2.64)                | 0.065**<br>(2.12)  | 0.065***<br>(4.06)              |
| <i>LEV</i>         | 0.175***<br>(3.48)   | 0.098***<br>(7.24)                 | 0.136***<br>(3.97)   | 0.103***<br>(7.18)                | 0.112***<br>(3.03)   | 0.112***<br>(6.75)              |
| <i>CURR</i>        | -0.000<br>(-0.06)  | -0.000<br>(-0.28)                  | 0.000<br>(0.89)  | -0.000<br>(-0.78)                 | 0.001<br>(0.64)  | 0.000<br>(0.06)                 |
| <i>CFO</i>         | -0.057<br>(-1.31)  | -0.098***<br>(-4.00)               | -0.063*<br>(-1.83)   | -0.089***<br>(-3.26)              | -0.081*<br>(-1.93)   | -0.076***<br>(-2.93)            |
| <i>Loss</i>        | 0.008<br>(0.72)  | -0.003<br>(-0.86)                  | 0.003<br>(0.44)  | -0.000<br>(-0.06)                 | -0.000<br>(-0.05)  | 0.003<br>(0.55)                 |
| <i>MTB</i>         | 0.002<br>(0.59)  | -0.002<br>(-1.23)                  | 0.002<br>(0.56)  | -0.001<br>(-0.76)                 | -0.004<br>(-0.76)  | 0.001<br>(0.25)                 |
| <i>SG</i>          | 0.001<br>(0.18)  | 0.010***<br>(4.58)                 | 0.001<br>(0.31)  | 0.009***<br>(4.04)                | 0.001<br>(0.41)  | 0.005**<br>(2.00)               |
| <i>FG</i>          | 0.027***<br>(6.34)   | 0.024***<br>(9.39)                 | 0.022***<br>(6.02)   | 0.028***<br>(9.64)                | 0.014***<br>(2.72)   | 0.029***<br>(10.18)             |
| <i>Taccr</i>       | 0.150***<br>(5.85)   | 0.143***<br>(6.39)                 | 0.146***<br>(6.08)   | 0.149***<br>(6.27)                | 0.123***<br>(3.17)   | 0.148***<br>(7.56)              |
| <i>AST</i>         | -0.021*<br>(-1.94)   | -0.024***<br>(-3.44)               | -0.012<br>(-1.56)  | -0.038***<br>(-3.76)              | -0.023*<br>(-1.71)   | -0.034***<br>(-5.73)            |
| <i>Tenure</i>      | 0.001<br>(0.31)  | -0.000<br>(-0.09)                  | -0.000<br>(-0.27)  | 0.000<br>(0.19)                   | -0.000<br>(-0.17)  | 0.001<br>(0.71)                 |
| <i>Audsz</i>       | -0.007<br>(-0.84)  | -0.006**<br>(-2.40)                | -0.005<br>(-1.29)  | -0.004<br>(-1.31)                 | -0.009*<br>(-1.90)   | 0.003<br>(0.78)                 |
| <i>Mktshr</i>      | 3.995<br>(1.18)  | -0.040<br>(-0.76)                  | -0.047<br>(-0.79)  | -0.020<br>(-0.22)                 | -0.056<br>(-0.72)  | -0.071<br>(-0.72)               |
| <i>Audinf</i>      | 0.003<br>(0.10)  | -0.003<br>(-0.41)                  | -0.001<br>(-0.15)  | -0.001<br>(-0.15)                 | 0.004<br>(0.26)  | 0.001<br>(0.13)                 |
| Firm F.E.          | Yes  | Yes                                | Yes  | Yes                               | Yes  | Yes                             |
| Year F.E.          | Yes  | Yes                                | Yes  | Yes                               | Yes  | Yes                             |
| N                  | 5,823  | 39,690                             | 11,975   | 31,784                            | 8,130  | 24,397                          |
| Adj-R <sup>2</sup> | 0.3272   | 0.2423                             | 0.3332   | 0.2354                            | 0.347  | 0.2511                          |
| Null Hypothes is   | Coefficient of <i>All*Post</i> is the same for [1] and [2] |                                    | Coefficient of <i>All*Post</i> is the same for [3] and [4] |                                   | Coefficient of <i>All*Post</i> is the same for [5] and [6] |                                 |
| <i>p</i> -value    | [0.0275]   |                                    | [<0.0001]  |                                   | [<0.0001]  |                                 |

Note: Table 11 reports the regression results examining the role of country-level audit quality on the effect of audit firm join audit firm alliances. \*, \*\* and \*\*\* indicate statistical significance at the 0.1, 0.05 and 0.01 levels. The dependent variables are audit fees and discretionary accruals. See the appendix for variable definitions.



