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签字会计师任期与审计质量：来自中国大陆证券市场的经验证据[1]

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摘要

本文旨在研究签字会计师任期与审计质量的关系。以签字会计师五年期强制轮换规定出台之前1998至2002年的299家A股上市公司为研究对象，在控制相关变量的影响后，研究发现：（1）随着签字会计师任期的延长，审计质量得到显著性地改善，且在长任期（>5年），任期对公司盈余管理的抑制作用明显大于短任期（≤ 5年）；（2）当签字会计师任期大于事务所任期时，随着签字会计师任期的延长，审计质量更低，且在长任期（>5年），审计质量比短任期（≤5年）更差；（3）当签字会计师任期等于或小于事务所任期时，随着签字会计师任期的延长，审计质量更高，且在长任期（>5年），任期对公司盈余管理的抑制作用明显大于短任期（≤ 5年）；（4）在正向盈余管理中，签字会计师任期的延长有助于抑制公司的

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正向盈余管理行为；（5）在负向盈余管理中，随着签字会计师任期的延长，公司的盈余管理并未得到控制。这些结论对监管者的启示在于，我国的签字会计师五年期强制轮换规定应视情况分类实施。

关键词：签字会计师任期、审计质量、可操纵性应计数

一、问题的提出

受安然、世通等一系列会计丑闻的影响，美国颁布的《萨班斯—奥克斯利法案》（2002）第二章第203节增加了对审计项目合伙人的强制轮换规定："对审计发行证券公司的注册会计师事务所而言，如果该所负责（或负责协调）该审计项目的合伙人或负责复核该审计项目的合伙人对该公司的审计或复核已连续超过五年，那么该事务所提供上述审计业务的行为是非法的"。藉此，我国也积极借鉴美国的做法，颁布了签字会计师五年期强制轮换的规定。截至目前，已经实施的直接监管规则有：（1）《关于证券期货审计业务签字注册审计师定期轮换的规定》（中国证监会和财政部，2003）。规定要求，自2004年1月1日起，签字注册审计师或审计项目负责人连续为某一相关机构提供审计服务，不得超过五年；为首次公开发行证券公司提供审计服务的签字注册审计师，在该公司上市后连续提供审计服务的期限，不得超过两个完整会计年度。（2）《关于改进和加强企业年度会计报表审计工作管理的若干规定》（财政部，2004）。该规定适用于境内除特殊行业企业以外的各类国有及国有控股的非金融企业，其中第十四条规定，"为同一企业连续执业五年的签字注册审计师，企业应当要求审计师事务所予以更换"。

我国出台主审会计师强制轮换规定可能主要出于两方面的考虑：（1）提高审计人员应有的独立性。我国证券市场的大量案件表明，审计失败的主要原因并不仅仅是技术失败，相当重要的一个因素是主审会计师丧失了审计独立性。[5]在我国，一些上市公司自首次公开发行股票以来，甚至从股份制改造或更早，从未更换过主审会计师；还有一些上市公司虽更换了会计师事务所，但实质上是由于主审会计师跳槽带走了客户，而实质上并未更换主审会计师，在我国审计市场形成了换"所"不换主审会计师的独特现象。因此，如果主审会计师长期为一家客户提供审计服务，可能会与该客户产生一些影响其审计独立性的利害关系；（2）主审会计师长期为一家上市公司服务，不仅影响其独立性，还有可能由于其固有的思维定式，不利于发现一些问题。如果能够定期更换主审会计师，不仅有利于维护注册会计师的独立性，而且可通过后任审计师发现

[5] 引自2003年10月31日的证券时报。

其前任审计师未审计出的问题，从而形成相互监督机制，有利于提高审计质量，保护投资者的合法权益。

纵观各国立法规范审计师轮换相关事宜，无非是认为长期由一个审计师查核，易使审计师丧失独立性进而导致审计质量下降。然而，审计师任期的延长是否就真的会导致审计质量下降，尚无一致性结论。从现有的国内外相关实证文献来看，对审计师轮换的研究基本上是从事务所（刘启亮，2006；陈信元等人，2006；夏立军等人，2005；Ghosh and Moon, 2005; Myers *et al.*, 2004; Myers *et al.*, 2003）层面来展开的，极少部分国外或境外文献（Carey and Simnett, 2006; Chi and Huang, 2005；李建然等，2005）是从事务所合伙人和签字会计师任期层面展开，而国内尚无文献从签字会计师角度展开研究，同时，由于制度背景、职业环境等的差异，国外或境外的结论也不一定适合中国大陆。基于此，本文首次从签字会计师任期的角度，研究它与审计质量的关系，试图为我国签字会计师五年期强制轮换规定提供一些直接的经验证据。我们选择从签字会计师角度而不是事务所角度来展开研究，有以下理由：（1）签字会计师要对审计报告负责，在审计过程中的主要决策者也是签字会计师，因而，相对于会计师事务所，签字会计师的审计行为应当与审计质量有更紧密的联系，直接分析签字会计师的任期比事务所任期更为准确；（2）我国的有关管制规定的对象是签字会计师，而不是事务所，因此基于签字会计师角度分析的结果与政策更相关。

本文使用平衡样本，在控制相关变量的影响后，研究发现在签字会计师强制轮换规定颁布之前：（1）随着签字会计师任期的延长，审计质量得到显著性地改善，且在长任期（>5年），任期对公司盈余管理的抑制作用明显大于短任期（≤5年）；（2）当签字会计师任期大于事务所任期时，随着签字会计师任期的延长，审计质量更低，且在长任期（>5年），审计质量比短任期（≤5年）更差；（3）然而，当签字会计师任期等于或小于事务所任期时，随着签字会计师任期的延长，审计质量更高，且在长任期（>5年），任期对公司盈余管理的抑制作用明显大于短任期（≤5年）；（4）在正向盈余管理中，签字会计师任期的延长有助于抑制公司的正向盈余管理行为；（5）在负向盈余管理中，随着签字会计师任期的延长，公司的盈余管理并未得到控制。

本文的学术贡献在于：（1）首次从签字会计师角度，而不是事务所角度，研究了签字会计师任期与审计质量的关系问题，为我国签字会计师五年期强制轮换规定的合理与否提供了较为直接的经验证据；（2）本文发现当签字会计师跳槽或原事务所破产签字会计师更换事务所带走原有客户（即签字会计师任期大于事务所任期）时，随着签字会计师任期的延长，审计质量更差，而签字会计师任期小于事务所任期时，随着签字会计师任期的延长，审计质量逐渐提高。这就意味着我国的签字会计师五年期强制轮换规定应视情况分类实施。这对于经济转型国家而言，具有积极参考意义。

本文后面部分安排如下：第二部分是文献回顾与研究假设，第三部分是研

究方法，包括变量设定、数据来源与回归模型的说明，第四部分是单变量分析，第五部分是实证结果分析，第六部分是稳健性测试，第七部分是研究结论与不足。

二、文献回顾与研究假设

2.1. 文献回顾

审计质量是发现并报告财务报告误述的联合概率，其中，前者受审计师专业能力的影响，后者则取决于审计师的独立性（DeAngelo, 1981）。就国外文献而言，关于审计师任期对审计质量的影响，历来存在正反两面的不同看法。

一些持否定意见的学者认为审计师任期越长，对审计质量就越存在负面影响。随着审计师任期的延长,审计人员与被审单位沟通的不断增多,审计人员同被审单位及其有关管理人员的关系自然越来越密切。在这种情况下,他们会自觉或潜意识地关心被审单位的利益,从而可能为了避免审计意见对被审单位产生不利影响而放弃应坚持的原则。同时,随着他们对被审单位信任的加深,审计人员也可能不深入调查了解客户的真实情况而听信被审单位提供的各种书面或口头证据,进而降低审计质量。美国Metcalf委员会1976年在向参议院提交的报告中也指出:会计师事务所同被审单位之间的长期联系会使审计人员更加明确被审单位管理当局的利益,从而使他们保持独立性变得很难。Mautz and Sharaf（1961）认为，当审计师的任期越长，越可能与客户建立私人友情，从而使审计师的独立性及客观性受损，进而影响审计质量。Catanach and Walker（1999）在对香港审计失败案例的研究中发现,轻信并接受管理当局对有问题的交易做出的解释是审计失败的原因之一。这些分析都表明审计人员的独立性及由此决定的审计质量,可能随着审计师任期的延长而下降。

少数的实证文献也支持审计师任期的延长对审计质量有负面影响。如Davis *et al.* (2002) 研究发现审计师任期与可操纵性应计数绝对值呈正相关。Chi and Huang （2005）以台湾审计市场为研究对象，使用可操纵性应计数衡量审计质量，同时考虑事务所任期和事务所合伙人任期，发现随着审计师任期的延长，审计师对客户的业务熟悉程度越高，进而也越能提高审计质量，但过度的熟悉反而导致审计质量低下。Carey and Simnett （2006）以澳大利亚审计市场为研究对象，同时采用三种方法衡量审计质量，研究事务所合伙人任期对审计质量的影响，发现当以异常营运资本应计数衡量审计质量时，没有发现审计任期对审计质量产生影响，而在其他两种衡量方法下则都发现审计师任期的延长会损害审计质量。

支持审计师任期对审计质量有正面影响的学者认为，在诉讼规避和虑及声誉的环境下，随着审计师任期的延长，审计师将获得特定客户的专门知识和对

特定风险的了解，减少对管理者估计的依赖，提升其专业能力，进而更有助于审计质量的提高(Petty and Cuganesan, 1996; Myers *et al.*, 2003)；而新轮换的审计师缺乏通过经验积累而形成的对客户经营特质的了解，缺乏对特定客户的专门知识的积累，因而其保持审计独立性的能力受限（Dunham, 2002）。过去的研究也表明，审计失败发生于新委托客户的情况最多（Berton, 1991; Petty and Cuganesan, 1996; Palmrose, 1986, 1991; AICPA, 1992）。美国AICPA（1992）分析了发生于1979至1991年的406个审计失败个案，发现审计第一年及第二年期间发生的失败案例几乎是其他任期的3倍。也有人认为，管理当局主动更换审计师有其信息内涵，一旦实行强制轮换，管理当局可能藉由强制轮换，趁机更换不如意的审计师，进而降低"更换审计师"的信息内涵。从实证方面看，Myers *et al.*（2003）和Ghosh and Moon（2005）以异常应计数作为审计质量的替代变量，发现在美国审计任期越长，审计质量越好。Geiger and Raghunandan（2002）则以审计师对有破产疑虑公司出具持续经营保留审计意见的决策，是否受审计任期的影响为题进行检验，发现审计任期越长，审计师越会对有破产疑虑的公司出具持续经营保留审计意见。另外，Myers *et al.*（2003）以报表重编来衡量审计质量，其实证结果也并未发现审计师任期延长对审计质量有负面影响。Myers *et al.*（2004）比较了美国证券市场上1997年1月至2001年10月间公告过会计报表重述的公司与配对公司在审计任期上的差异。结果表明，没有明显的证据支持长审计任期损害了审计质量。李建然等（2005）以可操纵性应计数作为审计质量的替代变量，发现台湾审计市场在签字会计师任期未被管制的阶段，审计师任期越长越能抑制管理当局的盈余管理行为。

就国内而言，关于审计师任期与审计质量的关系，都是从事务所层面来考察的，而且结论也存在较大的差异。余玉苗、李琳（2003）对审计任期与审计质量的关系进行了理论分析。他们认为，在长审计任期情况下，既存在损害审计质量的因素也存在提高审计质量的因素，因此不能简单地得出审计任期的延长会提高或是降低审计质量的结论。陈信元等（2006）和夏立军等（2005）分别以盈余管理和审计意见类型作为审计质量的替代变量，没有发现审计任期损害审计师独立性的证据，相反，审计任期却有可能改善审计师专业技能而提高审计质量。陈信元等（2006）、刘启亮（2006）考察了事务所任期与审计质量的关系，两篇文章均以操纵性应计利润绝对值作为审计质量的替代变量，分别采用2000年至2002年期间和1998年至2004年期间的上市公司为样本，陈信元等（2006）发现审计任期与审计质量呈倒U型关系，但刘启亮（2006）只在正向盈余管理的子样本中发现两者倒U型关系，而在总样本中，两者显著正相关，即随着事务所任期的延长，上市公司盈余管理的空间越来越大。

综上，美国的实证文献总体上支持审计师任期的延长有助于审计质量的提高，但由于美国和中国大陆的专业制度、法治环境、职业环境等的不同，其结论并不一定适合中国大陆。同时，国内的实证文献都是从事务所层面展开研

究，并未研究签字会计师任期对审计质量的影响。基于此，本文在考虑到我国上市公司外部治理环境的地区差异化差异可能带来的影响后，从签字会计师角度来研究审计师任期与审计质量的关系问题，以期为我国签字会计师任期的强制更换管制提供更为直接的经验证据。

2.2. 研究假设

如前所述，对于审计师任期对审计质量的影响历来存在正反两方面不同的看法。一些持否定意见的学者认为随着审计师任期的增加，其与管理当局较容易产生相互勾结的行为，进而影响审计独立性、降低审计质量（U.S. Senate, 1976; Mauts and Sharaf, 1961；陈信元等，2006；刘启亮，2006）。而支持审计师任期对审计质量有正面影响的认为，审计师任期越长，审计师越可能对客户的经营有更深的了解，反而有助于设计最佳审计程序，尤其是在审计师面临高诉讼成本和虑及声誉成本的情况下（Petty and Cuganesan, 1996; Myers *et al.*, 2003; AICPA, 1978；李建然等，2005）。鉴于审计师任期对审计质量影响的观点尚存歧异，并且，审计师任期与审计质量的关系问题也是一个有待检验的实证问题，本文对签字会计师任期对审计质量影响的方向不作预测。故提出如下假设：

H：签字会计师任期与审计质量相关。

三、研究方法

3.1. 变量设定

3.1.1. 审计质量的衡量

本文借鉴多数文献的作法（Warfield *et al.*, 1995; Francis *et al.*, 1999; Davis *et al.*, 2002; Myers *et al.*, 2003），同时，也为与近期文献一致（如Myers *et al.*, 2003; Ghosh and Moon, 2005; Carey and Simnett, 2006; Blouin *et al.*, 2007），以可操纵性应计数（*DA*）的绝对值（以 |*DA*| 表示），衡量审计师允许管理当局进行盈余管理的空间。不过，一些研究发现，审计师对待管理当局操纵盈余增加或减少的态度并不一致（Kellogg, 1984; Kinney and Martin, 1994; Francis and Krishnan, 1999）。Kinney and Martin（1994）及Trompeter（1994）的研究发现，客户高估盈余（净资产）导致的审计失败比客户低估盈余（净资产）导致的审计失败将给审计师带来更大的损失，进而，审计师更会抑制管理当局操纵盈余增加的行为（正的可操纵性应计数），而会放纵管理当局操纵盈余减少的行为（负的可操纵性应计数）（Kim *et al.*, 2003），而国内现有文献的结果也不一致（陈信元等，2006；刘启亮，2006）。如果仅以 |*DA*| 衡量审计师允许管理当局的空间，就会丧失审计师对盈余管理态度的信息，也无法了解管理当局具体进行盈余管理的

