

Discussion on “Big N Auditors and Earnings Response Coefficients – A Comparison Study between the US and China”^{*}

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Received 22nd of April 2014 Accepted 22nd of April 2014

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I. Introduction

Research on auditor reputation and clients' financial reporting quality can be traced back to Teoh and Wong's (1993) study, which provides empirical evidence of Big 8 audit firms having higher financial reporting credibility than non-Big 8 audit firms in the US market. In their study, Du and Zhou (hereinafter, DZ) replicate Teoh and Wong (1993) using a longer and more recent sample period in the US (1983-2012)² and China (1995-2012) to examine whether the positive association between Big N auditors and perceived audit quality (ERCs) still holds after a major regulatory intervention in early 2000 and to compare this association in the US and China. This comparison is important because China is the largest emerging economy and the second largest economy in the world. DZ's comprehensive evidence helps us to better understand if market reaction to ERCs in China differs from that in the US. I also commend that DZ provide detailed information on the market shares of Big N auditors in the US and Chinese markets respectively during this long sample period, demonstrating that while Big N auditors play a dominant role in the US market, their market shares are much smaller in the Chinese market.

My discussion proceeds as follows: Section II describes the regulatory environment in the US and China respectively, the prior findings on auditor reputation and perceived audit quality in different regulation periods, and DZ's findings; Section III provides the obligatory commentary on specific empirical issues and suggestions for further research; and Section IV presents conclusions.

^{*} This article was prepared on the basis of the commentary provided on the paper entitled 'Big N Auditors and Earnings Response Coefficients – A Comparison Study between the US and China', which is co-authored by Jun Du and Gaoguang Zhou and was presented at the CAFR Special Issue Conference held on 6-7 December 2013.

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² In the abstract, DZ indicate that their sample period for the US data is from 1984 to 2012. However, on the basis of descriptive statistics in Table 1, the sample period should start from 1983.