**Table 12. The Role of Alliance Characteristics****Panel A. Country fixed effect regression****Panel A1. Audit fees**

|                          | <i>No. of staff per office</i>                             |                            | <i>Alliance Growth</i>                                     |                          | <i>Alliance Income</i>                                     |                            |
|--------------------------|--|----------------------------|--|--------------------------|--|----------------------------|
|                          | High   | Low                        | High   | Low                      | High   | Low                        |
|                          | (1)  | (2)                        | (3)  | (4)                      | (5)  | (6)                        |
| <i>All</i>               | -0.188***<br>(-3.50)                                       | -0.296***<br>(-4.27)       | -0.308***<br>(-5.55)                                       | -0.158**<br>(-2.38)      | -0.345***<br>(-5.20)                                       | -0.118**<br>(-2.16)        |
| <i>All*Post</i>          | <b>0.298***<br/>(5.38)</b>                                 | <b>0.192***<br/>(2.77)</b> | <b>0.349***<br/>(5.73)</b>                                 | <b>0.128*<br/>(1.95)</b> | <b>0.321***<br/>(4.92)</b>                                 | <b>0.160***<br/>(2.77)</b> |
| <i>log(Assets)</i>       | 0.456***<br>(37.78)  | 0.452***<br>(37.10)        | 0.457***<br>(36.96)  | 0.451***<br>(37.88)      | 0.449***<br>(37.40)  | 0.459***<br>(37.44)        |
| <i>CATA</i>              | 0.105*<br>(1.72)   | 0.011<br>(0.17)            | 0.091<br>(1.45)  | 0.025<br>(0.39)          | 0.015<br>(0.24)  | 0.101<br>(1.63)            |
| <i>QUICK</i>             | -0.007***<br>(-3.41)                                       | -0.009***<br>(-3.62)       | -0.007***<br>(-3.21)                                       | -0.008***<br>(-3.59)     | -0.009***<br>(-3.81)                                       | -0.007***<br>(-3.38)       |
| <i>LEV</i>               | -0.311***<br>(-3.94)                                       | -0.312***<br>(-3.82)       | -0.306***<br>(-3.77)                                       | -0.316***<br>(-3.96)     | -0.327***<br>(-4.07)                                       | -0.290***<br>(-3.60)       |
| <i>ROA</i>               | -0.351***<br>(-4.22)                                       | -0.289***<br>(-3.02)       | -0.364***<br>(-4.26)                                       | -0.285***<br>(-3.09)     | -0.292***<br>(-3.05)                                       | -0.354***<br>(-4.25)       |
| <i>Loss</i>              | -0.010<br>(-0.34)  | -0.011<br>(-0.35)          | -0.024<br>(-0.80)  | 0.003<br>(0.10)          | -0.003<br>(-0.09)  | -0.019<br>(-0.65)          |