行为方式。因此，本文将进一步探讨签字师任期对正向盈余管理（DA^{+}）及负向盈余管理（DA^{-}）的影响。

已有研究发现，截面Jones模型估计出的可操纵性应计数能够有效地衡量公司盈余管理的程度（Subramanyam, 1996; Bartov *et al.*, 2001; Kothari *et al.*, 2005）。Kothari *et al.*（2005）对比了不同可操纵性应计数的计算方法，发现以当期总资产利润率进行匹配的方法最佳，在Jones模型基础上增加当期总资产利润率的结果次之。夏立军（2003）对多个盈余管理计量模型及其调整模型在中国证券市场的使用效果进行了实证检验，发现分行业估计并且采用线下项目前总应计数作为因变量估计特征参数的截面Jones模型能够较好地揭示公司的盈余管理。结合两项研究结果，本文采用调整后的Jones模型估计出可操纵性应计数（DA_t）（文中称之为DA_1）。首先，运用不同行业不同年份的数据对模型(1)进行OLS回归取得参数α_1、α_2、α_3，再将其代入模型(2)中计算得出不可操纵性应计数，最后将计算所得的不可操纵性应计数代入模型(3)估计出可操纵性应计数（DA_t）。

$$GA_t / A_{t-1} = \alpha_1 (1 / A_{t-1}) + \alpha_2 (\Delta REV_t / A_{t-1}) + \alpha_3 (PPE_t / A_{t-1}) + \alpha_4 ROA_t + \varepsilon_t \tag{1}$$

$$NDA_t = \alpha_1 (1 / A_{t-1}) + \alpha_2 (\Delta REV_t / A_{t-1}) + \alpha_3 (PPE_t / A_{t-1}) + \alpha_4 ROA_t \tag{2}$$

$$DA_t = GA_t / A_{t-1} - NDA_t \tag{3}$$

其中，$GA_t = EBXI_t - CFO_t$，其中$EBXI_t$为第t期经营利润，CFO_t为第t期的经营活动现金流量；

A_{t-1}：第$t-1$期期末总资产；

NDA_t：经过$t-1$期期末总资产调整后的第t期的非操控性应计数；

ΔREV_t：第t期和第$t-1$期主营业务收入的差额；

PPE_t：第t期期末总的厂场、设备等固定资产价值；

ROA_t：第i家公司第t期的总资产利润率，当年的净利润除以期末的总资产；

同时，为增强文中结论的可靠性，本文同时采用了基本Jones模型来计算DA（文中称之为DA_2）。首先，运用不同行业不同年份的数据对模型(4)进行OLS回归取得参数α_1、α_2、α_3，再将其代入模型(5)中计算得出不可操纵性应计数，最后将计算所得的不可操纵性应计数代入模型(6)估计出可操纵性应计数（DA_t）。

$$TA_t / A_{t-1} = \alpha_1 (1 / A_{t-1}) + \alpha_2 (\Delta REV_t / A_{t-1}) + \alpha_3 (PPE_t / A_{t-1}) + \varepsilon_t \tag{4}$$

$$NDA_t = \alpha_1 (1 / A_{t-1}) + \alpha_2 (\Delta REV_t / A_{t-1}) + \alpha_3 (PPE_t / A_{t-1}) \tag{5}$$

$$DA_t = TA_t / A_{t-1} - NDA_t \tag{6}$$

其中，$TA_t = NT_t - CFO_t$，其中NT_t为第t期净利润，CFO_t为第t期的经营活动现金流量；

A_{t-1}：第$t-1$期期末总资产；

NDA_t：经过$t-1$期期末总资产调整后的第t期的非操控性应计数；

ΔREV_t：第t期和第$t-1$期主营业务收入的差额；

PPE_t：第t期期末总的厂场、设备等固定资产价值。

3.1.2. 解释变量

签字会计师五年期强制轮换，是指签字注册审计师或审计项目负责人连续为某一相关机构提供审计服务，不得超过五年。我国虽存在签字会计师并非审计项目负责人的现象，但若审计报告出现问题，责任是由签字会计师和事务所承担，签字会计师将因此声誉受损，还有可能受到吊销资格等行政处罚，故我们选择签字会计师而非审计项目负责人作为研究对象。根据该轮换政策的涵义，其所关注的是两个联合签证的审计师中连续查核签证达到五年的任期长的签字会计师，因此，本文在签字会计师任期的衡量上，从公司上市之年开始计算签字会计师任期，取两个签字会计师的较长任期作为他们的审计任期，只要前后两年有一位签字会计师连续审计，即视为任期的延续，予以累加任期。当出现签字会计师跳槽或事务所撤销时，公司当年仍由上年的签字会计师审计，则签字会计师任期同样予以累加。

3.1.3. 控制变量

构成我国公司治理环境的因素逐年变迁，直接或间接地影响审计质量。公司治理环境越好，越有利于事务所保持其独立性，提升审计质量，因此，市场化程度与审计质量正相关，即市场化*RANK_M*与 $|DA|$ 正相关。本文以上市公司注册所在地的市场化程度排名衡量公司治理环境，其中，上市公司注册所在地的市场化指数越高，市场化程度越高，排名越低。[6]

*BIG15*是虚拟变量，用以控制事务所规模对可操纵性应计数的影响（DeAngelo, 1981; Becker *et al.*, 1998; Francis *et al.*, 1999; Francis and Krishnan, 1999; Myers *et al.*, 2003）。本文以证监会会计部发布的《具备执行A股公司审计的会计师事务所名单》（会计部便函[2002]25号）中的15家事务所作为我国的大型事务所。[7]如果负责公司当年年度报告审计的是十五家事务所或该事务所的前身，则*BIG15*取1，否则取0，预期符号为负。成长型公司（*GW*）的可操纵性应计数绝对值较大（Ghosh and Moon, 2005）；另外，很多实证文献表明，总资产利润率

6　由于樊纲和王小鲁（2001）与樊纲和王小鲁（2004）市场化指数的计算公式存在差异，而计算的结果并不影响排名，因此，本文对市场化程度的衡量采用排名的方式。

7　十五家具备专项复核资格的事务所分别为：天健、北京京都、毕马威华振、信永中和、上海立信长江、上海众华沪银、安永大华、德勤华永、普华永道中天、江苏天衡、浙江天健、厦门天健、广东正中珠江、深圳大华天诚、深圳天健信德。在稳健性检验中，按照事务所所审计上市公司总资产总额排名，将每年度排名前十位的事务所代替这十五家事务所对模型进行了重新回归。

（*ROA*）、负债比例（*LEV*）、公司规模（*SIZE*）、现金流量（*CFO*）、上市年限（*AGE*）、审计意见类型（*OP*）及审计事务所任期（*TENURE*）与盈余管理有关（Warfield *et al.*, 1995; Becker *et al.*, 1998; Dechow *et al.*, 1995; Myers *et al.*, 2003），因此在模型中也将其纳入了控制变量。

3.2. 样本选择和数据来源

我国大陆地区实施签字会计师任期轮换规定虽然是2004年，但该规定的颁布日期是2003年10月8日，因而，它或多或少都会对部分上市公司2003年度的审计报告产生影响，故本文的样本期间截至到2002年。另外，本文计算总应计数采用的是现金流量表法，而我国现金流量表的编制始于1998年，因此，本文选择1998年至2002年作为研究期间。但由于可操纵性应计数的计算涉及到前一期的总资产与销售收入，故1997年已上市且具有总资产与销售收入资料的上市公司才能作为本文样本。

同时，为避免小样本造成的误差，剔除了1998年至2002年期间年度公司观察值不足10个的行业。由于金融保险行业公司应计利润与其他行业相比具有独特的特征，不适用于Jones模型，故从样本中剔除。根据过去相关文献，上市年限较短的公司，其盈余管理行为可能异于一般的公司（Lev and Zarowin, 1999），若包括新上市的公司，则可能无法代表在一般情况下，签字会计师任期与审计质量之间的关系（Ghosh and Moon, 2005）。同时，为了分析审计师对同一客户连续审计的行为选择问题，须使用面板数据（panel data）以平衡样本（balanced sample）进行分析，方能真正了解审计师任期与盈余管理的关系（李建然等，2005）。因此，相对于以全样本为研究对象，使用平衡样本可能更能增强结论的稳健性。据此，从样本中剔除从1998年至2002年期间缺乏完整时间序列资料的公司，最后剩下了299家公司，共获1495个公司/年度观察值（见表1）。该平衡样本共涵盖了9个行业，其中制造业中包括了7个子行业（见表2）。上市公司的行业分类标准采用中国证监会的分类标准，由于制造业所包括的上市公司数量众多采用二级分类，其他行业皆采用一级分类。本文的上市公司财务数据来自国泰安信息技术有限公司的中国上市财务数据库（CSMAR），上市公司注册所在地的市场化指数数据来自樊纲等人2001年和2004年编著的《中国市场化指数》，签字会计师任期的数据是作者在CSMAR的中国上市公司财务报告审计意见数据库披露数据的基础上通过手工逐年收集、核对获得。

3.3. 回归模型

对于平衡样本（总样本）通常采用固定效应和随机效应两种分析方法，同时，为了结论的稳健性，本文也使用了OLS回归；按签字会计师任期与事务所任期关系区分的各子样本、按事务所任期区分的各子样本、按可操控性应计数符号区分的各子样本仅采用OLS回归。本文所采用的统计软件为STATA 8.2，回归模型如下：

表1　样本收集过程

1997年上市公司（来自CSMAR数据库）A	723
减：金融行业公司B	4
所处行业不足10家上市公司的公司C	39
计算*DA*的样本公司D＝A－B－C	680
减：1998年至2002年间跨期小于5年的公司E	16
上市后至2002年签字会计师任期数据缺省的公司F	353
1997年至2001年间主营业务收入为0的公司G	12
最后总样本H＝D－E－F－G	299

表2　总样本的行业分布情况

具体行业	公司/年度观察值（个）	%
农、林、牧、渔业	15	1.00
制造业	710	47.49
电子	40	2.68
纺织、服装、皮毛	40	2.68
金属、非金属	140	9.35
石油、化学、塑胶、塑料	135	9.03
医药、生物制品	85	5.69
食品、饮料	10	0.67
机械、设备、仪表	260	17.39
信息技术业	130	8.70
社会服务业	50	3.34
批发和零售贸易	175	11.71
交通运输、仓储业	55	3.68
房地产业	80	5.35
电力、煤气及水生产和供应业	70	4.68
综合类	210	14.05
合计	1495	100

$$|DA_{it}|\text{（或}DA_{it}^{+}\text{或}DA_{it}^{-}\text{）}=\beta_0+\beta_1 CPA_{it}+\beta_2 RANK\_M_{it}+\beta_3 ROA_{it}+\beta_4 BIG15_{it}+\beta_5 GW_{it} \\ +\beta_6 LEV_{it}+\beta_7 CFO_{it}+\beta_8 SIZE_{it}+\beta_9 AGE_{it}+\beta_{10} OP_{it}+\beta_{11} TENURE_{it}+\varepsilon_{it} \qquad (7)$$

其中：

$|DA_{it}|$：第i家公司第t期可操纵性应计数的绝对值；

DA_{it}^{+}（DA_{it}^{-}）：第i家公司第t期的正向可操纵性应计数（负向可操纵性应计数）；

CPA_{it}：第i家公司第t期的任期年数最长的签字会计师任期数，以年数计算；

$RANK\_M_{it}$：第i家公司注册地所处省份的第t期全国市场化指数的排名；

ROA_{it}：第i家公司第t期的总资产利润率，等于当年的净利润除以期末的总资产；

$BIG15_{it}$：第i家公司第t期聘请的事务所为十五大（或其前身）取值1，否则为0；

GW_{it}：第i家公司第t期的销售收入成长率，等于主营业务收入变化额与其上年数的比值；

LEV_{it}：第i家公司第t期的负债比率，等于当期负债总额除以当期资产总额；

CFO_{it}：第i家公司第t期经营活动的现金流量除以期初总资产；

$SIZE_{it}$：第i家公司第t期期末资产总额取自然对数；

AGE_{it}：第i家公司第t期期末的上市年限；

OP_{it}：第i家公司第t期期末被出具审计意见类型，若被出具非标意见取1，否则取0；

$TENURE_{it}$：第i家公司第t期期末所聘请审计事务所的年限，若事务所发生合并后客户所聘请的是合并后的事务所，则认为是原事务所的连任。

四、单变量分析

表3显示，$|DA_1|$、DA_1^+、DA_1^- 的均值分别为0.061、0.063、–0.061，中位数分别为0.042、0.041、–0.043，$|DA_2|$、DA_2^+、DA_2^- 的均值分别为0.073、0.069、–0.076，中位数分别为0.048、0.046、–0.052。签字会计师任期的均值为3.116年，最长任期为9年，最短任期为1年。签字会计师任期与盈余管理的关系如图1、图2、图3所示，总体表明，随着签字会计师任期的延长，审计质量有所提高。从表4来看，任期2年的样本所占比例最高（24.68%），任期超过5年的样本所占比例也约占11%，藉此可以看出签字会计师任期超过5年的并不多。表4还显示，任期超过5年的$|DA|$均值都小于任期小于或等于5年的$|DA|$均值，因此，本文进一步比较签字会计师任期超过5年与签字会计师任期小于或等于5年各年上市公司的特征（以任期超过5年的样本的$|DA|$均值年为基础）。比较结果如表5所示，平均来说，除了任期为5年外，任期超过5年的审计质量显著地优于任期小于5年的审计质量；同时，与任期小于或等于5年的公司相比，任期超过5年上市公司的公司治理环境状况更好、更多的是由十五大事务所审计、公司规模更大、上市年限更长及事务所任期更长。

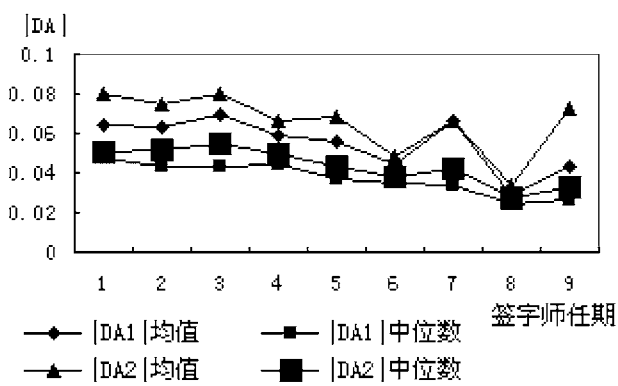
对平衡样本进行相关性检验（见表6），发现不论是Spearman检验还是Pearson检验，$|DA|$与签字会计师任期相关系数均在5%显著性水平下为负，其中，Spearman检验的系数为–0.09，Pearson检验的系数为–0.07。

综上，总体而言，随着签字会计师任期的延长，审计质量逐渐提高。以上是单变量分析，其结果有待进一步检验。

表3　平衡样本的描述性统计表

变量	平均数	中位数	最大值	最小值	标准差
$\|DA_1\|$	0.061	0.042	1.318	0.00003	0.071
$\|DA_2\|$	0.073	0.048	1.252	0.0001	0.088
DA_1^+ (N＝651)	0.063	0.041	1.383	0.0003	0.085
DA_1^- (N＝844)	−0.061	−0.043	−0.0003	−0.449	0.058
DA_2^+ (N＝721)	0.069	0.046	1.252	0.0001	0.086
DA_2^- (N＝774)	−0.076	−0.052	−0.0003	−0.934	0.090
CPA	3.116	3	9	1	1.801
RANK_M	9.668	7.000	30.000	1.000	7.624
ROA	0.019	0.037	0.377	−3.568	0.152
BIG15	0.302	0.000	1.000	0.000	0.459
GW	0.446	0.100	206.264	−0.998	5.660
LEV	0.485	0.455	7.152	0.009	0.323
CFO	0.046	0.041	0.654	−1.450	0.111
SIZE	20.858	20.814	23.603	17.885	0.909
AGE	5.833	6.000	13.000	2.000	2.254
OP	0.177	0.000	1.000	0.000	0.382
TENURE	4.627	4.000	11.000	1.000	2.457

图1　签字师任期与盈余管理空间（$|DA|$）的关系



五、实证结果分析

如模型I（见表7）所示，在控制其它变量的影响后，利用平衡样本，使用固定效果、随机效果和OLS回归方法对平衡样本进行分析，发现当以$|DA|$衡量盈余管理的弹性空间时，签字会计师任期与可操纵性应计数绝对值基本显著性为