II. Regulatory environments in the US and China and findings from prior studies and Du and Zhou’s study

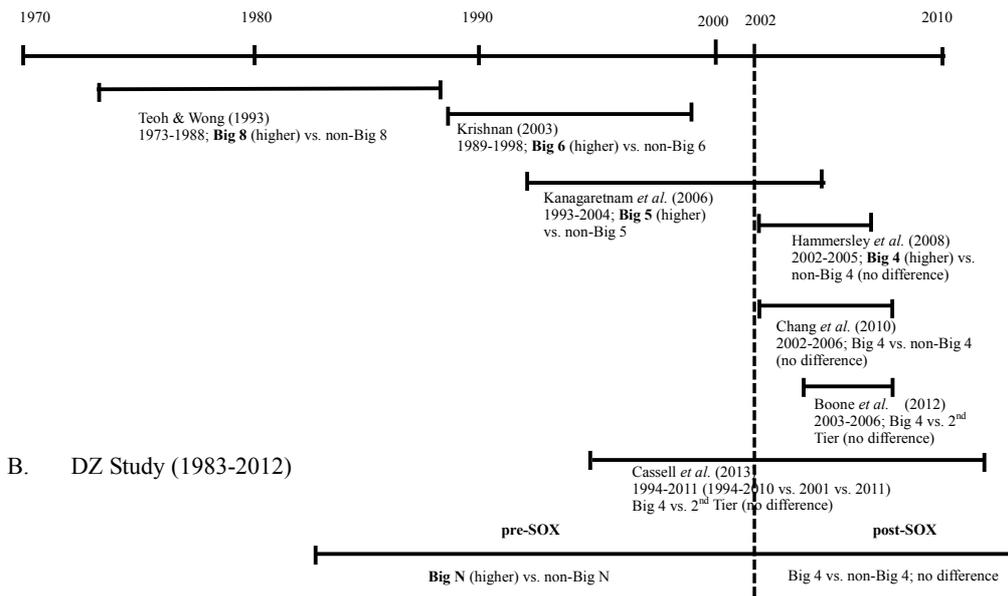
2.1 The US market and regulation

2.1.1 Pre-SOX period

Prior to the passage of the Sarbanes-Oxley Act (hereinafter, SOX), there was only infrequent regulation and mainly enacted new rules to improve audit quality. Prior studies have unanimously shown that in the pre-SOX period, key participants (e.g. shareholders, investors, lenders) in the US market perceived the audit quality of Big N audit firms to be better than that of non-Big N audit firms. A diagram summarising prior studies on ERCs, perceived audit quality, and Big N auditors in the US market is presented in Figure 1. For example, in addition to Teoh and Wong (1993), Krishnan (2003) reports a greater association between stock returns and discretionary accruals for firms audited by Big 6 auditors than for firms audited by non-Big 6 auditors during the sample period 1989-1998. The positive association between Big 5 auditors and their clients’ stock returns is also evidenced in the special setting of banks’ provision for loan losses during the period 1993-2004 (Kanagaretnam *et al.*, 2006).

Figure 1 Studies on ERC and Audit Quality in the US

A. Prior Studies



2.1.2 Post-SOX period

The US audit market changed dramatically following the collapse of Arthur Andersen. The changes included the passage of SOX and the formation of the Public Company Accounting Oversight Board (PCAOB). Indeed, the enactment of SOX represents one of the most sweeping regulatory interventions of the past decade because it shapes audit quality by not only improving companies’ monitoring mechanisms but also increasing client demand for audit quality. For example, the PCAOB inspects public company audit firms annually, which is likely to reduce the audit quality gap between Big

N and second-tier auditors. Because of this perspective, the PCAOB actually encourages the use of second-tier audit firms as an alternative to Big 4 audit firms. To express its great concern about audit quality, the PCAOB recently provided a definition, a framework, and indicators of audit quality (2013). It defines audit quality as “meeting investors’ needs for independent and reliable audits and robust audit committee communications on financial statements, including related disclosures; assurance about internal control; and going concern warnings.” Because of the PCAOB’s annual inspections and great concern about audit quality, it is expected that the gap in perceived audit quality between Big 4 and second-tier auditors will be mitigated in the post-SOX period.

Regulatory intervention has been the driving force for the majority of the archival auditing studies (DeFond and Zhang, 2013). Several studies examine the impact of SOX on ERCs or other measures of perceived audit quality; for example, Hammersley *et al.* (2008) report that stock returns were significantly less negative if a firm engaged a Big 4 auditor when firms disclosed internal control weaknesses during the period 2002-2005. However, more recent studies show no significant difference between Big 4 and non-Big 4 auditors or between Big 4 and second-tier auditors; for example, using the sample period 2002-2006, Chang, Cheng, and Reichelt (2010) provide empirical evidence that firms switching from Big N auditors to non-Big N auditors experience non-negative stock returns. This finding suggests that market participants perceive no difference between the audit quality of Big N auditors and non-Big N auditors.

Moreover, Boone *et al.* (2010), using the sample period 2003-2006, find little difference in perceived audit quality between Big N auditors and second-tier auditors. Using the longer period of 1994-2011, Cassell *et al.* (2013) also document that the financial reporting credibility (captured by the *ex ante* cost of equity capital) of second-tier clients is indistinguishable from that of Big 4 clients in the post-Andersen era. In sum, findings for the association between Big N auditors and audit quality after the implementation of SOX are not conclusive. While most of the studies show no difference in perceived audit quality between Big 4 auditors and second-tier auditors, some studies still show that the perceived audit quality of Big 4 auditors is higher than that of non-Big 4 auditors.

2.1.3 Du and Zhou’s findings

What are DZ’s findings using the longer sample period of 1983-2012? They report a positive relationship between Big N and ERCs; however, the results are not consistently significant. They use 2002 (the enactment of SOX) as the cut-off point to split their sample into two (i.e. pre-SOX and post-SOX). Consistent with prior studies, DZ observe that the indicator of Big N auditors is significantly and positively associated with ERCs in the pre-SOX period. However, they find no difference in perceived audit quality between Big N and non-Big N auditors in the post-SOX period. Therefore, their findings are consistent with Chang *et al.*’s (2010) finding that market participants perceive no difference between the audit quality of Big N auditors and non-Big N auditors. However, DZ’s results are likely to be affected by the self-selection bias concerning auditor choice, which I will discuss later.