| <i>SG</i>                | -0.031***<br>(-3.09)                                       | -0.035***<br>(-3.35)       | -0.029***<br>(-2.77)                                       | -0.037***<br>(-3.63)     | -0.037***<br>(-3.55)                                       | -0.029***<br>(-2.83)       |
| <i>FG</i>                | 0.050***<br>(4.30)   | 0.057***<br>(4.51)         | 0.050***<br>(4.23)   | 0.058***<br>(4.68)       | 0.059***<br>(4.69)   | 0.048***<br>(4.07)         |
| <i>GC</i>                | -0.200***<br>(-3.20)                                       | -0.128*<br>(-1.75)         | -0.182***<br>(-2.77)                                       | -0.164**<br>(-2.37)      | -0.153**<br>(-2.14)  | -0.175***<br>(-2.75)       |
| <i>AST</i>               | 0.283***<br>(5.71)   | 0.382***<br>(7.06)         | 0.318***<br>(6.14)   | 0.342***<br>(6.62)       | 0.381***<br>(7.25)   | 0.286***<br>(5.60)         |
| <i>Foreign</i>           | 1.015***<br>(24.85)  | 1.042***<br>(25.41)        | 1.028***<br>(23.83)  | 1.035***<br>(26.56)      | 1.036***<br>(26.22)  | 1.022***<br>(24.05)        |
| <i>Tenure</i>            | 0.018***<br>(4.14)   | 0.025***<br>(5.18)         | 0.021***<br>(4.72)   | 0.022***<br>(4.75)       | 0.023***<br>(4.90)   | 0.020***<br>(4.40)         |
| <i>Audsz</i>             | 0.323***<br>(11.76)  | 0.375***<br>(22.92)        | 0.320***<br>(11.42)  | 0.366***<br>(20.31)      | 0.375***<br>(23.29)  | 0.318***<br>(11.17)        |
| <i>Mktshr</i>            | 9.091***<br>(6.40)   | 8.967***<br>(6.45)         | 9.035***<br>(6.37)   | 9.021***<br>(6.47)       | 8.972***<br>(6.40)   | 9.066***<br>(6.42)         |
| <i>Audinf</i>            | 2.237***<br>(18.52)  | 2.430***<br>(43.26)        | 2.224***<br>(18.58)  | 2.416***<br>(34.61)      | 2.453***<br>(44.20)  | 2.203***<br>(18.07)        |
| Country F.E.             | Yes  | Yes                        | Yes  | Yes                      | Yes  | Yes                        |
| Industry F.E.            | Yes  | Yes                        | Yes  | Yes                      | Yes  | Yes                        |
| Year F.E.                | Yes  | Yes                        | Yes  | Yes                      | Yes  | Yes                        |
| N                        | 38,559   | 39,087                     | 40,234   | 37,412                   | 39,613   | 38,033                     |
| <i>Adj-R<sup>2</sup></i> | 0.5107   | 0.526                      | 0.5115   | 0.525                    | 0.5128   | 0.524                      |
| Null Hypothesis          | Coefficient of <i>All*Post</i> is the same for [1] and [2] |                            | Coefficient of <i>All*Post</i> is the same for [3] and [4] |                          | Coefficient of <i>All*Post</i> is the same for [5] and [6] |                            |
| <i>p</i> -value          | [<0.0001]  |                            | [0.0054]   |                          | [0.0179]   |                            |