图2　签字师任期与正向盈余管理（*DA*>0）的关系

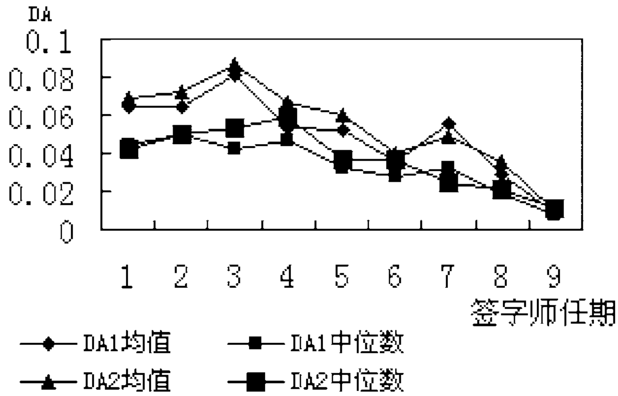
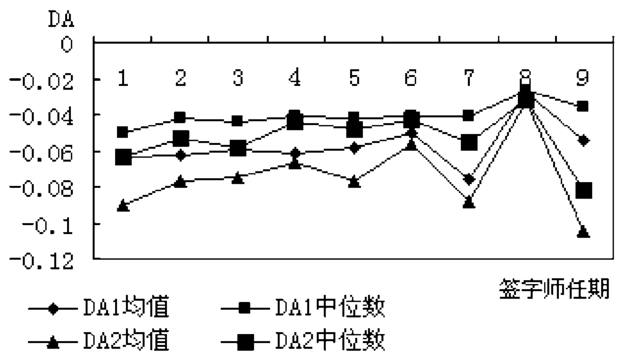


图3　签字师任期与负向盈余管理（*DA*<0）的关系



负。这说明随着签字会计师任期的延长，审计质量越高。进一步，国内签字会计师任期轮换的政策含义是签字会计师任期超过五年仍继续进行审计业务可能会损害审计质量。为检验该政策的合理性，本文将签字会计师所任期分为短任期（*CPA*≤5）与长任期（*CPA*>5），从盈余管理弹性空间来解释政策的含义，同时，为了保持平衡样本的结构完整，本文分别采用虚拟变量（*DUM*，如果签字会计师任期大于五年则*DUM*取1，否则取0）来替代回归模型中签字会计师任期的连续变量（*CPA*）及在回归模型中新增签字会计师任期与虚拟变量的交乘项（*CPA**DUM*）。如果该政策合理，则虚拟变量的系数应显著为正；如果*CPA*连续变量对|*DA*|的影响在长短任期下有所不同的话，则交乘项的系数应显著异于0。结果如模型II（见表7）所示，*DUM*的系数显著性为负，并不支持政策制定者的预期，反而呈现相反的结果。此外，如模型III（见表7）所示，我们发现*CPA*的系数为负但并不显著，*CPA*DUM*的系数显著为负。这说明签字会计师任

表4　不同任期的变量特征表

CPA	1	2	3	4	5	>5
样本	302	369	291	207	156	170
占总体样本%	20.20	24.68	19.46	13.85	10.44	11.37
$\|DA_1\|$	0.064	0.063	0.069	0.059	0.055	0.048
$\|DA_2\|$	0.080	0.075	0.080	0.066	0.069	0.053
RANK_M	11.156	10.260	9.667	9.599	8.801	6.624
ROA	−0.009	0.027	0.032	0.032	0.014	0.023
BIG15	0.215	0.228	0.254	0.300	0.429	0.588
GW	0.250	0.864	0.226	0.655	0.223	0.216
LEV	0.543	0.481	0.464	0.457	0.465	0.479
CFO	0.041	0.044	0.045	0.057	0.039	0.058
SIZE	20.743	20.764	20.817	20.929	20.980	21.137
AGE	5.613	5.458	5.275	5.739	6.340	7.641
OP	0.228	0.176	0.168	0.179	0.167	0.112
TENURE	3.162	3.989	4.443	4.986	5.763	7.453

表5　不同任期的变量均值比较表

比较期间	1 vs. >5	2 vs. >5	3 vs. >5	4 vs. >5	5 vs. >5
$\|DA_1\|$	0.016**	0.015**	0.021**	0.011*	0.007
$\|DA_2\|$	0.027**	0.022**	0.027**	0.013**	0.016**
RANK_M	4.532**	3.636**	3.043**	2.975**	2.177**
ROA	−0.032*	0.004	0.009	0.009	−0.009
BIG15	−0.373**	−0.360**	−0.334**	−0.288**	−0.159**
GW	0.034	0.648	0.010	0.439	0.007
LEV	0.064*	0.002	−0.015	−0.022	−0.014
CFO	−0.017*	−0.014	−0.013	−0.001	−0.019**
SIZE	−0.394*	−0.373**	−0.320**	−0.208**	−0.157*
AGE	−2.028*	−2.183**	−2.366**	−1.902**	−1.301**
OP	0.116*	0.064**	0.056*	0.067*	0.055
TENURE	−4.291*	−3.464**	−3.010**	−2.467**	−1.690**

注：**表示在5%水平下显著，*表示在10%水平下显著。

表6 变量的相关性检验

	|*DA*|	*CPA*	*RANK_M*	*ROA*	*BIG15*	*GW*	*LEV*	*CFO*	*SIZE*	*AGE*	*OP*	*TENURE*
|*DA*|		−0.09**	−0.05*	0.12**	−0.05**	0.05*	0.03	0.03	−0.05*	−0.07*	0.01	−0.06**
CPA	−0.07**		−0.15**	−0.02	0.22**	0.05**	−0.01	0.04*	0.12**	0.22**	−0.07**	0.50**
RANK_M	−0.04	−0.17**		−0.001	−0.34**	−0.01	−0.05*	−0.08**	−0.14**	−0.22*	−0.10**	−0.19**
ROA	−0.03	0.039	0.029		−0.02**	0.29**	−0.45**	0.34**	0.03	−0.28*	−0.33**	−0.15**
BIG15	−0.03	0.25**	−0.35**	0.01		0.03	0.05*	0.03	0.16**	0.21**	0.12**	0.23**
GW	0.02	−0.014	−0.032	0.03	0.001		0.02	0.25**	0.13**	0.05**	−0.19**	0.04
LEV	0.08*	−0.05**	−0.05*	−0.46**	0.012	0.001		−0.18**	0.06**	0.25**	0.25**	0.13**
CFO	−0.25*	0.045*	−0.05**	0.14**	0	0.009	−0.10**		0.15**	0.04*	−0.22**	0.08**
SIZE	−0.05*	0.14**	−0.14**	0.13**	0.15**	−0.05**	−0.11**	0.09**		0.15**	−0.14**	0.19**
AGE	−0.01	0.28**	−0.21**	−0.15**	0.22**	0.03	0.18**	0.01	0.15**		0.04*	0.54**
OP	0.003	−0.07**	−0.09**	−0.27**	0.12**	0.07**	0.30**	−0.14**	−0.15**	0.04		−0.07**
TENURE	−0.02	0.52**	−0.22**	−0.03	0.24**	−0.02	0.03	0.05*	0.21**	0.57**	−0.07**	

说明：(1) **表示在5%水平下显著，*表示在10%水平下显著；(2) 右上方为Spearman相关系数，左下方为Pearson相关系数；(3) 此处的|*DA*|是指$|DA_1|$，由于$|DA_2|$的结果与$|DA_1|$类似，为节省篇幅，本处未将$|DA_2|$的结果列示。

表7　签字会计师任期对盈余管理空间的影响

平衡样本	预期符号	模型 I						模型 II		
		$\|DA_1\|$			$\|DA_2\|$			$\|DA_1\|$		
		固定	随机	OLS	固定	随机	OLS	固定	随机	OLS
常数项		−0.100	0.113	0.120	0.141	0.239	0.233	−0.100	0.106	0.112
		(0.43)	(0.02)	(0.01)	(0.30)	(0.00)	(0.00)	(0.43)	(0.02)	(0.01)
CPA	?	−0.002	−0.003	−0.003	−0.0009	−0.002	−0.002			
		(0.19)	(0.02)	(0.01)	(0.60)	(0.09)	(0.06)			
DUM	?							−0.013	−0.014	−0.014
								(0.03)	(0.01)	(0.00)
*CPA*DUM*	?									
RANK_M	+	−0.0001	−0.001	−0.001	0.0006	−0.001	−0.001	0.0001	−0.001	−0.001
		(0.95)	(0.02)	(0.01)	(0.48)	(0.06)	(0.03)	(0.92)	(0.02)	(0.01)
ROA	−	−0.004	0.012	0.016	−0.282	−0.256	−0.246	−0.005	−0.011	0.015
		(0.80)	(0.37)	(0.24)	(0.00)	(0.00)	(0.00)	(0.75)	(0.42)	(0.27)
BIG15	−	−0.015	−0.005	−0.004	−0.010	−0.006	−0.006	−0.014	−0.004	−0.004
		(0.10)	(0.32)	(0.37)	(0.32)	(0.23)	(0.22)	(0.11)	(0.35)	(0.39)
GW	+	0.0001	0.002	0.0002	0.001	0.001	0.001	0.0001	0.002	0.0002
		(0.84)	(0.52)	(0.44)	(0.08)	(0.02)	(0.00)	(0.87)	(0.54)	(0.46)
LEV	+	0.011	0.016	0.017	−0.018	0.007	0.014	0.011	0.016	0.017
		(0.23)	(0.02)	(0.01)	(0.06)	(0.33)	(0.05)	(0.23)	(0.02)	(0.01)
CFO	−	−0.145	−0.161	−0.162	−0.138	−0.144	−0.144	−0.148	−0.162	−0.164
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
SIZE	−	0.009	0.002	−0.002	0.001	−0.007	−0.007	0.009	−0.016	−0.002
		(0.15)	(0.47)	(0.33)	(0.86)	(0.01)	(0.00)	(0.16)	(0.48)	(0.34)
AGE	−	−0.002	−0.001	−0.001	−0.004	−0.001	−0.001	−0.001	−0.005	−0.0004
		(0.29)	(0.52)	(0.53)	(0.02)	(0.25)	(0.47)	(0.38)	(0.64)	(0.66)
OP	?	−0.013	−0.011	−0.011	−0.019	−0.011	−0.010	−0.013	−0.11	−0.011
		(0.05)	(0.04)	(0.03)	(0.01)	(0.05)	(0.07)	(0.05)	(0.03)	(0.03)
TENURE	+	0.002	0.001	0.001	0.0006	0.0006	0.0005	0.0002	0.001	0.001
		(0.90)	(0.34)	(0.29)	(0.70)	(0.60)	(0.67)	(0.90)	(0.43)	(0.39)
R^2		0.06	0.98	0.09	0.24	0.27	0.29	0.07	0.09	0.08
Adjust-R^2		0.05	0.08	0.07	0.22	0.26	0.27	0.05	0.08	0.07
χ^2值/F值		7.01	117.22	11.40	38.10	532.72	49.96	7.31	119.38	11.56
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Hausman test		14.24			41.51			13.80		
		(P = 0.22)			(0.00)			(0.24)		
*CPA + CPA*DUM*										

注：(1) *DUM*，哑变量，如果签字会计师任期大于五年则取1，否则取0；(2) 括号内为P值。

			模型 III					
$\lvert DA_2\rvert$			$\lvert DA_1\rvert$			$\lvert DA_2\rvert$		
固定	随机	OLS	固定	随机	OLS	固定	随机	OLS
0.144	0.233	0.227	−0.100	0.107	0.114	0.146	0.230	0.225
(0.28)	(0.00)	(0.00)	(0.44)	(0.02)	(0.01)	(0.28)	(0.00)	(0.00)
			0.0004	−0.0004	−0.001	0.003	0.0015	0.001
			(0.88)	(0.82)	(0.74)	(0.20)	(0.48)	(0.64)
−0.015	−0.014	−0.014						
(0.03)	(0.01)	(0.01)						
			−0.003	−0.022	−0.002	−0.004	−0.003	−0.003
			(0.09)	(0.10)	(0.13)	(0.01)	(0.03)	(0.05)
0.001	−0.001	−0.001	0.0001	−0.001	−0.001	0.0001	−0.001	−0.001
(0.39)	(0.07)	(0.03)	(0.95)	(0.02)	(0.01)	(0.37)	(0.07)	(0.03)
−0.282	−0.257	−0.248	−0.004	0.111	0.015	−0.283	−0.258	−0.248
(0.00)	(0.00)	(0.00)	(0.76)	(0.40)	(0.26)	(0.00)	(0.00)	(0.00)
−0.009	−0.006	−0.005	−0.014	−0.004	−0.003	−0.008	−0.005	−0.005
(0.38)	(0.29)	(0.27)	(0.12)	(0.38)	(0.43)	(0.39)	(0.30)	(0.28)
0.001	0.001	0.001	0.0001	0.0002	0.0002	0.001	0.001	0.001
(0.01)	(0.00)	(0.00)	(0.87)	(0.54)	(0.46)	(0.01)	(0.00)	(0.00)
−0.018	0.007	0.014	0.011	0.016	0.017	−0.018	0.007	0.014
(0.06)	(0.34)	(0.05)	(0.23)	(0.02)	(0.01)	(0.07)	(0.33)	(0.05)
−0.141	−0.145	−0.145	−0.147	−0.0161	−0.163	−0.141	−0.145	−0.145
(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
−0.002	−0.007	−0.007	0.008	−0.002	−0.002	−0.002	−0.007	−0.007
(0.81)	(0.01)	(0.00)	(0.17)	(0.47)	(0.33)	(0.75)	(0.01)	(0.00)
−0.004	−0.001	−0.001	−0.001	−0.005	0.0004	−0.003	−0.001	−0.001
(0.04)	(0.32)	(0.57)	(0.43)	(0.67)	(0.67)	(0.06)	(0.40)	(0.64)
−0.019	−0.11	−0.010	−0.013	−0.011	−0.011	−0.020	−0.011	−0.010
(0.01)	(0.05)	(0.07)	(0.05)	(0.03)	(0.03)	(0.00)	(0.05)	(0.06)
0.001	0.001	0.0004	0.0002	0.001	0.001	0.0006	0.0006	0.0004
(0.41)	(0.53)	(0.68)	(0.90)	(0.37)	(0.31)	(0.68)	(0.64)	(0.73)
0.23	0.29	0.28	0.07	0.09	0.08	0.23	0.29	0.28
0.22	0.27	0.27	0.05	0.08	0.07	0.22	0.27	0.27
38.68	538.10	50.37	6.68	119.90	10.65	35.61	539.04	46.22
(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
40.86			14.67			43.70		
(0.00)			(0.26)			(0.00)		
			−0.002	−0.022	−0.003	−0.001	−0.001	−0.002
			(0.19)	(0.03)	(0.02)	(0.61)	(0.19)	(0.13)

期大于5年（$DUM = 1$）时，任期对$|DA|$的影响好于签字师任期小于或等于五年（$DUM = 0$）时CPA对$|DA|$的影响，表明签字会计师长任期（$CPA > 5$）有助于改善审计质量，说明监管当局的签字会计师5年期强制轮换规定可能会与其监管意图相违背。[8]

尽管总体来看，随着签字会计师任期的延长，审计质量会提高，但是每个签字会计师与公司的任期关系会存在差异，主要包括两类情况：一类是签字会计师任期大于事务所任期的情况，这种情况一般是签字会计师跳槽或原事务所解散签字会计师转向其他事务所时带走原有客户的情况，在这种情况下，签字会计师一般与客户关系较好，从而在签字会计师更换事务所后，仍保持审计关系。但这种"友好"关系，可能会损害签字会计师的独立性，影响其审计质量。另一类是签字会计师任期小于或等于事务所任期的情况。在这种情况下，签字会计师可能与客户没有私人友情，有利于保持其独立性，同时，随着任期的延长，有利于增强其对特定客户的专门知识和对特定风险的了解，减少对管理者估计的依赖,提升其专业能力，进而更有助于审计质量的提高。基于此，本文将全部样本分为两组子样本进行回归，其中，签字会计师任期大于事务所任期的为一组，签字会计师任期等于或小于事务所任期的为一组。结果如表8所示，在签字会计师任期大于事务所任期的字样本中，随着签字审计师任期的延长，审计质量并没有提高，同时，DUM和$CPA*DUM$的系数显著为正，表明签字会计师的长任期（$CPA > 5$）会损害审计质量。说明对于此类情况，五年期强制轮换规定有助于控制审计质量的降低。在签字会计师任期小于或等于事务所任期的字样本中，随着签字师任期的延长，审计质量逐渐提高，同时，签字会计师长任期（$CPA > 5$）有助于改善审计质量。说明对于此类情况，五年期强制轮换规定反而不利于审计质量的提高。