2.2 The China market and regulation

2.2.1 Pre-2001

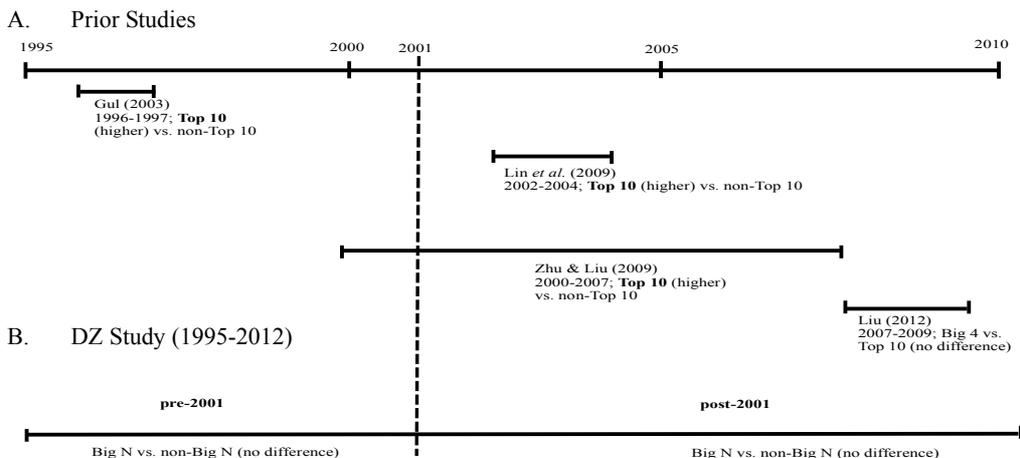
The Chinese stock market was established in 1991, and state-owned enterprises (SOEs) have played a very important role in this market. Even after the government

transferred its shares or, in some cases, even its controlling rights to private enterprises, SOEs still accounted for more than 60% of its market capitalisation. For historical reasons, China's auditing service displays strong geographical characteristics. Many auditors in China were closely affiliated with the local or central governments until they separated themselves from the government in 1998 (Wang *et al.*, 2008). After the separation, most accountants formed independent CPA firms (Yi, 2003) and carried with them specialised knowledge of the SOEs in their region. On one hand, local auditors are inclined to report favourably on SOEs to mitigate probable economic losses (Chan *et al.*, 2006), and SOEs tend to hire local auditors because of their specialised knowledge. On the other hand, local auditors are no longer covered or protected by the government, which significantly increases their risk exposures and liabilities (Yang, Tang, Kilgore, and Jiang, 2001). As such, local auditors may have a stronger incentive to improve the stringency of their audit process, resulting in higher audit quality.

Immediately after the Chinese stock market started, the international Big 5 audit firms entered the Chinese market. However, they needed to collaborate with Chinese audit firms in order to provide audit services to A-share companies.³ DZ provide detailed statistics on the market shares of Big N auditors in both the US and Chinese markets. As shown in their Table 1, Big N auditors play a dominant role in the US market, with a market share ranging from 72.12% to 90.38% (based on number of clients) and from 79.14% to 97.38% (based on their clients' total assets) during the period 1983-2012. However, Big 5 auditors play a relatively minor role in the Chinese market, with a market share ranging from 4.03% to 9.39% (based on number of clients) and from 12.27% to 51.34% (based on their clients' total assets) during the period 1995-2012.

Using an early sample period (1996-1997), Gul *et al.* (2003) find that the then Top 10 auditors (i.e. one international auditor and nine domestic auditors) were perceived to be of higher quality, resulting in higher ERCs to their clients' earnings surprise. This finding is comparable to the greater financial reporting credibility of Big N auditors in the US market in the pre-SOX period. To compare with DZ's finding during their sample period, Figure 2 contains a diagram that summarises prior studies on ERCs, perceived audit quality, and Big N or Top 10 auditors in the Chinese market.

Figure 2 Studies on ERC and Audit Quality in China



³ The China Securities Regulatory Commission defines A-shares as common stocks issued by domestic firms. A-shares can be purchased and traded only by domestic investors on the Shanghai and Shenzhen Stock Exchanges and in the Renminbi currency.