**Panel A2. Discretionary accruals**

|                    | <i>No. of staff per office</i>                             |                            | <i>Alliance Growth</i>                                     |                           | <i>Alliance Income</i>                                     |                             |
|--------------------|--|----------------------------|--|---------------------------|--|-----------------------------|
|                    | High   | Low                        | High   | Low                       | High   | Low                         |
|                    | (1)  | (2)                        | (3)  | (4)                       | (5)  | (6)                         |
| <i>All</i>         | 0.011**<br>(2.48)  | 0.000<br>(0.06)            | 0.012***<br>(2.71)   | -0.001<br>(-0.30)         | 0.011**<br>(2.41)  | -0.000<br>(-0.03)           |
| <i>All*Post</i>    | <b>-0.016***<br/>(-3.00)</b>                               | <b>-0.009*<br/>(-1.85)</b> | <b>-0.018***<br/>(-3.65)</b>                               | <b>-0.007<br/>(-1.40)</b> | <b>-0.015***<br/>(-2.95)</b>                               | <b>-0.010**<br/>(-2.03)</b> |
| <i>log(MV)</i>     | -0.002**<br>(-2.18)  | -0.001<br>(-1.53)          | -0.002**<br>(-2.41)  | -0.001<br>(-1.23)         | -0.002**<br>(-2.28)  | -0.001<br>(-1.33)           |
| <i>ROA</i>         | 0.045***<br>(3.18)   | 0.044***<br>(3.69)         | 0.051***<br>(3.77)   | 0.037***<br>(3.05)        | 0.049***<br>(3.52)   | 0.040***<br>(3.36)          |
| <i>LEV</i>         | 0.118***<br>(18.62)  | 0.117***<br>(18.51)        | 0.116***<br>(18.77)  | 0.119***<br>(18.34)       | 0.118***<br>(18.77)  | 0.117***<br>(18.40)         |
| <i>CURR</i>        | 0.000<br>(0.36)  | -0.000<br>(-1.60)          | -0.000<br>(-0.13)  | -0.000<br>(-1.04)         | 0.000<br>(0.27)  | -0.000<br>(-1.55)           |
| <i>CFO</i>         | -0.073***<br>(-4.14)                                       | -0.071***<br>(-4.38)       | -0.081***<br>(-4.67)                                       | -0.064***<br>(-3.88)      | -0.075***<br>(-4.29)                                       | -0.069***<br>(-4.25)        |
| <i>Loss</i>        | 0.002<br>(0.67)  | 0.004<br>(1.29)            | 0.003<br>(1.01)  | 0.003<br>(0.93)           | 0.002<br>(0.82)  | 0.003<br>(1.16)             |
| <i>MTB</i>         | 0.006***<br>(6.03)   | 0.006***<br>(6.61)         | 0.006***<br>(6.94)   | 0.005***<br>(5.67)        | 0.006***<br>(6.34)   | 0.006***<br>(6.23)          |
| <i>SG</i>          | 0.008***<br>(4.69)   | 0.009***<br>(5.34)         | 0.008***<br>(4.79)   | 0.009***<br>(5.29)        | 0.008***<br>(4.65)   | 0.009***<br>(5.42)          |
| <i>FG</i>          | 0.032***<br>(14.68)  | 0.032***<br>(15.73)        | 0.031***<br>(14.96)  | 0.032***<br>(15.47)       | 0.031***<br>(14.73)  | 0.032***<br>(15.67)         |
| <i>Taccr</i>       | 0.154***<br>(9.57)   | 0.136***<br>(9.73)         | 0.153***<br>(9.84)   | 0.136***<br>(9.49)        | 0.150***<br>(9.46)   | 0.139***<br>(9.85)          |
| <i>AST</i>         | -0.004<br>(-1.10)  | -0.007*<br>(-1.86)         | -0.006<br>(-1.49)  | -0.006<br>(-1.59)         | -0.004<br>(-1.07)  | -0.008**<br>(-2.02)         |
| <i>Tenure</i>      | -0.000<br>(-0.63)  | -0.000<br>(-0.56)          | -0.000<br>(-0.22)  | -0.000<br>(-0.81)         | -0.000<br>(-0.57)  | -0.000<br>(-0.54)           |
| <i>Audsz</i>       | -0.001<br>(-1.03)  | -0.002<br>(-1.50)          | -0.001<br>(-0.91)  | -0.002<br>(-1.44)         | -0.001<br>(-1.27)  | -0.002<br>(-1.42)           |
| <i>Mktshr</i>      | 0.023<br>(0.58)  | 0.016<br>(0.36)            | 0.024<br>(0.61)  | 0.012<br>(0.27)           | 0.025<br>(0.64)  | 0.011<br>(0.26)             |
| <i>Audinf</i>      | 0.004<br>(1.14)  | 0.004<br>(1.17)            | 0.005<br>(1.41)  | 0.003<br>(0.98)           | 0.004<br>(1.10)  | 0.004<br>(1.05)             |
| Country F.E.       | Yes  | Yes                        | Yes  | Yes                       | Yes  | Yes                         |
| Industry F.E.      | Yes  | Yes                        | Yes  | Yes                       | Yes  | Yes                         |
| Year F.E.          | Yes  | Yes                        | Yes  | Yes                       | Yes  | Yes                         |
| N                  | 38,559   | 39,087                     | 40,234   | 37,412                    | 39,613   | 38,033                      |
| Adj-R <sup>2</sup> | 0.136  | 0.1311                     | 0.1342   | 0.1328                    | 0.1344   | 0.1327                      |
| Null Hypothesis    | Coefficient of <i>All*Post</i> is the same for [1] and [2] |                            | Coefficient of <i>All*Post</i> is the same for [3] and [4] |                           | Coefficient of <i>All*Post</i> is the same for [5] and [6] |                             |
| <i>p</i> -value    | [0.0606]   |                            | [0.0820]   |                           | [0.0693]   |                             |