由于事务所任期和签字会计师任期对盈余管理可能存在交互影响而不易区分它们各自对盈余管理的影响，这就需进一步在控制事务所任期的前提下，来研究签字会计师任期对盈余管理的影响，使得签字会计师对盈余管理影响作用的结论更为稳健。基于此，本文按事务所任期将样本观察值分为5组，在控制事务所任期的情况下来分析签字会计师任期对盈余管理的影响。即按事务所任期1–2年、3–4年、5–6年、7–8年、9–10年将全部样本观察值分割为五组子样本，其中11年由于只有5个样本观察值，本文没有考虑该组子样本。其中，1–2年组、3–4年组子样本中，签字会计师任期大于事务所任期的样本观察值分别有51个和18个，签字会计师任期大于5年的样本观察值分别有2个和3个，在5–6年、7–8年、9–10年组子样本中，签字会计师任期大于事务所任期的样本观察

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[8] 同时，我们按$DUM = 0$与$DUM = 1$将样本观察值分成两组，发现在$DUM = 0$的样本组中，CPA与$|DA_1|$和$|DA_2|$系数的符号不一致，且均不显著，在$DUM = 1$的样本组中，CPA与$|DA_1|$的系数是–0.005，p值是0.1056，CPA与$|DA_2|$的系数是–0.006，p值是0.1328。

表8　将样本按签字会计师任期与事务所任期分组后的回归结果

	预期符号	签字会计师任期≤事务所任期（N=1422）						签字会计师任期>事务所任期（N=73）					
		模型 I		模型 II		模型 III		模型 I		模型 II		模型 III	
		$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$
常数项		0.123	0.234	0.113	0.227	0.115	0.224	0.430	0.535	0.459	0.562	0.453	0.554
		(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
CPA	?	−0.003	−0.003			−0.001	0.001	0.009	0.007			−0.003	−0.003
		(0.01)	(0.06)			(0.81)	(0.56)	(0.24)	(0.36)			(0.77)	(0.80)
DUM	?			−0.016	−0.015					0.032	0.028		
				(0.00)	(0.01)					(0.04)	(0.09)		
*CPA*DUM*	?					−0.003	−0.003					0.007	0.006
						(0.08)	(0.04)					(0.09)	(0.18)
RANK_M	+	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.001	−0.0004	−0.001	−0.0004	−0.001	−0.0003
		(0.01)	(0.02)	(0.01)	(0.03)	(0.01)	(0.03)	(0.24)	(0.59)	(0.23)	(0.58)	(0.31)	(0.68)
ROA	−	0.015	−0.247	0.014	−0.248	0.014	−0.248	0.021	−0.380	0.002	−0.396	−0.008	−0.405
		(0.27)	(0.00)	(0.31)	(0.00)	(0.30)	(0.00)	(0.87)	(0.01)	(0.99)	(0.00)	(0.95)	(0.00)
BIG15	−	−0.006	−0.008	−0.005	−0.007	−0.005	−0.007	0.022	0.020	0.021	0.019	0.020	0.019
		(0.21)	(0.13)	(0.23)	(0.16)	(0.25)	(0.16)	(0.18)	(0.22)	(0.18)	(0.23)	(0.21)	(0.26)
GW	+	0.0002	0.001	0.0002	0.001	0.0002	0.001	0.013	0.013	0.012	0.013	0.012	0.013
		(0.49)	(0.00)	(0.51)	(0.00)	(0.51)	(0.00)	(0.14)	(0.14)	(0.15)	(0.15)	(0.15)	(0.15)
LEV	+	0.016	0.013	0.016	0.013	0.016	0.013	0.034	−0.005	0.033	−0.006	0.033	−0.005
		(0.02)	(0.07)	(0.02)	(0.07)	(0.02)	(0.07)	(0.46)	(0.92)	(0.46)	(0.90)	(0.46)	(0.91)

表8 （续）

	预期符号	签字会计师任期≤事务所任期（N＝1422）						签字会计师任期＞事务所任期（N＝73）					
		模型I		模型II		模型III		模型I		模型II		模型III	
		$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$
CFO	–	–0.177	–0.159	–0.177	–0.159	–0.177	–0.159	0.189	0.264	0.212	0.285	0.212	0.284
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
SIZE	–	–0.002	–0.006	–0.002	–0.006	–0.002	–0.006	–0.019	–0.023	–0.020	–0.023	–0.019	–0.022
		(0.33)	(0.01)	(0.35)	(0.01)	(0.34)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)
AGE	–	–0.001	–0.001	–0.0005	–0.001	–0.0005	–0.001	–0.005	–0.003	–0.005	–0.003	–0.005	–0.003
		(0.46)	(0.38)	(0.63)	(0.49)	(0.65)	(0.59)	(0.21)	(0.46)	(0.20)	(0.44)	(0.20)	(0.45)
OP	+	–0.011	–0.010	–0.011	–0.010	–0.011	–0.010	0.020	0.028	0.021	0.029	0.022	0.029
		(0.04)	(0.08)	(0.04)	(0.08)	(0.03)	(0.07)	(0.26)	(0.14)	(0.23)	(0.12)	(0.22)	(0.12)
TENURE	+	0.002	0.001	0.001	0.001	0.001	0.001	–0.002	–0.009	–0.002	–0.009	–0.002	–0.009
		(0.17)	(0.52)	(0.26)	(0.52)	(0.22)	(0.65)	(0.77)	(0.22)	(0.70)	(0.11)	(0.73)	(0.21)
R^2		0.09	0.09	0.09	0.28	0.28	0.28	0.31	0.34	0.34	0.40	0.42	0.41
Adj.R^2		0.08	0.08	0.08	0.27	0.28	0.28	0.18	0.22	0.21	0.29	0.31	0.30
F值		12.5	12.75	11.73	49.53	50	45.88	2.47	2.48	2.58	3.64	3.94	3.53
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

注：(1) N为子样本的观察值个数；(2) *DUM*，哑变量，如果签字会计师任期大于五年则取1，否则取0；(3) 括号为P值。

值分别有3个、1个和0个，签字会计师任期大于5年的样本观察值分别有47个、69个和46个。[9]这就意味着，1–2年组、3–4年组子样中，签字会计师跳槽或原事务所解散签字会计师转向其他事务所时带走原有客户的情况较多，而在5–6年、7–8年、9–10年组子样本中，则较少。由于各组子样本的结构有较大差异，并且事务所的影响已基本被控制，于是，在回归中不再纳入*DUM*和*TENURE*变量。结果如表9所示，在5–6年、7–8年、9–10年组子样本中，随着签字师任期的延长，盈余管理空间越来越小，审计质量越来越高，但在1–2年、3–4年组子样本中，这种负向关系并不显著，审计质量并没有提高。这可能是由于在1–2年、3–4年组子样本中，签字审计师跳槽或事务所解散审计师转向其他事务所时带走原有客户的样本观察值多于5–6年、7–8年、9–10年组子样本所致，也可能是在1–2年、3–4年组子样本中，签字会计师的任期也较短，他们还不充分了解特定客户的专门知识和特定风险，其专业能力没有得到提高，因而其审计质量也无法提高。从后面表10的结果来看，后一种解释可能更有说服力。

同时，将各组子样本中签字会计师任期大于事务所任期的样本剔出后按表9模式回归，结果如表10所示，其中，在1–2年、3–4年样本组，*CPA*系数均为负，仍均不显著，在5–6年组子样本中，当以$|DA_1|$为因变量时，*CPA*的系数是–0.003，P值是0.12，当以$|DA_2|$为因变量时，*CPA*的系数是–0.004，P值是0.08。在5–6年、7–8年、9–10年子样本组中，*CPA*系数仍基本显著为负。由于剔除了签字会计师任期大于事务所任期的样本，这样，在1–2年样本组，签字会计师任期均不会超过2年，在3–4年样本组中，均不会超过4年，可以看出在签字会计师短任期里，审计质量随着任期的延长没有明显提高，但在长任期里（从5到10年），随着签字会计师任期的延长，审计质量逐渐提高。这说明随着签字会计师对特定客户的专门知识和对特定风险的了解，其专业能力在逐步提升，其审计质量也在逐步提高。因而，对签字会计师任期小于事务所任期的情况而言，如前所述，五年期强制轮换规定不利于审计质量的提高。

我们也发现，反映债务水平（*LEV*）和现金流量（*CFO*）的两个变量基本与预测符号相符，审计意见类型（*OP*）与盈余管理空间显著负相关，公司治理环境的变量（*RANK_M*）与盈余管理空间无一致性结论。

[9] 按事务所任期将总样本分组后的样本观察值构成情况：

子样本组	1–2年组	3–4年组	5–6年组	7–8年组	9–10年组
样本观察值个数	350	408	385	235	112
签字会计师任期大于5年的样本观察值个数	2	3	47	69	46
事务所任期小于会计师任期的样本观察值个数	51	18	3	1	0

表9　在按事务所任期分组的情况下，签字会计师任期对盈余管理空间的影响

	1–2年组 (N＝350)		3–4年组 (N＝408)		5–6年组 (N＝385)		7–8年组 (N＝235)		9–10年组 (N＝112)	
	$\lvert DA_1 \rvert$	$\lvert DA_2 \rvert$	$\lvert DA_1 \rvert$	$\lvert DA_2 \rvert$	$\lvert DA_1 \rvert$	$\lvert DA_2 \rvert$	$\lvert DA_1 \rvert$	$\lvert DA_2 \rvert$	$\lvert DA_1 \rvert$	$\lvert DA_2 \rvert$
常数	–0.018	0.172	0.057	0.159	0.301	0.323	0.236	0.360	0.297	0.268
	(0.80)	(0.05)	(0.52)	(0.10)	(0.00)	(0.00)	(0.12)	(0.02)	(0.07)	(0.15)
CPA	–0.0001	0.002	–0.003	–0.003	–0.003	–0.003	–0.006	–0.010	–0.005	–0.004
	(0.98)	(0.64)	(0.29)	(0.37)	(0.17)	(0.10)	(0.05)	(0.06)	(0.06)	(0.20)
RANK_M	–0.001	0.00002	–0.001	–0.001	0.000	–0.001	–0.001	–0.001	–0.002	–0.002
	(0.14)	(0.86)	(0.08)	(0.10)	(0.56)	(0.21)	(0.43)	(0.17)	(0.11)	(0.19)
ROA	–0.029	–0.264	0.152	–0.170	0.095	–0.335	0.396	0.100	0.024	–0.223
	(0.10)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)	(0.40)	(0.37)	(0.00)
BIG15	0.015	0.013	–0.022	–0.033	–0.002	–0.008	–0.007	0.00002	–0.018	–0.013
	(0.04)	(0.17)	(0.02)	(0.00)	(0.76)	(0.32)	(0.57)	(1.00)	(0.19)	(0.37)
GW	0.000	0.001	0.009	0.018	0.000	0.006	0.000	0.0002	0.018	0.048
	(0.60)	(0.02)	(0.00)	(0.00)	(0.92)	(0.17)	(0.91)	(0.92)	(0.14)	(0.00)
LEV	0.020	0.017	0.008	0.006	0.026	0.017	0.040	0.010	0.051	0.039
	(0.02)	(0.13)	(0.38)	(0.57)	(0.16)	(0.42)	(0.23)	(0.70)	(0.15)	(0.33)
CFO	–0.116	–0.095	–0.236	–0.196	0.022	–0.055	–0.374	–0.310	–0.016	–0.058
	(0.00)	(0.01)	(0.00)	(0.00)	(0.52)	(0.15)	(0.00)	(0.00)	(0.75)	(0.33)
SIZE	0.004	–0.005	0.001	–0.003	–0.011	–0.009	–0.007	–0.010	–0.007	–0.004
	(0.19)	(0.25)	(0.88)	(0.49)	(0.00)	(0.02)	(0.27)	(0.10)	(0.32)	(0.61)
AGE	–0.003	–0.001	0.005	0.004	–0.004	–0.007	0.002	–0.001	–0.009	–0.011
	(0.03)	(0.48)	(0.02)	(0.06)	(0.19)	(0.02)	(0.81)	(0.87)	(0.22)	(0.18)
OP	–0.004	–0.008	–0.005	–0.009	–0.005	–0.002	–0.010	–0.020	–0.017	–0.008
	(0.60)	(0.44)	(0.56)	(0.36)	(0.56)	(0.87)	(0.57)	(0.28)	(0.47)	(0.76)
R^2	0.105	0.425	0.162	0.280	0.049	0.240	0.256	0.190	0.152	0.651
Adjust-R^2	0.079	0.408	0.141	0.270	0.024	0.220	0.223	0.150	0.068	0.617
F-statistic	3.970	25.06	7.660	15.70	1.940	11.70	7.700	5.160	1.800	18.87
P. (F-sta)	(0.00)	(0.00)	(0.00)	(0.00)	(0.04)	(0.00)	(0.00)	(0.00)	(0.07)	(0.00)

注：(1) N为子样本的观察值个数；(2) 括号内为P值。

进一步，我们依据可操纵性应计数的正、负值，将其分为两个子样本，检测审计师对管理当局进行盈余管理的具体方式（即正向盈余管理DA^+或负向盈余管理DA^-）的态度，也藉此寻找我国上市公司进行盈余管理的行为方式。结果显示（见表11），在可操纵性应计数为正（DA^+）的样本中，*CPA*的系数分别为–0.001和–0.0006，但不显著。而*DUM*和交乘项（*CPA*DUM*）的系数基本显著

表10 剔除签字会计师任期大于事务所任期样本后的回归

	1–2年组 (N = 299)		3–4年组 (N = 390)		5–6年组 (N = 382)		7–8年组 (N = 234)		9–10年组 (N = 112)	
	$\lvert DA_1\rvert$	$\lvert DA_2\rvert$	$\lvert DA_1\rvert$	$\lvert DA_2\rvert$	$\lvert DA_1\rvert$	$\lvert DA_2\rvert$	$\lvert DA_1\rvert$	$\lvert DA_2\rvert$	$\lvert DA_1\rvert$	$\lvert DA_2\rvert$
常数	–0.033	0.163	0.040	0.134	0.307	0.331	0.244	0.362	0.297	0.268
	(0.64)	(0.08)	(0.66)	(0.19)	(0.00)	(0.00)	(0.11)	(0.02)	(0.07)	(0.15)
CPA	**–0.004**	**–0.001**	**–0.002**	**–0.0001**	**–0.003**	**–0.004**	**–0.006**	**–0.006**	**–0.005**	**–0.004**
	(0.55)	**(0.88)**	**(0.56)**	**(0.98)**	**(0.12)**	**(0.08)**	**(0.04)**	**(0.06)**	**(0.06)**	**(0.20)**
....	....	....	....	....	....	....	....	....		
R^2	0.160	0.460	0.165	0.290	0.055	0.252	0.257	0.187	0.152	0.651
Adjust-R^2	0.131	0.450	0.143	0.270	0.029	0.232	0.225	0.151	0.068	0.617
F值	5.480	24.89	7.480	15.53	2.140	12.50	7.750	5.140	1.800	18.87
	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)	(0.00)	(0.07)	(0.00)