2.2.2 Post-2001

After the Enron scandal and many similar scandals at Chinese listed companies, regulators tightened up the corporate governance mechanism (Clark, 2006) in China and also imposed higher litigation and sanction risks on audit firms. In early 2000, only a few A-share companies hired international Big 5 audit firms. Starting in January 2001, the China Securities Regulatory Commission (CSRC) and China's Ministry of Finance jointly required that listed companies hire domestic and licensed international accounting firms (the first batch of these firms included Andersen, Deloitte, Ernst & Young, KPMG, and PwC) to audit their annual reports. By 31 December 2013, there were only 40 audit firms eligible to provide such audit services in China. Furthermore, in December 2001, the CSRC required that firms engage international Big 4 auditors for supplementary auditing of IPOs and seasoned equity offerings. Although more publicly listed companies hire Big 4 auditors, the increase is still far behind that of domestic large audit firms. Also, to improve audit quality, starting 1 January 2004, China's Ministry of Finance required that CPAs who sign for the same clients should be rotated within 5 years.

However, there is a growing concern about whether international Big 4 auditors provide better audit quality. This is because the frequent turnover of partners in local offices causes personnel instability and may affect audit quality. As Yao Jianhua, KPMG Chairman in China, stated (1 August 2012), it takes a long time (no less than 12 years) to develop new local partners, which makes improving audit quality a challenge. Also, some overseas scandals involving Chinese listed companies have tarnished the reputation of Big 4 auditors in the Chinese market. In the meantime, the Chinese Government has encouraged domestic audit firms to grow bigger and stronger so that they can compete with international accounting firms in the Chinese market. In response, large Chinese domestic audit firms have aggressively engaged in merger and acquisition activities, resulting in a significant number of merger-acquisition cases recently. This definitely presents a challenge to Big 4 auditors, as evidenced by the fact that KPMG's ranking dropped for the first time, placing them outside the Top 4 auditors in 2013.

In the post-2001 period, research generally shows that the greater credibility of the financial reporting of Top 10 clients still holds. For example, Lin *et al.* (2009) report that firms audited by Top 10 auditors had higher ERCs for unexpected earnings between 2002 and 2004. Similarly, Zhu and Liu (2009) find that compared with clients of non-Top 10 auditors, clients of Top 10 auditors had significantly higher pay-earning sensitivities in the period 2000-2007. Different from the above studies, Liu (2012) compares perceived audit quality between international Big 4 clients and domestic large auditors' clients. Using a sample of A-share companies in the period 2007-2009, she reports that clients of Big 4 auditors have similar ERCs to those of large domestic auditors' clients. In sum, these findings suggest that after 2001, the audit quality of Top 10 auditors remained better than that of non-Top 10 auditors. Also, there is little difference in audit quality between international Big 4 auditors and domestic large auditors in China.

2.2.3 Du and Zhou's findings

DZ provide empirical evidence that market reaction to the perceived higher audit quality of Big N auditors is only evident in the post-2001 period, not in the pre-2001 period, which is different from Gul *et al.* (2003). Their finding for the post-2001 period is consistent with that of Lin *et al.* (2009) and Zhu and Liu (2009). As DZ did not compare international Big 5 and domestic large auditors, we cannot make a comparison with Liu (2010). Collectively, these studies, including DZ, show that after 2001, the audit quality of Top 10 or Big N auditors is better than that of non-Top 10 or non-Big N auditors.

However, as pointed out by DZ, their results are sensitive when they consider auditor choice.

III. Some comments and suggestions

Below are my comments and suggestions for future research on the reputation of audit firms and audit quality, which are mainly focused on the Chinese market.

The first-stage logistic regressions. In this version of their paper, DZ state that to conserve space, they only report the results of the second-stage regression for both the US and Chinese samples. However, according to the previous version of their paper, the adjusted R² of the first-stage logistic regressions on the determinants of auditor choice is very low (e.g. 12.7%). This low adjusted R² makes me question the performance of the market reaction model. It may have been caused by not including some control variables. For example, prior studies (e.g. Chaney *et al.*, 2004) include the determinants of the auditor choice model and some control variables such as audit committee characteristics (e.g. financial expertise, meeting frequency, size), institutional ownership, CEO ownership, CEO/chair duality, percentage of foreign sales, outside director ownership, board independence, loss, and number of subsidiaries. All of these variables are publicly available in the US, and I am not sure whether any of them are not publicly available in China. Another issue is to discuss those coefficients with opposite signs in the first-stage model in the US and Chinese samples; this is important to help readers to understand the underlying reason for such opposite signs. For example, there is a positive association between Chinese firms with higher ROA and Big N auditors, but this association is negative for US firms. Also, it is unclear why the sign of current assets to current liability ratio is opposite in these two markets.