**Panel B. Firm fixed effect regression**

| <b>Panel B1. Audit fees</b> |  |                                  |  |                                  |  |                                  |
|-----------------------------|--|----------------------------------|--|----------------------------------|--|----------------------------------|
|                             | <i>No. of staff per office</i>                             |                                  | <i>Alliance Growth</i>                                     |                                  | <i>Alliance Income</i>                                     |                                  |
|                             | High   | Low                              | High   | Low                              | High   | Low                              |
|                             | (1)  | (2)                              | (3)  | (4)                              | (5)  | (6)                              |
| <i>All*Post</i>             | <b>0.465***</b><br><b>(6.10)</b>                           | <b>0.351***</b><br><b>(4.84)</b> | <b>0.560***</b><br><b>(6.98)</b>                           | <b>0.353***</b><br><b>(4.93)</b> | <b>0.465***</b><br><b>(6.68)</b>                           | <b>0.367***</b><br><b>(4.69)</b> |
| <i>log(Assets)</i>          | 0.381***<br>(12.73)  | 0.410***<br>(14.22)              | 0.387***<br>(13.17)  | 0.409***<br>(14.00)              | 0.378***<br>(12.80)  | 0.412***<br>(14.23)              |
| <i>CATA</i>                 | 0.097<br>(0.94)  | 0.136<br>(1.43)                  | 0.122<br>(1.22)  | 0.118<br>(1.20)                  | 0.102<br>(1.01)  | 0.131<br>(1.35)                  |
| <i>QUICK</i>                | -0.002<br>(-0.72)  | -0.003<br>(-1.03)                | -0.003<br>(-1.11)  | -0.002<br>(-1.00)                | -0.003<br>(-0.97)  | -0.003<br>(-1.22)                |
| <i>LEV</i>                  | 0.003<br>(0.03)  | 0.066<br>(0.60)                  | 0.069<br>(0.62)  | -0.018<br>(-0.16)                | 0.043<br>(0.39)  | 0.007<br>(0.06)                  |
| <i>ROA</i>                  | -0.080<br>(-0.88)  | -0.229***<br>(-2.95)             | -0.123<br>(-1.41)  | -0.208***<br>(-2.63)             | -0.120<br>(-1.34)  | -0.206***<br>(-2.64)             |
| <i>Loss</i>                 | -0.104***<br>(-3.66)                                       | -0.124***<br>(-4.47)             | -0.112***<br>(-3.97)                                       | -0.122***<br>(-4.35)             | -0.114***<br>(-4.01)                                       | -0.118***<br>(-4.25)             |
| <i>SG</i>                   | -0.020**<br>(-2.02)  | -0.023**<br>(-2.48)              | -0.024**<br>(-2.36)  | -0.020**<br>(-2.17)              | -0.022**<br>(-2.24)  | -0.023**<br>(-2.40)              |
| <i>FG</i>                   | 0.071***<br>(5.58)   | 0.050***<br>(4.41)               | 0.070***<br>(5.66)   | 0.050***<br>(4.29)               | 0.069***<br>(5.56)   | 0.051***<br>(4.41)               |
| <i>GC</i>                   | -0.226***<br>(-3.03)                                       | -0.227***<br>(-3.69)             | -0.239***<br>(-3.35)                                       | -0.209***<br>(-3.30)             | -0.228***<br>(-3.18)                                       | -0.215***<br>(-3.41)             |
| <i>AST</i>                  | -0.277***<br>(-5.51)                                       | -0.243***<br>(-5.29)             | -0.319***<br>(-6.57)                                       | -0.223***<br>(-4.74)             | -0.304***<br>(-6.18)                                       | -0.238***<br>(-5.08)             |
| <i>Foreign</i>              | 1.422***<br>(22.87)  | 1.474***<br>(22.52)              | 1.439***<br>(24.03)  | 1.456***<br>(21.53)              | 1.417***<br>(23.47)  | 1.480***<br>(22.18)              |
| <i>Tenure</i>               | -0.017**<br>(-2.44)  | -0.007<br>(-1.02)                | -0.020***<br>(-2.93)                                       | -0.010<br>(-1.46)                | -0.019***<br>(-2.76)                                       | -0.008<br>(-1.15)                |
| <i>Audsz</i>                | 0.387***<br>(13.23)  | 0.274***<br>(4.72)               | 0.382***<br>(10.74)  | 0.287***<br>(4.68)               | 0.388***<br>(13.66)  | 0.285***<br>(4.73)               |
| <i>Mktshr</i>               | 10.469***<br>(3.83)  | 12.415***<br>(3.76)              | 10.670***<br>(3.83)  | 12.265***<br>(3.77)              | 10.527***<br>(3.80)  | 12.339***<br>(3.78)              |
| <i>Audinf</i>               | 2.603***<br>(27.70)  | 2.031***<br>(7.16)               | 2.505***<br>(15.08)  | 2.099***<br>(7.17)               | 2.613***<br>(27.93)  | 2.032***<br>(7.13)               |
| Firm F.E.                   | Yes  | Yes                              | Yes  | Yes                              | Yes  | Yes                              |
| Year F.E.                   | Yes  | Yes                              | Yes  | Yes                              | Yes  | Yes                              |
| N                           | 38,559   | 39,087                           | 40,234   | 37,412                           | 39,613   | 38,033                           |
| <i>Adj-R<sup>2</sup></i>    | 0.7396   | 0.526                            | 0.7335   | 0.7416                           | 0.7367   | 0.7391                           |
| Null Hypothesis             | Coefficient of <i>All*Post</i> is the same for [1] and [2] |                                  | Coefficient of <i>All*Post</i> is the same for [3] and [4] |                                  | Coefficient of <i>All*Post</i> is the same for [5] and [6] |                                  |
| <i>p</i> -value             | [0.0472]   |                                  | [0.0298]   |                                  | [0.0493]   |                                  |