注：(1) N为子样本的观察值个数；(2) 本表其他变量的结果与表9类似，为节省篇幅，本表不再列出其回归结果。(3) 括号内为P值。

表11 正负*DA*子样本中，签字会计师任期对盈余管理的影响

	预测符号	DA_1^+子样本（N＝651）			DA_2^+子样本（N＝721）		
		模型 I	模型 II	模型 III	模型 I	模型 II	模型 III
常数项		–0.109	–0.115	–0.124	0.096	0.091	0.084
		(0.04)	(0.03)	(0.02)	(0.05)	(0.06)	(0.09)
CPA	?	**–0.001**		**0.003**	**–0.0006**		**0.003**
		(0.49)		**(0.15)**	**(0.61)**		**(0.15)**
DUM	?		**–0.012**			**–0.008**	
			(0.04)			**(0.12)**	
*CPA*DUM*	?			**–0.004**			**–0.003**
				(0.02)			**(0.03)**
RANK_M	+	–0.0003	–0.0003	–0.0003	0.0003	0.0003	0.0003
		(0.24)	(0.25)	(0.27)	(0.29)	(0.27)	(0.24)
ROA	–	0.023	0.024	0.022	0.794	0.791	0.785
		(0.14)	(0.13)	(0.16)	(0.00)	(0.00)	(0.00)
BIG15	–	–0.002	–0.001	–0.001	–0.005	–0.004	–0.004
		(0.65)	(0.79)	(0.81)	(0.29)	(0.37)	(0.38)
GW	+	0.0002	0.0002	0.0002	–0.0001	–0.0001	–0.00005
		(0.45)	(0.46)	(0.46)	(0.83)	(0.84)	(0.85)
LEV	+	–0.016	–0.016	–0.016	0.001	0.001	0.002
		(0.21)	(0.22)	(0.21)	(0.82)	(0.81)	(0.75)
CFO	–	–0.597	–0.596	–0.597	–0.646	–0.644	–0.645
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
SIZE	–	0.009	0.009	0.009	–0.004	–0.004	–0.004
		(0.00)	(0.00)	(0.00)	(0.05)	(0.06)	(0.06)
AGE	–	0.001	0.001	0.001	0.007	0.007	0.007
		(0.55)	(0.47)	(0.34)	(0.00)	(0.00)	(0.00)
OP	+	–0.008	–0.008	–0.008	0.009	0.009	0.009
		(0.18)	(0.16)	(0.17)	(0.09)	(0.10)	(0.10)
TENURE	+	–0.002	–0.002	–0.002	–0.003	–0.002	–0.003
		(0.06)	(0.10)	(0.05)	(0.02)	(0.02)	(0.01)
R^2		0.647	0.631	0.631	0.69	0.69	0.70
Adjust-R^2		0.626	0.629	0.629	0.68	0.67	0.68
F-statistic		100.08	101.04	92.88	135.83	136.46	125.55
P.(F-sta)		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

注：(1) N为子样本的观察值个数；(2) *DUM*，哑变量，如果签字会计师任期大于五年则取1，否则取0；(3) 括号内为P值。

预测符号	DA_1^-子样本（N＝844）			DA_2^-子样本（N＝774）		
	模型 I	模型 II	模型 III	模型 I	模型 II	模型 III
	–0.174	–0.172	–0.173	–0.208	–0.208	–0.209
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
?	**0.001**		**0.0008**	**–0.0002**		**0.001**
	(0.25)		**(0.67)**	**(0.85)**		**(0.65)**
?		**0.0028**			**–0.004**	
		(0.52)			**(0.44)**	
?			**0.0004**			**–0.001**
			(0.76)			**(0.48)**
–	0.0003	0.0003	0.0003	0.0004	0.0004	0.0004
	(0.15)	(0.17)	(0.16)	(0.09)	(0.10)	(0.10)
+	0.094	0.094	0.094	0.325	0.325	0.325
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
+	0.002	0.003	0.002	0.008	0.008	0.008
	(0.55)	(0.50)	(0.57)	(0.07)	(0.06)	(0.06)
–	0.001	0.001	0.001	–0.002	–0.002	–0.002
	(0.41)	(0.39)	(0.39)	(0.02)	(0.02)	(0.02)
–	–0.012	–0.013	–0.012	–0.024	–0.025	–0.025
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
+	–0.396	–0.396	–0.396	–0.465	–0.466	–0.465
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
+	0.007	0.007	0.007	0.009	0.008	0.008
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
+	0.00001	–0.00003	–0.00002	0.002	0.002	0.002
	(0.99)	(0.97)	(0.99)	(0.09)	(0.08)	(0.08)
–	–0.002	–0.002	–0.002	–0.013	–0.013	–0.013
	(0.69)	(0.68)	(0.70)	(0.02)	(0.02)	(0.02)
–	–0.001	–0.001	–0.001	–0.001	–0.001	–0.001
	(0.28)	(0.41)	(0.28)	(0.50)	(0.59)	(0.50)
	0.355	0.348	0.348	0.67	0.67	0.67
	0.343	0.333	0.333	0.66	0.66	0.66
	39.33	39.20	36.02	138.79	138.94	127.18
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

性为负，这并不支持强制更换签字会计师的政策规定，而且当签字会计师任期超过五年，签字会计师任期的延长对审计质量的改善作用优于签字会计师任期未超过五年的情况。在可操纵性应计数为负（DA^-）的样本中，*CPA*的系数符号不一致，也并不显著，这说明随着签字会计师任期的延长，审计师并不能抑制公司的负向盈余管理。这与国外文献（如Myers *et al.*, 2003; Kim *et al.*, 2003）的发现一致。这可能是因为负向盈余管理是会计信息稳健性（不激进财务报告行为）的一种表现，并且审计师本身也不提倡激进的财务报告行为，因此对公司的负向盈余管理比较容忍。

此外，我们发现，规模（*SIZE*）在正*DA*样本中与预测符号不一致，但在负*DA*样本中与预测符号一致。现金流量（*CFO*）和经营利润（*ROA*）分别在正负两个子样本中与预测符号呈现不同的结果，这说明公司的现金流量和获利能力在正向和负向盈余管理中起到的作用不同。

六、稳健性测试

本文进行了如下稳健性分析程序：（1）由于平衡样本可能会将在1998年前上市但在1998年至2002年之间被摘牌的企业、以及1998年至2002年之间新上市的公司排除，由于这类企业往往是会计问题最多的企业，审计师在这类企业中的独立性如何往往有着重要的意义。这可能导致样本的选择存在偏差，本文又以1998年至2002年的不平衡样本作为研究对象，按文中表7至表11的模型，重新稿行了OLS回归检验，发现结果与文中结论基本一致，这里仅列出主要的回归结果（见表12）；[10]（2）为了控制年度效果的影响，在模型加入年度哑变量，发现结论未受影响；（3）按照事务所所审计上市公司总资产总额排名，将每个年度排名前十位的事务所代替原来的这十五家事务所，对模型进行重新回归，

[10] 根据匿名审稿人的建议，我们选择1998年至2002年的不平衡样本作为研究对象，最终获得3377个观察值，涉及924家上市公司。具体选样过程如下表。同时，由于*DUM*和*CPA*DUM*的VIF较高，分别在25和30左右，因此，与表7一致，未同时纳入*CPA*、*DUM*和*CPA*DUM*变量。

	观察值个数
1998–2002年非金融行业的观察值A	4597
减：1998–2002年所处行业不足10家公司的观察值B	82
计算*DA*的观察值C＝A – B	4515
减：1998至2002年签字会计师任期数据缺省的观察值D	1122
1997–2001年间主营业务收入为0的观察值E	16
最后不平衡样本观察值F＝C – D – E	3377

表12 签字会计师任期对盈余管理空间的影响（N＝3377）（不平衡样本）

	预测符号	模型 I		模型 II		模型 III	
		$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$
常数项		0.185	0.253	0.182	0.249	0.186	0.254
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CPA	?	–0.003	–0.003			–0.003	–0.003
		(0.00)	(0.01)			(0.05)	(0.05)
DUM	?			–0.008	–0.007		
				(0.03)	(0.09)		
*CPA*DUM*	?					0.0001	0.0004
						(0.91)	(0.74)
RANK_M	+	0.00003	–0.00013	0.00005	–0.00011	0.00003	–0.0001
		(0.86)	(0.51)	(0.78)	(0.57)	(0.86)	(0.50)
ROA	–	0.003	0.001	0.003	0.001	0.003	0.001
		(0.35)	(0.70)	(0.38)	(0.76)	(0.35)	(0.71)
BIG15	–	–0.027	–0.097	–0.027	–0.097	–0.027	–0.097
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
GW	+	0.000	0.00000	0.00000	0.000	0.000	0.000
		(0.30)	(0.33)	(0.31)	(0.34)	(0.30)	(0.33)
LEV	+	0.023	0.022	0.023	0.023	0.023	0.022
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CFO	–	0.041	0.037	0.040	0.036	0.041	0.037
		(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)
SIZE	–	–0.006	–0.009	–0.006	–0.009	–0.006	–0.009
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
AGE	–	0.001	0.001	0.001	0.001	0.001	0.0005
		(0.16)	(0.51)	(0.10)	(0.40)	(0.17)	(0.56)
OP	+	–0.004	0.011	–0.004	0.011	–0.004	0.011
		(0.34)	(0.01)	(0.33)	(0.01)	(0.34)	(0.01)
TENURE	+	–0.00005	0.001	–0.001	–0.0002	–0.00004	0.001
		(0.95)	(0.56)	(0.39)	(0.84)	(0.96)	(0.54)
R^2		0.05	0.15	0.04	0.15	0.04	0.15
Adjust-R^2		0.04	0.15	0.04	0.15	0.04	0.15
F-statistic		13.91	54.54	13.54	54.05	12.75	49.99
P.(F-sta)		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CPA＋*CPA*DUM*						–0.0029	–0.0026
						(0.00)	(0.00)

注：(1) N为不平衡样本的观察值个数；(2) 括号内为P值。

表13 总体样本剔除非标准审计意见样本后的回归结果

	预期符号	剔除非标准审计意见后的样本（N＝1230）					
		模型 I		模型 II		模型 III	
		$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$
常数项		0.103	0.172	0.096	0.165	0.099	0.165
		(0.03)	(0.00)	(0.04)	(0.00)	(0.04)	(0.00)
CPA	?	−0.003	−0.003			−0.001	0.0001
		(0.03)	(0.04)			(0.66)	(0.98)
DUM	?			−0.012	−0.012		
				(0.02)	(0.02)		
*CPA*DUM*	?					−0.002	−0.002
						(0.31)	(0.14)
RANK_M	+	−0.001	−0.0004	−0.001	−0.0004	−0.001	−0.0004
		(0.05)	(0.14)	(0.06)	(0.15)	(0.05)	(0.15)
ROA	–	0.195	0.084	0.193	0.081	0.194	0.082
		(0.00)	(0.04)	(0.00)	(0.05)	(0.00)	(0.05)
BIG15	–	−0.006	−0.007	−0.005	−0.007	−0.005	−0.006
		(0.26)	(0.18)	(0.26)	(0.19)	(0.29)	(0.22)
GW	+	0.007	0.009	0.007	0.009	0.007	0.009
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
LEV	+	0.038	0.035	0.038	0.035	0.038	0.035
		(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
CFO	–	−0.189	−0.204	−0.190	−0.205	−0.189	−0.205
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
SIZE	–	−0.002	−0.005	−0.002	−0.005	−0.002	−0.005
		(0.33)	(0.03)	(0.34)	(0.04)	(0.33)	(0.03)
AGE	–	−0.001	−0.0003	−0.0005	−0.0002	−0.0005	−0.0001
		(0.60)	(0.79)	(0.67)	(0.86)	(0.68)	(0.91)
TENURE	+	0.002	0.002	0.002	0.002	0.002	0.002
		(0.09)	(0.15)	(0.13)	(0.17)	(0.10)	(0.16)
R^2		0.11	0.13	0.12	0.12	0.11	0.13
Adjust-R^2		0.10	0.11	0.10	0.11	0.10	0.11
F-statistic		14.81	16.42	14.84	16.55	13.56	15.15
P.(F-sta)		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

注：(1) N为子样本的观察值个数；(2) 括号内为P值。

结果基本没有发生变化;(4)可操纵性应计数可能影响审计意见类型,鉴于两者之间可能存在的内生性,本文剔除被出具非标准审计意见的观察值,对模型重新回归,结果基本仍然成立(见表13);(5)将平衡样本、正*DA*样本和负*DA*样本分别对控制变量按标准差的3倍进行截尾后使用OLS回归,结果基本上一致。

七、研究结论与不足

本文以签字会计师五年期强制变更规定出台之前1998年至2002年的299家A股上市公司为研究对象,使用调整后的截面Jones模型和Jones模型估计的公司可操纵性应计数绝对值衡量审计质量,同时区分正负向盈余操纵行为,分析签字会计师任期与审计质量的关系,研究发现:(1)随着签字会计师任期的延长,审计质量得到显著性地改善,且在长任期(>5年),任期对公司盈余管理的抑制作用明显大于短任期(≤5年);(2)当签字会计师任期大于事务所任期时,随着签字会计师任期的延长,审计质量更低,且在长任期(>5年),审计质量比短任期(≤5年)更差;(3)当签字会计师任期等于或小于事务所任期时,随着签字会计师任期的延长,审计质量更高,并且,在长任期(>5年),任期对公司盈余管理的抑制作用明显大于短任期(≤5年);(4)在正向盈余管理中,签字会计师任期的延长有助于抑制公司的正向盈余管理行为;(5)在负向盈余管理中,随着签字会计师任期的延长,公司的盈余管理并未得到控制。这些结论对监管者的启示在于,我国的签字会计师五年期强制轮换规定应视情况实施,对于签字会计师任期大于事务所任期的情况,可以实施签字会计师五年期强制轮换规定,否则,无助于审计质量的提升。

本文的不足之处在于:(1)如Myers *et al.*(2003)的研究一样,本文的数据来自于签字会计师强制轮换规定之前的背景下,其结论运用于强制轮换的背景下会有一些局限,因为在强制轮换规定下,审计师或企业经理的决策可能会有所不同。但是,出台签字会计师强制轮换规定本身就是基于审计师以前表现的审计行为而进行管制的结果,因而,本文的结论对管制规定的出台仍有积极参考意义。(2)Hribar and Nichols(2007)发现在以可操控性应计数绝对值为因变量的模型中应加入公司特征变量,如现金流量的波动性、净利润的波动性和营业收入的变异性,否则研究结果将受到影响。本文的研究设计中未考虑此类公司特征变量的影响。(3)受数据来源的限制,本文未能考察签字会计师与审计项目负责人不是同一人时,审计项目负责人变化可能带来的影响。我们将对此进行进一步研究。

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更正启事

2008年第十卷第二期刊登“签字会计师任期与审计质量：来自中国大陆证券市场的经验证据”一文，作者排名顺序应为“余宇莹、刘启亮、陈汉文”，前误刊为“刘启亮、余宇莹、陈汉文”，特此更正并致歉。英文版作者排名顺序维持不变。

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SIGNING AUDITOR TENURE AND AUDIT QUALITY: EMPIRICAL EVIDENCE FROM MAINLAND CHINA STOCK MARKETS[1]

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ABSTRACT

This paper investigates the relationship between signing auditor tenure and audit quality. Using a sample of listed A-share companies in the mainland China stock markets from 1998 to 2002 (the period prior to when the policy on a 5-year mandatory rotation of signing auditors was implemented), we obtain the following findings after controlling for relevant influential factors: (1) Audit quality significantly improves as signing auditor tenure increases, and in the case of long tenure (more than 5 years), the restriction effect on earnings management is obviously greater than in the case of short tenure (5 years or less). (2) When signing auditor tenure is longer than audit firm tenure, audit quality declines as signing auditor tenure increases. (3) On the other hand, when signing auditor tenure is shorter than audit firm tenure, audit quality improves as signing auditor tenure increases; in addition, the restriction effect imposed by long tenure (more than 5 years) is evidently

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greater than that imposed by short tenure (5 years or less). (4) Increases in signing auditor tenure helps restrain positive earnings management. (5) However, its increase does not control negative earnings management. The implication of these findings for regulators is that the 5-year mandatory rotation of signing auditors should be implemented according to specific circumstances.