Proxy for audit quality. As pointed out by DZ, because of the data limitation of analyst forecasts, they use real earnings change as a proxy for earnings surprise in China. As DZ intend to compare Big N auditors and ERCs in the US and China, it is unclear whether real earnings change is comparable to analyst forecasts used in US studies. (The regression results using UE1 and UE2 are not robust.) As such, other proxies for audit quality may be better for comparing market reactions to perceived audit quality in the US and Chinese markets. For example, prior studies have used accruals quality measures (e.g. Dechow and Dichev, 2002; Doyle, Ge, and McVay, 2007) which attempt to capture actual audit quality. Other users' perceptions of audit quality may include stock market reaction to auditor changes (Chang *et al.*, 2010; Griffin and Lont, 2010), restatements of financial statements, the issuance of going-concern reports (Menon and Williams, 2010), or cost of capital (Cassell *et al.*, 2013).

Big 5 vs. Top 10 auditors. DZ intend to replicate Teoh and Wong (1993) in order to examine the association between Big N auditors and ERCs. As discussed earlier, while Big N audit firms play a dominant role in the US market, their market shares are much smaller in China. This is why a significant number of auditing studies in China use Top 10 auditors instead of Big N auditors to classify the level of audit quality or reputation (e.g. Chan *et al.*, 2006; Chan *et al.*, 2007; Sun and Yu, 2007; Wang *et al.*, 2008; Chen *et al.*, 2010; Yu and Zheng, 2010). The change in the Chinese audit market has been even more rapid in recent years: For example, KPMG's ranking dropped for the first time, placing them outside the Top 4 auditors in 2013. To have a better understanding of market reaction to the perceived audit quality of the key players in the US and China, DZ should have included Top 10 auditors in their main models (including conducting a two-stage regression analysis) and then compared it with the audit quality of Big N auditors in the US.

Subsample. DZ chose to use the cut-off point of 2001 to study two separate periods (i.e. pre-2001 and post-2001) in the Chinese market. Indeed, over the past decades, there have been different regulatory interventions in China. For example, in 1999, the Chinese Government launched a disaffiliation programme to cut official business ties with audit firms. As reported in DeFond *et al.* (2000), this regulatory intervention actually enhanced audit quality in respect to the number of modified opinions. Therefore, it would be better to conduct a robustness check to determine if the difference in the pre- and post- periods actually started in 1999 or 2001.

Miscellaneous. It is unclear why DZ winsorised at 1% for the US sample but at 5% for the Chinese sample. Also, to help readers to interpret the results, it would be better to use variable notations (especially interaction terms) consistently in the tables across the US and Chinese samples.

Future research. In China, companies can choose to be listed on either the Shanghai Stock Exchange or the Shenzhen Stock Exchange. Also, there is a growing trend for Chinese companies to opt to do cross-listing on both the domestic stock exchanges and overseas stock exchanges such as NYSE, NASDAQ, the London Stock Exchange, or the Hong Kong Stock Exchange. Future research could address whether market participants react differently to clients audited by Big N or Top 10 audit firms that are listed in different domestic stock exchanges and are cross-listed on the overseas stock exchanges.

IV. Conclusion

Overall, DZ provide comprehensive empirical evidence on Big N auditors and ERCs over a longer period in both China and the US. While DZ find that the ERCs of Big N auditors are generally higher in the US market, they show a positive effect of regulatory intervention (i.e. the perceived better audit quality of Big N auditors disappears after the SOX was enacted). In contrast, their results reveal that the relationship between Big N and ERCs is weaker in China. However, their finding that international auditors exhibit higher audit quality than other auditors in China can mitigate the growing concern that international Big 4 auditors may provide a lower level of audit quality in China. Nonetheless, as DZ point out, their main results may suffer from self-selection bias and future research examining financial reporting credibility should incorporate the consideration of auditor choice.

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