**Panel B2. Discretionary accruals**

|                    | <i>No. of staff per office</i>                             |                                  | <i>Alliance Growth</i>                                     |                                  | <i>Alliance Income</i>                                     |                                  |
|--------------------|--|----------------------------------|--|----------------------------------|--|----------------------------------|
|                    | High   | Low                              | High   | Low                              | High   | Low                              |
|                    | (1)  | (2)                              | (3)  | (4)                              | (5)  | (6)                              |
| <i>All*Post</i>    | <b>-0.032***</b><br><b>(-3.65)</b>                         | <b>-0.009*</b><br><b>(-1.73)</b> | <b>-0.032***</b><br><b>(-3.24)</b>                         | <b>-0.011*</b><br><b>(-1.87)</b> | <b>-0.037***</b><br><b>(-3.70)</b>                         | <b>-0.008*</b><br><b>(-1.77)</b> |
| <i>log(MV)</i>     | 0.010***<br>(4.48)   | 0.010***<br>(4.26)               | 0.011***<br>(4.75)   | 0.009***<br>(3.95)               | 0.011***<br>(4.68)   | 0.009***<br>(4.03)               |
| <i>ROA</i>         | 0.063***<br>(3.79)   | 0.065***<br>(4.45)               | 0.070***<br>(4.35)   | 0.058***<br>(3.91)               | 0.065***<br>(3.96)   | 0.062***<br>(4.25)               |
| <i>LEV</i>         | 0.108***<br>(7.80)   | 0.112***<br>(8.06)               | 0.108***<br>(7.93)   | 0.114***<br>(8.11)               | 0.106***<br>(7.69)   | 0.114***<br>(8.23)               |
| <i>CURR</i>        | -0.000<br>(-0.35)  | -0.000<br>(-0.09)                | -0.000<br>(-0.31)  | 0.000<br>(0.03)                  | -0.000<br>(-0.11)  | -0.000<br>(-0.14)                |
| <i>CFO</i>         | -0.095***<br>(-4.02)                                       | -0.089***<br>(-4.04)             | -0.100***<br>(-4.35)                                       | -0.084***<br>(-3.72)             | -0.099***<br>(-4.25)                                       | -0.086***<br>(-3.85)             |
| <i>Loss</i>        | -0.002<br>(-0.48)  | 0.002<br>(0.52)                  | -0.000<br>(-0.08)  | 0.001<br>(0.20)                  | -0.001<br>(-0.24)  | 0.001<br>(0.34)                  |
| <i>MTB</i>         | -0.002<br>(-0.86)  | -0.001<br>(-0.78)                | -0.001<br>(-0.58)  | -0.002<br>(-1.00)                | -0.002<br>(-0.87)  | -0.001<br>(-0.69)                |
| <i>SG</i>          | 0.007***<br>(3.47)   | 0.007***<br>(3.36)               | 0.007***<br>(3.17)   | 0.008***<br>(3.70)               | 0.007***<br>(3.42)   | 0.007***<br>(3.55)               |
| <i>FG</i>          | 0.027***<br>(10.41)  | 0.026***<br>(10.87)              | 0.026***<br>(10.66)  | 0.026***<br>(10.74)              | 0.026***<br>(10.38)  | 0.026***<br>(10.94)              |
| <i>Taccr</i>       | 0.160***<br>(7.96)   | 0.142***<br>(8.21)               | 0.159***<br>(8.17)   | 0.140***<br>(7.95)               | 0.157***<br>(7.92)   | 0.143***<br>(8.19)               |
| <i>AST</i>         | -0.028***<br>(-4.46)                                       | -0.025***<br>(-4.73)             | -0.029***<br>(-4.72)                                       | -0.024***<br>(-4.41)             | -0.028***<br>(-4.49)                                       | -0.025***<br>(-4.76)             |
| <i>Tenure</i>      | -0.000<br>(-0.24)  | -0.000<br>(-0.32)                | -0.000<br>(-0.08)  | -0.000<br>(-0.22)                | -0.000<br>(-0.03)  | -0.000<br>(-0.26)                |
| <i>Audsz</i>       | -0.005**<br>(-2.03)  | -0.005**<br>(-1.98)              | -0.004*<br>(-1.66)   | -0.006**<br>(-2.50)              | -0.005**<br>(-2.25)  | -0.005*<br>(-1.83)               |
| <i>Mktshr</i>      | -0.016<br>(-0.30)  | -0.062<br>(-1.07)                | -0.024<br>(-0.45)  | -0.060<br>(-1.05)                | -0.017<br>(-0.32)  | -0.061<br>(-1.07)                |
| <i>Audinf</i>      | -0.005<br>(-0.84)  | -0.001<br>(-0.09)                | -0.001<br>(-0.11)  | -0.005<br>(-0.91)                | -0.006<br>(-0.99)  | -0.000<br>(-0.02)                |
| Firm F.E.          | Yes  | Yes                              | Yes  | Yes                              | Yes  | Yes                              |
| Year F.E.          | Yes  | Yes                              | Yes  | Yes                              | Yes  | Yes                              |
| N                  | 38,559   | 39,087                           | 40,234   | 37,412                           | 39,613   | 38,033                           |
| Adj-R <sup>2</sup> | 0.2608   | 0.2466                           | 0.2553   | 0.2515                           | 0.2571   | 0.2488                           |
| Null Hypothesis    | Coefficient of <i>All*Post</i> is the same for [1] and [2] |                                  | Coefficient of <i>All*Post</i> is the same for [3] and [4] |                                  | Coefficient of <i>All*Post</i> is the same for [5] and [6] |                                  |
| <i>p</i> -value    | [0.0002]   |                                  | [0.00109]  |                                  | [0.0008]   |                                  |

Note: Table 12 reports the regression results examining the role of alliance characteristics on the effect of audit firm join audit firm alliances. \*, \*\* and \*\*\* indicate statistical significance at the 0.1, 0.05 and 0.01 levels. The dependent variables are audit fees and discretionary accruals. See the appendix for variable definitions.