Key words: Signing Auditor Tenure, Audit Quality, Discretionary Accruals

I. INTRODUCTION

With the outbreak of such financial scandals as Enron and WorldCom, the US promulgated the Sarbanes-Oxley Act of 2002 (known as SOX), which augmented the mandatory rotation of audit partners under Section 203, Chapter 2, as follows: "It shall be unlawful for a registered public accounting firm to provide audit services to an issuer if the lead (or coordinating) audit partner (having primary responsibility for the audit), or the audit partner responsible for reviewing the audit, has performed audit services for that issuer in each of the 5 previous fiscal years of that issuer." Considering the implementation of such a provision, China referred to US practice and issued its own policy on a 5-year mandatory rotation of signing auditors. Currently, the direct regulatory rules enforced include (1) "Regulations on the Regular Rotation of Signing Auditors Involved in the Securities and Futures Audit Business" issued by the China Securities Regulatory Commission (CSRC) and the Ministry of Finance in 2003, which require that from 1 January 2004 onwards, signing auditors or principals in charge of auditing projects should not provide auditing services to related institutions for more than 5 consecutive years; signing auditors who provide audit services for IPO companies should not provide audit services for more than 2 consecutive years after the company has been listed; and (2) the "Regulation on Perfecting and Strengthening the Management of Enterprise Annual Financial Report Auditing" issued by the Ministry of Finance in 2004, which pertains to all kinds of domestic non-financial firms that are state-owned and state-controlled, excluding those in special industries. Clause 14 of that regulation stipulates that an enterprise should ask its audit firm to change the signing auditor when such auditor has offered auditing services to the same enterprise for 5 consecutive years.

The mandatory rotation policy on auditors in China may have been implemented for the following reasons. First, it helps improve the due independence of auditors. Many cases from the Chinese securities market reveal that audit failure is mainly attributed not only to technical reasons but also to the extent that auditors lack audit independence.[5] In China, some listed companies have not changed their auditors since their IPOs, or even since the stock share reform or earlier times. Although some companies have appeared to rotate audit firms, the auditors have in fact remained the same because clients have followed auditors who "job-hop". Therefore, there is a particular phenomenon that rotating audit firms does not change the

[5] Source: *Securities Times*, 31 October 2003.

auditor in the audit market. If an auditor provides audit services for a specific client over a long period, an interest relationship affecting audit independence may form. Second, if an auditor provides services for a listed company over a long period, not only does this affect his independence, but it also renders him unable to scrutinise certain problems owing to the shaping of his thinking patterns resulting from long-term audits. On the other hand, if the auditor can be changed regularly, this may have a positive effect on maintaining audit independence, and subsequent auditors may be able to detect issues not found by the former auditors, thus forming a mutual supervisory mechanism. This contributes to improving audit quality and protecting the interests of investors.

As legal regulations on auditor rotation in various countries reveal, the underlying idea is that audit independence will decline and audit quality be impaired if one auditor is committed to performing audits for a long period. Nevertheless, there is no consistent conclusion as to whether increasing auditor tenure inevitably results in a reduction of audit quality. Both the domestic and overseas empirical literature indicates that research on auditor rotation is mostly based on audit firms (Liu, 2006; Chen *et al*., 2006; Xia *et al*., 2005; Ghosh and Moon, 2005; Myers *et al*., 2004; Myers *et al*., 2003); only a few overseas studies (Carey and Simnett, 2006; Chi and Huang, 2005; Li *et al*., 2005) are based on audit firm partners and the tenure of signing auditors, while no domestic literature is based on signing auditors. Moreover, owing to differences in institutional background and professional environment, conclusions from foreign research may not apply to mainland China. Taking the above into account, this paper first examines the relationship between signing auditor tenure and audit quality from the perspective of tenure to try to provide some direct empirical evidence for the policy on the 5-year mandatory rotation of signing auditors in China. We have conducted our research in terms of the signing auditor, instead of the audit firm, for the following reasons. First, because the signing auditor is responsible for the audit report and decision making during the audit, it is his behaviour, rather than the audit firm, that has more to do with audit quality; hence, it is more precise to investigate the effect of signing auditor tenure, but not audit firm tenure, on audit quality. And second, it is the signing auditor, rather than the audit firm, who is under the regulation of the current laws and rules in China; therefore, research results based on the signing auditors are more relevant to the policy.

Using a balanced sample from prior to when the mandatory rotation of signing auditors was first implemented, we obtain the following findings after controlling for related influential factors. (1) Audit quality significantly improves as signing auditor tenure increases. For a long tenure (more than 5 years), the restriction effect on earnings management is obviously greater than for a short tenure (5 years or less). (2) When the tenure of the signing auditor is longer than that of the audit firm, audit quality declines as signing auditor tenure increases. (3) On the other hand, when the tenure of the signing auditor is the same as or shorter than that of the audit firm, audit quality improves as signing auditor tenure increases. Moreover, the restriction effect imposed by a long tenure (more than 5 years) is evidently greater than that imposed by a short tenure (5 years or less). (4) The increase in signing auditor tenure helps restrain positive earnings management. (5) However, its increase does not control negative earnings management.

Our contributions include the following: (1) we initiate the study on the relationship between signing auditor tenure and audit quality from the perspective of signing auditor tenure instead of audit firm tenure, and we provide more direct empirical evidence as to whether the policy on a 5-year mandatory rotation of signing auditors is justifiable; and (2) we find that when clients follow a signing auditor when he changes jobs or leaves a bankrupted audit firm (that is, his tenure is longer than that of the audit firm), audit quality worsens with the increase in his tenure; however, when the signing auditor's tenure is shorter than the audit firm's, audit quality improves as his tenure increases. All the above suggests that the policy on the 5-year mandatory rotation of signing auditors should be implemented according to specific circumstances to have a positive impact on the transitional economy.

The remaining sections are arranged as follows: Section II surveys related literature and develops the research hypothesis; Section III introduces the research methodology, including variable analyses, sample choice, and regression models; Section IV contains the univariate analysis; Section V explains the multivariate regression analysis; Section VI provides the robustness analysis; and Section VII presents the conclusions and limitations.

II. LITERATURE REVIEW AND RESEARCH HYPOTHESIS

2.1. Literature Review

Audit quality is the joint probability of detecting and reporting misstatements in financial reports; the former is related to an auditor's professional capacity, while the latter depends on the auditor's independence (DeAngelo, 1981). Currently, existing overseas literature has yet to form any conclusive view on the effects of auditor tenure on audit quality.

Scholars who hold a negative opinion argue that a longer auditor tenure imposes a more passive influence on audit quality. As auditor tenure increases, the auditor will increase communications with the client, and the relationship between them as well as its managers will grow closer. Under such circumstances, the auditor may, either purposefully or subconsciously, become concerned about the client's benefit and so may not adhere to audit principles to avoid the unfavourable impact of an audit opinion. At the same time, as the relationship becomes more solid, the auditor becomes more prone to believing the client, including the written or oral evidence the client provides, rather than deeply investigating the client's real situation, and thus audit quality worsens. In a report to the US Senate, the US Metcalf Committee points out that a long-term association between audit firms and their clients may let auditors know what works to their clients' benefit, and so it becomes more difficult for them to maintain their independence. Mautz and Sharaf (1961) suggest that a longer auditor tenure leads to a higher probability of establishing private intimation with the client so that the auditor's independence and objectivity worsen and audit quality further declines. Catanach and Walker (1999) find in a case study on audit failure in Hong Kong that credulity and acceptance of the interpretation of problematic transactions provided by the management is one reason for audit failure. The analyses above convey the notion that audit independence, and the audit quality determined thereby, tend to decline as auditor tenure increases.

Some empirical literature also holds that an increase in auditor tenure exerts a negative influence on audit quality. For example, Davis *et al*. (2002) reveal a positive relationship between auditor tenure and the absolute value of discretionary accruals. Chi and Huang (2005) use discretionary accruals to measure audit quality and consider the tenure of both audit firms and their partners; they find that in Taiwan, as auditor tenure increases, auditors become more familiar with the clients' business, and audit quality improves, whereas excessive familiarity may lead to a decline of audit quality. Based on the audit market in Australia, Carey and Simnett (2006) simultaneously use three methods to measure audit quality to explore the effect of partners' tenure on audit quality. They discover that audit-partner tenure has no effect on audit quality when abnormal working capital accruals are used to measure audit quality, whereas they detect negative effects using the other two measurement methods.

On the other hand, scholars who support a positive effect of auditor tenure on audit quality claim that as auditor tenure increases, auditors gain special knowledge and learn the particular risks of specific clients, and thus decrease reliance on management estimates to avoid litigation and protect their own reputation; in this way, the auditors can develop their professional capacity, and audit quality further improves (Petty and Cuganesan, 1996; Myers *et al*., 2003). On the other hand, new auditors find it hard to maintain audit independence owing to the lack of both particularities and the special knowledge of a specific client's operations accumulated through experience (Dunham, 2002). Previous studies also show that audit failure often occurs among newly consigned clients (Berton, 1991; Petty and Cuganesan, 1996; Palmrose, 1986, 1991; AICPA, 1992). The US AICPA (1992) analysed 406 audit failure cases from 1979 to 1991 and found that the number of cases in the first and second years was almost triple that of other years. There is also an opinion that proactive auditor rotation contains some information content; once mandatory rotation commences, management may take advantage of it to change an undesirable auditor, thereby reducing the information content of auditor rotation.

With regard to empirical studies, Myers *et al*. (2003) and Ghosh and Moon (2005), using abnormal accruals as the proxy for audit quality, find that in the US longer audit tenure leads to improve audit quality. Geiger and Raghunandan (2002) examine whether the decision to issue going-concern-modified audit opinions for companies suspected to be on the verge of bankruptcy is affected by audit tenure; they find that a longer audit tenure makes the auditor more prone to issue going-concern-modified audit opinions for such companies. Myers *et al*. (2003), using restatements to measure audit quality, obtain no empirical evidence to confirm the negative effects of an increase of auditor tenure on audit quality. Myers *et al*. (2004)

compare differences in audit tenure between companies with financial report restatements and their counterpart companies from January 1997 to October 2001; they also find little evidence to support the idea that a longer audit tenure damages audit quality. Li *et al*. (2005), taking discretionary accruals as the proxy for audit quality, find that during the period when signing auditor tenure was not regulated in the Taiwanese audit market, a longer tenure restrained earnings management more distinctly.

The domestic literature examines the relationship between auditor tenure and auditor quality from the perspective of audit firms, with many differences among the conclusions. Yu and Li (2003), carrying out a theoretical analysis of the relationship, consider that in the case of long-term audits, factors that both harm and improve audit quality coexist; therefore, conclusions cannot be drawn as to whether increased audit tenure increases or decreases audit quality. Chen *et al*. (2006) and Xia *et al*. (2005), respectively using earnings management and auditor opinion as the proxy for audit quality, find no evidence that audit tenure damages auditor independence; on the contrary, audit tenure may improve an auditor's professional capacity and further improve audit quality. Chen *et al*. (2006) and Liu (2006) investigate the relationship between audit firm tenure and audit quality using the absolute value of discretionary accruals as the proxy for audit quality, and the sample data of listed companies between 2000 and 2002 and between 1998 and 2004, respectively. Chen *et al*. find an inverted U-shaped relationship between audit tenure and audit quality, while Liu finds the same relationship only in a sub-sample of positive earnings management; however, Liu also finds a positive relationship for the whole sample, that is, a longer audit firm tenure leads to a larger absolute value in the earnings management of listed companies.

To sum up, empirical literature in the US on the whole supports the argument that an increase of auditor tenure favours the improvement of audit quality, but owing to differences between the US and mainland China in professional systems, legal environments, practice settings, and so forth, the argument does not necessarily pertain to mainland China. Meanwhile, the domestic empirical literature is entirely based on the perspective of audit firms, ignoring the effect of signing auditors on audit quality. Therefore, this paper first studies the relationship between signing auditor tenure and audit quality after controlling for regional differences in the external governance environment of listed companies in China to provide more direct empirical evidence for the 5-year mandatory rotation regulation on signing auditors.

2.2. Research Hypothesis

As mentioned above, there have always been two entirely contradictory opinions over the effect of auditor tenure on audit quality. Those who claim a negative effect argue that as auditor tenure increases, the auditor becomes prone to colluding with management, which consequently affects audit independence and leads to lower audit quality (US Senate, 1976; Mauts and Sharaf, 1961; Chen *et al*., 2006; Liu, 2006). On the other hand, some researchers who support a positive effect consider that longer auditor tenure leads to a greater understanding by auditors of their clients' operations, helping them to design the best audit procedures, especially in cases where they are confronted with high litigation costs and loss of reputation (Petty and Cuganesan, 1996; Myers *et al*., 2003; AICPA, 1978; Li *et al*., 2005). Since the existing literature holds to no conclusive view, and since the relationship between audit quality and audit tenure is an empirical issue that can be tested, this paper makes no prediction about the direction in which signing auditor tenure affects audit quality; instead we develop the hypothesis as follows:

H: Signing auditor tenure is relevant to audit quality.

3. RESEARCH METHODOLOGY

3.1. Variable Design

3.1.1. Measurement of Audit Quality

Following previous studies (Warfield *et al*., 1995; Francis *et al*., 1999; Davis *et al*., 2002; Myers *et al*., 2003) and consistent with recent literature (Myers *et al*., 2003; Ghosh and Moon, 2005; Carey and Simnett, 2006; Blouin *et al*., 2007), this paper employs the absolute value of discretionary accruals ($|DA|$) to measure the magnitude of earnings management allowed by auditors. Nevertheless, some research also discovers that auditor attitudes differ towards positive or negative manipulation of earnings (Kellogg, 1984; Kinney and Martin, 1994; Francis and Krishnan, 1999). Kinney and Martin (1994) and Trompeter (1994) reveal that audit failure resulting from overestimates of earnings (net assets) will cause greater damage to the audit than that resulting from underestimates, and auditors will thus be more inclined to restrain positive earnings management (that is, positive discretionary accruals) and pamper negative manipulation of earnings (that is, negative discretionary accruals). The results from the domestic literature also differ (Chen *et al*., 2006; Liu, 2006). Employing only $|DA|$ to measure the magnitude of earnings management permitted by auditors neglects information about auditor attitudes towards earnings management; plus, it also omits the behaviour of earnings management. Therefore, this paper further explores the effect of signing auditor tenure on both positive (DA^+) and negative (DA^-) earnings management.

Some studies find that discretionary accruals estimated using the modified Jones model (1995) can reliably measure earnings management (Subramanyam, 1996; Bartov, Gul, and Tsui, 2001; Kothari *et al*., 2005). Kothari *et al*. (2005) compare different measurement methods on discretionary accruals and find that it is best to employ current ROAs as a matching factor, while the second best method is to add ROAs to the Jones model. Xia (2005), comparing the performances of all available discretionary accrual estimation models using data from the Chinese stock markets, finds that the cross-sectional Jones model by industry with total accruals (excluding below-the-line items) as an independent variable performs best in the Chinese setting. In this study, we employ the modified Jones model to estimate discretionary accruals (DA_t) (called DA_1 herein). We first use industry-year data to run OLS on

Model (1) in order to obtain parameters a_1, a_2, and a_3, and then enter them into Model (2) to compute nondiscretionary accruals, which can be used in Model (3) to estimate discretionary accruals (DA_t).

$$GA_t/A_{t-1} = \alpha_1\ (1/A_{t-1}) + \alpha_2\ (\Delta REV_t/A_{t-1}) + \alpha_3\ (PPE_t/A_{t-1}) + \alpha_4 ROA_t + \varepsilon_t \tag{1}$$

$$NDA_t = \alpha_1\ (1/A_{t-1}) + \alpha_2\ (\Delta REV_t/A_{t-1}) + \alpha_3\ (PPE_t/A_{t-1}) + \alpha_4 ROA_t \tag{2}$$

$$DA_t = GA_t/A_{t-1} - NDA_t, \tag{3}$$

where $GA_t = EBXI_t - CFO_t$; GA_t is total accruals for year t including below-the-line items, $EBXI_t$ is the operating income for year t, and CFO_t is cash flows from operating activities for year t. Other terms in the model are explained as follows:

A_{t-1} = total assets at the end of year $t - 1$;

NDA_t = nondiscretionary accruals for year t scaled by total assets at the end of year $t - 1$;

ΔREV_t = revenue for year t less revenue for year $t - 1$;

PPE_t = gross property, plant, and equipment for year t;

ROA_t = return on total assets of firm i for year t, that is, net income of the current year divided by ending total assets.

To strengthen the reliability of the conclusions, we simultaneously employ the Jones model to calculate DA (called DA_2 herein). We first use industry-year data to run OLS on Model (4) in order to obtain parameters a_1, a_2, and a_3, and then enter them into Model (5) to calculate nondiscretionary accruals, which can be used in Model (6) to estimate discretionary accruals (DA_t):

$$TA_t/A_{t-1} = \alpha_1\ (1/A_{t-1}) + \alpha_2\ (\Delta REV_t/A_{t-1}) + \alpha_3\ (PPE_t/A_{t-1}) + \varepsilon_t \tag{4}$$

$$NDA_t = \alpha_1\ (1/A_{t-1}) + \alpha_2\ (\Delta REV_t/A_{t-1}) + \alpha_3\ (PPE_t/A_{t-1}) \tag{5}$$

$$DA_t = TA_t/A_{t-1} - NDA_t, \tag{6}$$

where $TA_t = NT_t - CFO_t$; TA_t is total accruals for year t, NI_t is the net income for year t, and CFO_t is cash flow from operating activities for year t. Other terms in the model are explained as follows:

A_{t-1} = total assets at the end of year $t - 1$;

NDA_t = nondiscretionary accruals for year t scaled by total assets at the end of year $t - 1$;

ΔREV_t = revenue for year t less revenue for year $t - 1$;

PPE_t = gross property, plant, and equipment for year t.

3.1.2. Explanatory Variables

The policy on the 5-year mandatory rotation of signing auditors requires that the time span for the signing auditor or audit partner to provide a specific client with audit services should be no longer than 5 consecutive years. In China, although the signing auditor is not the audit partner, the signing auditor and audit firm must take responsibility for any audit failure, and the reputation of the signing auditor will be damaged. The signing auditor may also suffer administrative punishment, such as suspension of eligibility. Therefore, we carry out our study on signing auditors instead of audit partners. Of the two joint signing auditors, the rotation policy focuses on the one whose tenure is as long as 5 consecutive years. Therefore, if both joint signing auditors are of different tenure, we choose the longer one as the signing auditor tenure, which we calculate from the year of initial public offering. If one of the two signing auditors performs the audit for two consecutive years, this is regarded as a continuity of tenure, which is added cumulatively. When one of the previous year's two signing auditors is involved in job-hopping or the audit firm shuts down, but the company is still audited by the same auditor in the current year, the signing auditor tenure is also added cumulatively.

3.1.3. Control Variables

The gradual evolution of the governance environment in China influences audit quality directly or indirectly. A better governance environment allows audit firms to better maintain independence and improve audit quality. As a result, the extent of marketisation is positively related to audit quality; in other words, the marketisation index *RANK_M* maintains a positive relationship with |*DA*|. This paper considers the marketisation rank of the place in which a listed company is located to be the corporate governance setting variable. Consequently, a place of corporate registration with a higher marketisation index has a higher degree of marketisation and a lower rank.[6]

BIG15 is a dummy variable that controls for the influence of audit firm size on discretionary accruals (DeAngelo, 1981; Becker *et al*., 1998; Francis *et al*., 1999; Francis and Krishnan, 1999; Myers *et al*., 2003). This paper identifies big audit firms in terms of the 15 firms mentioned in the "Audit Firm List Qualified for the Audit on A-share Listed Companies" issued by the China Securities Regulatory Commission (CSRC).[7] If the auditor who audits the financial report of a company for the current year works for one of the 15 audit firms or their predecessors, then *BIG15* equals 1, and 0 otherwise, and the predicted sign is negative. Growth companies (*GW*) have a relatively larger absolute value of discretionary accruals (Ghosh and Moon, 2005). Moreover, previous literature reveals that the return on assets (*ROA*), leverage ratio (*LEV*), company size (*SIZE*), cash flows (*CFO*), listing age (*AGE*), audit opinions (*OP*), and audit firm tenure (*TENURE*) are positively related to earnings management (Warfield *et al*., 1995; Becker *et al*., 1998; Dechow *et al*.,

[6] Although differences exist in the marketisation index formulae between Fan and Wang (2001) and Fan and Wang (2004), the calculation results will not affect the ranking; therefore, this paper uses the ranking to measure the degree of marketisation in China's provinces.

[7] The 15 audit firms qualified for special audit review are the following: Tianjian, Beijing Jingdu, KPMG Huazhen, Xinyong Zhonghe, Shanghai Lixin Changjiang, Shanghai Zonghua Fuyin, Ernst & Young Dahua, Deloitte Touche Tohmatsu, PricewaterhouseCoopers Zhongtian, Jiangsu Tianheng, Zhejiang Tianjian, Xiamen Tianjian, Guangzhou Pearl River, Shenzhen Dahua Tiancheng, and Shenzhen Tianjian Xinde. In robustness tests, we re-run the regression with the annual top 10 audit firms instead of the former 15 firms according to the rankings based on the total assets of listed companies audited by the audit firms.

1995; Myers *et al*., 2003). This paper thus includes these control variables in the model.

3.2. Sample Selection and Data Source

Although the rotation regulation on signing auditors in mainland China took effect in 2004, the provisions were issued on 8 October 2003. Accordingly, these provisions will exert some influence on the 2003 audit reports, and so the sample period in this paper is truncated to 2002. In addition, we use cash flow statements to calculate total accruals, the reporting of which began in 1998; therefore, we select a sample between 1998 and 2002. The calculation of discretionary accruals is based on the total assets and revenue of the previous period, and in fact, listed companies with total assets and revenue data in 1997 are included in our sample.

To avoid the errors induced by a small sample, we eliminate those industries having fewer than 10 firm-year observations between 1998 and 2002. Because of the unique characteristics of companies in the financial and insurance industries that do not suit the Jones model, we also eliminate these companies from the sample. In light of previous literature, the earnings management behaviour of companies with a short listing age, including newly listed companies, differs from that of other companies; thus, these sample companies may not represent the relationship between signing auditor tenure and audit quality in a regular setting (Ghosh and Moon, 2005). At the same time, to analyse the behavioural choice of auditors to serve consistently for the same client, we can only truly explore the relationship between auditor tenure and earnings management by utilising both panel data and a balanced sample (Li *et al*., 2005). Consequently, using a balanced sample will probably strengthen the robustness of conclusions compared with using an overall sample.

We finally have 299 companies left after eliminating those lacking intact time-serial data between 1998 and 2002, from which we obtain 1495 firm-year observations (see Table 1). The balanced sample consists of nine industries, in which the manufacturing industry comprises seven sub-industries (see Table 2). The industry classification standard of listed companies follows the category standard framed by the CSRC, whereby the manufacturing industry is categorised at two levels because of the large number of companies involved while other industries are categorised at one level only. We obtain the financial data in this paper from the Chinese Stock Market Analysis and Research (CSMAR) database developed by Shenzhen GTA IT Co., Ltd., and we take the marketisation index of the place of corporate registration from *Marketisation Index in China* compiled by Fan *et al*. (2001, 2004). In addition, we collect the yearly data for signing auditor tenure by hand based on the financial report audit opinion database of Chinese listed companies obtained from the CSMAR.

3.3. Regression Model

We use both the fixed effect and random effect to analyse the balanced sample (total sample); we also use OLS regression to strengthen the robustness of the

Table 1 Sampling Process

Listed companies in 1997 (from CSMAR dataset) A	723
Less: Companies in the financial industry B	4
Companies in an industry with fewer than 10 listed companies C	39
Sample companies for *DA* calculation: D = A – B – C	680
Less: Time span less than 5 years between 1998 and 2002 E	16
Companies with inadequate signing auditor tenure data from IPO to 2002 F	353
Companies with zero core business revenue between 1997 and 2001 G	12
Total sample: H = D – E – F – G	299

Table 2 Distribution of the Total Sample

Industry	Firm-year observation	Percentage (%)
Agriculture, forestry, farming, fishing	15	1.00
Manufacturing	710	47.49
Electronics	40	2.68
Textiles, clothes, furs, leather	40	2.68
Metals and non-metals	140	9.35
Petroleum, chemistry, plasticity	135	9.03
Medicine and biological products	85	5.69
Food and beverage	10	0.67
Machinery, equipment, instruments	260	17.39
Information technology	130	8.70
Social services	50	3.34
Wholesale and retail trade	175	11.71
Transportation/logistics	55	3.68
Real estate	80	5.35
Electricity, coal, gas, aquatic production and provision	70	4.68
Miscellaneous	210	14.05
Total	1495	100

conclusions. We run the OLS regression only on the sub-samples classified by the following standards: (1) the relation between signing auditor tenure and audit firm tenure, (2) audit firm tenure, and (3) the sign of discretionary accruals. The statistical software used is STATA 8.2. The regression model is shown as follows:

$$|DA_{it}|\,(DA_{it}^{+} \text{ or } DA_{it}^{-}) = \beta_0 + \beta_1 CPA_{it} + \beta_2 RANK\_M_{it} + \beta_3 ROA_{it} + \beta_4 BIG15_{it} + \beta_5 GW_{it} + \beta_6 LEV_{it} + \beta_7 CFO_{it} + \beta_8 SIZE_{it} + \beta_9 AGE_{it} + \beta_{10} OP_{it} + \beta_{11} TENURE_{it} + \varepsilon_{it} \tag{7}$$

where:

$|DA_{it}|$ = the absolute value of discretionary accruals of firm i for year t;

DA_{it}^{+} (DA_{it}^{-}) = the positive (negative) discretionary accruals of firm i for year t;

CPA_{it} = the longest signing auditor tenure for year t;

$RANK\_M_{it}$ = the national rank of marketisation index of the province where firm i is registered for year t;

ROA_{it} = return on assets of firm i for year t, that is, current-year net income divided by ending total assets;

$BIG15_{it}$ = 1 if the audit firm employed by firm i for year t belongs to the Big 15 (or their predecessors), and 0 otherwise;

GW_{it} = the sales revenue growth rate of firm i for year t, that is, the change in core business revenue divided by the previous year's revenue;

LEV_{it} = the debt ratio of firm i for year t, that is, total debt divided by current-year total assets;

CFO_{it} = cash flows from operating activities divided by beginning total assets of firm i for year t;

$SIZE_{it}$ = the natural logarithm of total assets of firm i at the end of year t;

AGE_{it} = the listing age of firm i at the end of year t;

OP_{it} = 0 if the audit opinion is not standard for firm i for year t, and 0 otherwise;

$TENURE_{it}$ = the tenure that audit firms are incumbent in year t; if the audit firm is hired by the client after consolidation, it is viewed as a continual engagement of the previous audit firm.

IV. UNIVARIATE ANALYSIS

As Table 3 shows, the means of $|DA_1|$, DA_1^+, and DA_1^- are 0.061, 0.063, and −0.061, respectively, while their medians are 0.042, 0.041, and −0.043, respectively. The means of $|DA_2|$, DA_2^+, and DA_2^- are 0.073, 0.069, and −0.076, respectively, while their medians are 0.048, 0.046, and −0.052, respectively. The mean for signing auditor tenure is 3.116 years with a maximum of 9 years and a minimum of only 1 year. The relationship between signing auditor tenure and earnings management is presented in Figures 1, 2, and 3; on the whole, audit quality gradually improves as signing auditor tenure increases. As Table 4 shows, the sample of a 2-year tenure accounts for the highest proportion (24.68 per cent), while the sample with a tenure of over 5 years takes up approximately 11 per cent. These results indicate that not many samples have a signing auditor tenure exceeding 5 years. Table 4 also shows that the mean of $|DA|$ with a tenure of more than 5 years is smaller than that with a tenure of 5 years or less. Therefore, this paper further compares the characteristics of sub-samples with a signing auditor tenure of more than 5 years with those with a signing auditor tenure of 5 years or less based on companies possessing the relatively small $|DA|$ mean with an auditor tenure of more than 5 years. The comparative results are shown in Table 5. On average, apart from firm-year observations of the 5-year tenure, audit quality with a tenure of more than 5 years is significantly better than that with a tenure of 5 years or less. Meanwhile, compared with companies with an auditor tenure of 5 years or less, companies with an auditor tenure of more than 5 years show the following characteristics: they have better corporate gover-

Figure 1 The Relation between Signing Auditor Tenure and |*DA*|

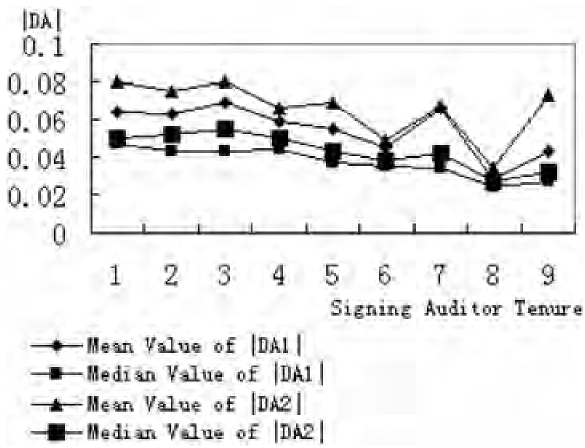
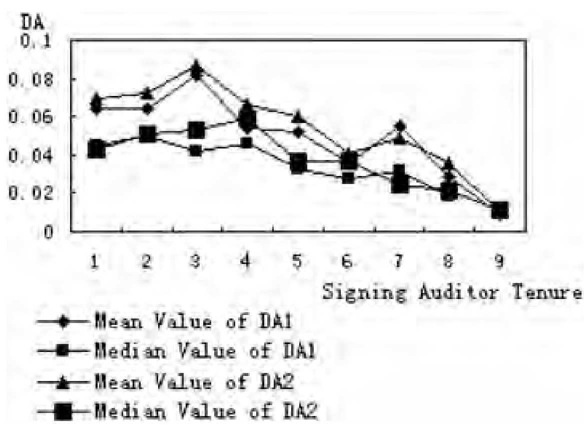


Figure 2 The Relation between Signing Auditor Tenure and *DA* (*DA* > 0)



nance; they are mostly audited by the Big 15 audit firms; and they have a greater corporate size, longer listing age, and longer audit firm tenure.

Table 6 presents the Spearman and Pearson correlation matrix of the balance sample. The correlation coefficients from the Spearman and Pearson tests of |*DA*| and signing auditor tenure are significantly negative at the 5 per cent level; the coefficient from the Spearman test is −0.09, while that from the Pearson test is −0.07.

On the whole, audit quality improves gradually with an increase in signing auditor tenure. Nevertheless, we draw the above results from univariate analysis, which is to be further tested.