**Table 13. Networks and Associations**

| <b>Panel A. Country fixed effect regression</b> |  |                               |
|---|--|-------------------------------|
| <b>Panel A1. Audit fees</b>                     |  |                               |
|   | <i>Networks</i>  | <i>Associations</i>           |
|   | (1)  | (2)                           |
| <i>All</i>                                      | -0.269***<br>(-5.35)                                       | -0.055<br>(-0.60)             |
| <i>All*Post</i>                                 | <b>0.270***</b><br><b>(5.50)</b>                           | <b>0.074</b><br><b>(0.81)</b> |
| <i>log(Assets)</i>                              | 0.449***<br>(38.18)  | 0.460***<br>(36.73)           |
| <i>CATA</i>                                     | 0.014<br>(0.23)  | 0.111*<br>(1.67)              |
| <i>QUICK</i>                                    | -0.007***<br>(-3.21)                                       | -0.009***<br>(-3.65)          |
| <i>LEV</i>                                      | -0.291***<br>(-3.77)                                       | -0.330***<br>(-3.94)          |
| <i>ROA</i>                                      | -0.359***<br>(-4.30)                                       | -0.275***<br>(-2.88)          |
| <i>Loss</i>                                     | 0.005<br>(0.15)  | -0.029<br>(-0.93)             |
| <i>SG</i>                                       | -0.032***<br>(-3.16)                                       | -0.035***<br>(-3.33)          |
| <i>FG</i>                                       | 0.053***<br>(4.69)   | 0.055***<br>(4.21)            |
| <i>GC</i>                                       | -0.249***<br>(-4.04)                                       | -0.075<br>(-0.99)             |
| <i>AST</i>                                      | 0.311***<br>(6.31)   | 0.355***<br>(6.50)            |
| <i>Foreign</i>                                  | 1.076***<br>(28.17)  | 0.965***<br>(21.78)           |
| <i>Tenure</i>                                   | 0.019***<br>(4.25)   | 0.026***<br>(5.32)            |
| <i>Audsz</i>                                    | 0.334***<br>(13.32)  | 0.353***<br>(19.45)           |
| <i>Mktshr</i>                                   | 9.092***<br>(6.50)   | 9.005***<br>(6.30)            |
| <i>Audinf</i>                                   | 2.297***<br>(19.56)  | 2.343***<br>(37.10)           |
| Country F.E.                                    | Yes  | Yes                           |
| Industry F.E.                                   | Yes  | Yes                           |
| Year F.E.                                       | Yes  | Yes                           |
| N   | 43,346   | 34,300                        |
| <i>Adj-R<sup>2</sup></i>                        | 0.5197   | 0.5179                        |
| Null Hypothesis                                 | Coefficient of <i>All*Post</i> is the same for [1] and [2] |                               |
| <i>p</i> -value                                 | [<0.0001]  |                               |

**Panel A2. Discretionary accruals**

|                    | <i>Networks</i>  | <i>Associations</i> |
|--------------------|--|---------------------|
|                    | (1)  | (2)                 |
| <i>All</i>         | 0.013*   | 0.003               |
|                    | (1.72)   | (0.85)              |
| <i>All*Post</i>    | <b>-0.024***</b>   | <b>-0.009**</b>     |
|                    | <b>(-2.88)</b>   | <b>(-2.32)</b>      |
| <i>log(MV)</i>     | -0.001   | -0.002***           |
|                    | (-0.99)  | (-2.70)             |
| <i>ROA</i>         | 0.044***   | 0.046***            |
|                    | (3.02)   | (3.88)              |
| <i>LEV</i>         | 0.117***   | 0.118***            |
|                    | (17.63)  | (19.44)             |
| <i>CURR</i>        | -0.000   | -0.000              |
|                    | (-0.11)  | (-1.18)             |
| <i>CFO</i>         | -0.077***  | -0.068***           |
|                    | (-4.21)  | (-4.32)             |
| <i>Loss</i>        | 0.003  | 0.002               |
|                    | (1.03)   | (0.92)              |
| <i>MTB</i>         | 0.006***   | 0.006***            |
|                    | (5.45)   | (7.15)              |
| <i>SG</i>          | 0.008***   | 0.009***            |
|                    | (4.39)   | (5.60)              |
| <i>FG</i>          | 0.032***   | 0.031***            |
|                    | (13.89)  | (16.40)             |
| <i>Taccr</i>       | 0.150***   | 0.140***            |
|                    | (9.09)   | (10.20)             |
| <i>AST</i>         | -0.006   | -0.005              |
|                    | (-1.50)  | (-1.42)             |
| <i>Tenure</i>      | -0.000   | -0.000              |
|                    | (-0.57)  | (-0.61)             |
| <i>Audsz</i>       | -0.001   | -0.002              |
|                    | (-0.75)  | (-1.45)             |
| <i>Mktshr</i>      | 0.026  | 0.014               |
|                    | (0.57)   | (0.35)              |
| <i>Audinf</i>      | 0.005  | 0.004               |
|                    | (1.29)   | (1.17)              |
| Country F.E.       | Yes  | Yes                 |
| Industry F.E.      | Yes  | Yes                 |
| Year F.E.          | Yes  | Yes                 |
| N                  | 43,346   | 34,300              |
| Adj-R <sup>2</sup> | 0.1343   | 0.1328              |
| Null Hypothesis    | Coefficient of <i>All*Post</i> is the same for [1] and [2] |                     |
| <i>p</i> -value    | [0.0523]   |                     |

**Panel B. Firm fixed effect regression**

| <b>Panel B1. Audit fees</b> |  |                                  |
|-----------------------------|--|----------------------------------|
|                             | <i>Networks</i>  | <i>Associations</i>              |
|                             | (1)  | (2)                              |
| <i>All*Post</i>             | <b>0.559***</b><br><b>(6.17)</b>                           | <b>0.360***</b><br><b>(4.99)</b> |
| <i>log(Assets)</i>          | 0.412***<br>(14.69)  | 0.385***<br>(12.58)              |
| <i>CATA</i>                 | 0.105<br>(1.13)  | 0.146<br>(1.37)                  |
| <i>QUICK</i>                | -0.003<br>(-1.40)  | -0.001<br>(-0.48)                |
| <i>LEV</i>                  | 0.041<br>(0.38)  | 0.013<br>(0.12)                  |
| <i>ROA</i>                  | -0.218***<br>(-2.82)                                       | -0.099<br>(-1.10)                |
| <i>Loss</i>                 | -0.107***<br>(-3.92)                                       | -0.123***<br>(-4.29)             |
| <i>SG</i>                   | -0.023**<br>(-2.47)  | -0.020**<br>(-2.05)              |
| <i>FG</i>                   | 0.053***<br>(4.71)   | 0.067***<br>(5.27)               |
| <i>GC</i>                   | -0.233***<br>(-3.78)                                       | -0.209***<br>(-2.79)             |
| <i>AST</i>                  | -0.296***<br>(-6.48)                                       | 1.344***<br>(19.78)              |
| <i>Foreign</i>              | 1.538***<br>(25.74)  | -0.016**<br>(-2.20)              |
| <i>Tenure</i>               | -0.017**<br>(-2.47)  | 0.332***<br>(9.00)               |
| <i>Audsz</i>                | 0.352***<br>(6.79)   | 11.771***<br>(3.77)              |
| <i>Mktshr</i>               | 11.054***<br>(3.83)  | 2.394***<br>(17.69)              |
| <i>Audinf</i>               | 2.220***<br>(7.32)   | -0.242***<br>(-4.78)             |
| Firm F.E.                   | Yes  | Yes                              |
| Year F.E.                   | Yes  | Yes                              |
| N                           | 43,346   | 34,300                           |
| <i>Adj-R<sup>2</sup></i>    | 0.7335   | 0.7427                           |
| Null Hypothesis             | Coefficient of <i>All*Post</i> is the same for [1] and [2] |                                  |
| <i>p</i> -value             | [0.0008]   |                                  |

**Panel B2. Discretionary accruals**

|                    | <i>Networks</i>  | <i>Associations</i>                |
|--------------------|--|------------------------------------|
|                    | (1)  | (2)                                |
| <i>All*Post</i>    | <b>-0.032***</b><br><b>(-2.77)</b>                         | <b>-0.018***</b><br><b>(-2.58)</b> |
| <i>log(MV)</i>     | 0.010***<br>(4.56)   | 0.010***<br>(4.19)                 |
| <i>ROA</i>         | 0.064***<br>(4.49)   | 0.065***<br>(3.77)                 |
| <i>LEV</i>         | 0.109***<br>(8.24)   | 0.113***<br>(7.83)                 |
| <i>CURR</i>        | -0.000<br>(-0.07)  | -0.000<br>(-0.18)                  |
| <i>CFO</i>         | -0.089***<br>(-4.16)                                       | -0.093***<br>(-3.80)               |
| <i>Loss</i>        | 0.001<br>(0.23)  | -0.000<br>(-0.12)                  |
| <i>MTB</i>         | -0.001<br>(-0.68)  | -0.002<br>(-0.92)                  |
| <i>SG</i>          | 0.008***<br>(3.88)   | 0.006***<br>(2.99)                 |
| <i>FG</i>          | 0.026***<br>(11.31)  | 0.027***<br>(10.01)                |
| <i>Taccr</i>       | 0.141***<br>(8.36)   | 0.164***<br>(7.95)                 |
| <i>AST</i>         | -0.022***<br>(-4.24)                                       | -0.030***<br>(-4.68)               |
| <i>Tenure</i>      | -0.000<br>(-0.22)  | -0.000<br>(-0.00)                  |
| <i>Audsz</i>       | -0.005**<br>(-2.11)  | -0.006**<br>(-2.22)                |
| <i>Mktshr</i>      | -0.050<br>(-0.93)  | -0.028<br>(-0.48)                  |
| <i>Audinf</i>      | -0.001<br>(-0.17)  | -0.006<br>(-0.96)                  |
| Firm F.E.          | Yes  | Yes                                |
| Year F.E.          | Yes  | Yes                                |
| N                  | 43,346   | 34,300                             |
| Adj-R <sup>2</sup> | 0.252  | 0.2518                             |
| Null Hypothesis    | Coefficient of <i>All*Post</i> is the same for [1] and [2] |                                    |
| <i>p</i> -value    | [0.0452]   |                                    |

Note: Table 13 reports the regression results examining the difference of the effect of audit firm join audit firm alliances between audit firm networks and audit firm associations. \*, \*\* and \*\*\* indicate statistical significance at the 0.1, 0.05 and 0.01 levels. The dependent variables are audit fees and discretionary accruals. See the appendix for variable definitions.