Figure 3 The Relation between Signing Auditor Tenure and *DA* (*DA* < 0)

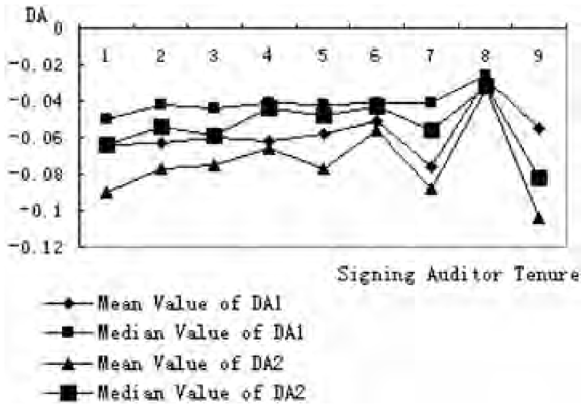


Table 3 Descriptive Statistics for the Balanced Sample

Variable	Mean	Median	Maximum	Minimum	Standard deviation
$\|DA_1\|$	0.061	0.042	1.318	0.00003	0.071
$\|DA_2\|$	0.073	0.048	1.252	0.0001	0.088
DA_1^+ (N = 651)	0.063	0.041	1.383	0.0003	0.085
DA_1^- (N = 844)	–0.061	–0.043	–0.0003	–0.449	0.058
DA_2^+ (N = 721)	0.069	0.046	1.252	0.0001	0.086
DA_2^- (N = 774)	–0.076	–0.052	–0.0003	–0.934	0.090
CPA	3.116	3	9	1	1.801
RANK_M	9.668	7.000	30.000	1.000	7.624
ROA	0.019	0.037	0.377	–3.568	0.152
BIG15	0.302	0.000	1.000	0.000	0.459
GW	0.446	0.100	206.264	–0.998	5.660
LEV	0.485	0.455	7.152	0.009	0.323
CFO	0.046	0.041	0.654	–1.450	0.111
SIZE	20.858	20.814	23.603	17.885	0.909
AGE	5.833	6.000	13.000	2.000	2.254
OP	0.177	0.000	1.000	0.000	0.382
TENURE	4.627	4.000	11.000	1.000	2.457

V. MULTIVARIATE REGRESSION ANALYSES

As Model I (see Table 7) shows, controlling for the effect of other variables and using the fixed effect, random effect, and OLS methods to analyse the balanced sample, we find that signing auditor tenure is significantly and negatively related to the absolute value of discretionary accruals (|*DA*|) basically when the flexibility of earnings management is measured by |*DA*|. This illustrates that a longer signing auditor tenure leads to better audit quality. Since the policy on the 5-year mandatory rotation of signing auditors implies that if a signing auditor serves a client for more than 5 years and continues working for such a client, this may harm audit quality, this paper divides signing auditor tenure into long tenure (*CPA* > 5) and short tenure

Table 4 Variable Characteristics of Different Tenure

CPA	1	2	3	4	5	>5
Sample	302	369	291	207	156	170
Proportion in total sample (%)	20.20	24.68	19.46	13.85	10.44	11.37
$\|DA_1\|$	0.064	0.063	0.069	0.059	0.055	0.048
$\|DA_2\|$	0.080	0.075	0.080	0.066	0.069	0.053
RANK_M	11.156	10.260	9.667	9.599	8.801	6.624
ROA	–0.009	0.027	0.032	0.032	0.014	0.023
BIG15	0.215	0.228	0.254	0.300	0.429	0.588
GW	0.250	0.864	0.226	0.655	0.223	0.216
LEV	0.543	0.481	0.464	0.457	0.465	0.479
CFO	0.041	0.044	0.045	0.057	0.039	0.058
SIZE	20.743	20.764	20.817	20.929	20.980	21.137
AGE	5.613	5.458	5.275	5.739	6.340	7.641
OP	0.228	0.176	0.168	0.179	0.167	0.112
TENURE	3.162	3.989	4.443	4.986	5.763	7.453

Table 5 Comparison of Variable Means by Different Tenure

	1 vs. >5	2 vs. >5	3 vs. >5	4 vs. >5	5 vs. >5
$\|DA_1\|$	0.016**	0.015**	0.021**	0.011*	0.007
$\|DA_2\|$	0.027**	0.022**	0.027**	0.013**	0.016**
RANK_M	4.532**	3.636**	3.043**	2.975**	2.177**
ROA	–0.032*	0.004	0.009	0.009	–0.009
BIG15	–0.373**	–0.360**	–0.334**	–0.288**	–0.159**
GW	0.034	0.648	0.010	0.439	0.007
LEV	0.064*	0.002	–0.015	–0.022	–0.014
CFO	–0.017*	–0.014	–0.013	–0.001	–0.019**
SIZE	–0.394*	–0.373**	–0.320**	–0.208**	–0.157*
AGE	–2.028*	–2.183**	–2.366**	–1.902**	–1.301**
OP	0.116*	0.064**	0.056*	0.067*	0.055
TENURE	–4.291*	–3.464**	–3.010**	–2.467**	–1.690**

Note: ** and * denote significance at the 5 per cent and 10 per cent levels, respectively.

($CPA \leq 5$) to verify the reasonableness of this policy. For the complete structure of the balanced sample, this paper uses a dummy variable (*DUM*, which equals 1 if the signing auditor tenure is more than 5 years, and 0 otherwise) to substitute the continuous variable (*CPA*) of signing auditor tenure, and introduces the interaction term *CPA**DUM* into the regression model. If the policy is rational, the coefficient of the dummy variable should be significantly positive; if there is any difference in audit behaviour between short and long tenure, the coefficient of the interaction item should differ significantly from 0. The results of Model II in Table 7 indicate that the coefficient of *DUM* is significantly negative, showing no evidence to support the expectations of the policy makers, but in fact indicating counter-results. In

Table 6 The Correlation Test for Variables

	|DA|	*CPA*	*RANK_M*	*ROA*	*BIG15*	*GW*	*LEV*	*CFO*	*SIZE*	*AGE*	*OP*	*TENURE*
|DA|		–0.09**	–0.05*	0.12**	–0.05**	0.05*	0.03	0.03	–0.05*	–0.07*	0.01	–0.06**
CPA	–0.07**		–0.15**	–0.02	0.22**	0.05**	–0.01	0.04*	0.12**	0.22**	–0.07**	0.50**
RANK_M	–0.04	–0.17**		–0.001	–0.34**	–0.01	–0.05*	–0.08**	–0.14**	–0.22*	–0.10**	–0.19**
ROA	–0.03	0.039	0.029		–0.02**	0.29**	–0.45**	0.34**	0.03	–0.28*	–0.33**	–0.15**
BIG15	–0.03	0.25**	–0.35**	0.01		0.03	0.05*	0.03	0.16**	0.21**	0.12**	0.23**
GW	0.02	–0.014	–0.032	0.03	0.001		0.02	0.25**	0.13**	0.05**	–0.19**	0.04
LEV	0.08*	–0.05**	–0.05*	–0.46**	0.012	0.001		–0.18**	0.06**	0.25**	0.25**	0.13**
CFO	–0.25*	0.045*	–0.05**	0.14**	0	0.009	–0.10**		0.15**	0.04*	–0.22**	0.08**
SIZE	–0.05*	0.14**	–0.14**	0.13**	0.15**	–0.05**	–0.11**	0.09**		0.15**	–0.14**	0.19**
AGE	–0.01	0.28**	–0.21**	–0.15**	0.22**	0.03	0.18**	0.01	0.15**		0.04*	0.54**
OP	0.003	–0.07**	–0.09**	–0.27**	0.12**	0.07**	0.30**	–0.14**	–0.15**	0.04		–0.07**
TENURE	–0.02	0.52**	–0.22**	–0.03	0.24**	–0.02	0.03	0.05*	0.21**	0.57**	–0.07**	

Note: (1) ** and * denote significance at the 5 per cent and 10 per cent levels, respectively.
(2) The top-right presents the Spearman correlation coefficients, while the down-left presents the Pearson correlation coefficients.
(3) $|DA|$ refers to $|DA_1|$; since the results of $|DA_2|$ are similar to those of $|DA_1|$, we did not list the former's results for simplicity.

addition, as Model III in Table 7 shows, we find that the coefficient of *CPA**DUM* is significantly negative while the negative coefficient of *CPA* is not significant. This means that the effect of signing auditor tenure on $|DA|$ for a long tenure ($DUM = 1$) is better than that for a short tenure ($DUM = 0$), and that a long signing auditor tenure ($CPA > 5$) is favourable to improving audit quality. This indicates that the 5-year mandatory rotation policy may not meet the intentions of the regulation.[8]

On the whole, although audit quality improves as signing auditor tenure increases, there are different relationships between signing auditor tenure and audit firm tenure, which are mainly of two types. In the one, the tenure of the signing auditor is longer than the audit firm's. In this case, former clients follow the signing auditor, who is working in another audit firm after job hopping or the dissolution of the former audit firm. Under this circumstance, the signing auditor maintains a relatively good relation with the clients, even after leaving to work in another audit firm. But this "intimate" relationship may harm the signing auditor's independence and affect audit quality. In the other type, the tenure of the signing auditor is shorter than or the same as the audit firm's, and thus there may not be a private friendship between the signing auditor and the client, contributing to the maintenance of independence. Moreover, the increase in signing auditor tenure strengthens the perception of specific risks and special knowledge of specific clients, professional capacity improves, and reliance on management estimates decreases, ultimately further promoting audit quality.

In view of the above, we partition the total sample into two sub-samples to run regressions, where one sub-sample consists of observations with a signing auditor tenure longer than audit firm tenure; the remaining observations belong to another sub-sample. The results are shown in Table 8. For the sub-sample with a signing auditor tenure longer than audit firm tenure, the increase in signing auditor tenure does not lead to an improvement in audit quality; the coefficients of *DUM* and *CPA**DUM* are significantly positive, showing that a long tenure ($CPA > 5$) of the signing auditor will harm audit quality, in which case the 5-year mandatory rotation policy helps to improve audit quality. In contrast, for another sub-sample with an audit firm tenure longer than or the same as the signing auditor tenure, audit quality improves gradually as signing auditor tenure increases, and a longer signing auditor tenure ($CPA > 5$) can assist in improving audit quality. For this case, the rotation regulation is unfavourable to improving audit quality.

Owing to the joint effect of audit firm tenure and signing auditor tenure on earnings management and the difficulty in distinguishing between the two, we need to study the effect of signing auditor tenure on earnings management after controlling for audit firm tenure to enhance the robustness of the conclusion that signing auditor

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8 At the same time, the sample observations are divided into two groups: when $DUM = 0$ and when $DUM = 1$. We find from the group ($DUM = 0$) that the sign of the coefficient between *CPA* and $|DA_1|$ and that between *CPA* and $|DA_2|$ are inconsistent, and both are not significant. For the group ($DUM = 1$), the coefficient between *CPA* and $|DA_1|$ is −0.005, with a p value at 0.1056; the coefficient between *CPA* and $|DA_2|$ is −0.006, with a p value at 0.1328.

Table 7 The Effect of Signing Auditor Tenure on Earnings Management

Balanced sample	Expected sign	Model I						Model II		
		$\lvert DA_1\rvert$			$\lvert DA_2\rvert$			$\lvert DA_1\rvert$		
		Fixed effect	Random effect	OLS	Fixed effect	Random effect	OLS	Fixed effect	Random effect	OLS
Intercept		–0.100 (0.43)	0.113 (0.02)	0.120 (0.01)	0.141 (0.30)	0.239 (0.00)	0.233 (0.00)	–0.100 (0.43)	0.106 (0.02)	0.112 (0.01)
CPA	?	–0.002 (0.19)	–0.003 (0.02)	–0.003 (0.01)	–0.0009 (0.60)	–0.002 (0.09)	–0.002 (0.06)			
DUM	?							–0.013 (0.03)	–0.014 (0.01)	–0.014 (0.00)
*CPA**DUM*	?									
RANK_M	+	–0.0001 (0.95)	–0.001 (0.02)	–0.001 (0.01)	0.0006 (0.48)	–0.001 (0.06)	–0.001 (0.03)	0.0001 (0.92)	–0.001 (0.02)	–0.001 (0.01)
ROA	–	–0.004 (0.80)	0.012 (0.37)	0.016 (0.24)	–0.282 (0.00)	–0.256 (0.00)	–0.246 (0.00)	–0.005 (0.75)	–0.011 (0.42)	0.015 (0.27)
BIG15	–	–0.015 (0.10)	–0.005 (0.32)	–0.004 (0.37)	–0.010 (0.32)	–0.006 (0.23)	–0.006 (0.22)	–0.014 (0.11)	–0.004 (0.35)	–0.004 (0.39)
GW	+	0.0001 (0.84)	0.002 (0.52)	0.0002 (0.44)	0.001 (0.08)	0.001 (0.02)	0.001 (0.00)	0.0001 (0.87)	0.002 (0.54)	0.0002 (0.46)
LEV	+	0.011 (0.23)	0.016 (0.02)	0.017 (0.01)	–0.018 (0.06)	0.007 (0.33)	0.014 (0.05)	0.011 (0.23)	0.016 (0.02)	0.017 (0.01)
CFO	–	–0.145 (0.00)	–0.161 (0.00)	–0.162 (0.00)	–0.138 (0.00)	–0.144 (0.00)	–0.144 (0.00)	–0.148 (0.00)	–0.162 (0.00)	–0.164 (0.00)
SIZE	–	0.009 (0.15)	0.002 (0.47)	–0.002 (0.33)	0.001 (0.86)	–0.007 (0.01)	–0.007 (0.00)	0.009 (0.16)	–0.016 (0.48)	–0.002 (0.34)
AGE	–	–0.002 (0.29)	–0.001 (0.52)	–0.001 (0.53)	–0.004 (0.02)	–0.001 (0.25)	–0.001 (0.47)	–0.001 (0.38)	–0.005 (0.64)	–0.0004 (0.66)
OP	?	–0.013 (0.05)	–0.011 (0.04)	–0.011 (0.03)	–0.019 (0.01)	–0.011 (0.05)	–0.010 (0.07)	–0.013 (0.05)	–0.11 (0.03)	–0.011 (0.03)
TENURE	+	0.002 (0.90)	0.001 (0.34)	0.001 (0.29)	0.0006 (0.70)	0.0006 (0.60)	0.0005 (0.67)	0.0002 (0.90)	0.001 (0.43)	0.001 (0.39)
R^2		0.06	0.98	0.09	0.24	0.27	0.29	0.07	0.09	0.08
Adjust-R^2		0.05	0.08	0.07	0.22	0.26	0.27	0.05	0.08	0.07
χ^2/F value		7.01 (0.00)	117.22 (0.00)	11.40 (0.00)	38.10 (0.00)	532.72 (0.00)	49.96 (0.00)	7.31 (0.00)	119.38 (0.00)	11.56 (0.00)
Hausman test		14.24 (P = 0.22)			41.51 (0.00)			13.80 (0.24)		
CPA + *CPA**DUM*										

Note: (1) *DUM*, a dummy variable, which equals 1 if signing auditor tenure is more than 5 years, and 0 otherwise; (2) P-value is listed in the parentheses.

			Model III					
$\lvert DA_2\rvert$			$\lvert DA_1\rvert$			$\lvert DA_2\rvert$		
Fixed effect	Random effect	OLS	Fixed effect	Random effect	OLS	Fixed effect	Random effect	OLS
0.144	0.233	0.227	−0.100	0.107	0.114	0.146	0.230	0.225
(0.28)	(0.00)	(0.00)	(0.44)	(0.02)	(0.01)	(0.28)	(0.00)	(0.00)
			0.0004	−0.0004	−0.001	0.003	0.0015	0.001
			(0.88)	(0.82)	(0.74)	(0.20)	(0.48)	(0.64)
−0.015	−0.014	−0.014						
(0.03)	(0.01)	(0.01)						
			−0.003	−0.022	−0.002	−0.004	−0.003	−0.003
			(0.09)	(0.10)	(0.13)	(0.01)	(0.03)	(0.05)
0.001	−0.001	−0.001	0.0001	−0.001	−0.001	0.0001	−0.001	−0.001
(0.39)	(0.07)	(0.03)	(0.95)	(0.02)	(0.01)	(0.37)	(0.07)	(0.03)
−0.282	−0.257	−0.248	−0.004	0.111	0.015	−0.283	−0.258	−0.248
(0.00)	(0.00)	(0.00)	(0.76)	(0.40)	(0.26)	(0.00)	(0.00)	(0.00)
−0.009	−0.006	−0.005	−0.014	−0.004	−0.003	−0.008	−0.005	−0.005
(0.38)	(0.29)	(0.27)	(0.12)	(0.38)	(0.43)	(0.39)	(0.30)	(0.28)
0.001	0.001	0.001	0.0001	0.0002	0.0002	0.001	0.001	0.001
(0.01)	(0.00)	(0.00)	(0.87)	(0.54)	(0.46)	(0.01)	(0.00)	(0.00)
−0.018	0.007	0.014	0.011	0.016	0.017	−0.018	0.007	0.014
(0.06)	(0.34)	(0.05)	(0.23)	(0.02)	(0.01)	(0.07)	(0.33)	(0.05)
−0.141	−0.145	−0.145	−0.147	−0.0161	−0.163	−0.141	−0.145	−0.145
(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
−0.002	−0.007	−0.007	0.008	−0.002	−0.002	−0.002	−0.007	−0.007
(0.81)	(0.01)	(0.00)	(0.17)	(0.47)	(0.33)	(0.75)	(0.01)	(0.00)
−0.004	−0.001	−0.001	−0.001	−0.005	0.0004	−0.003	−0.001	−0.001
(0.04)	(0.32)	(0.57)	(0.43)	(0.67)	(0.67)	(0.06)	(0.40)	(0.64)
−0.019	−0.11	−0.010	−0.013	−0.011	−0.011	−0.020	−0.011	−0.010
(0.01)	(0.05)	(0.07)	(0.05)	(0.03)	(0.03)	(0.00)	(0.05)	(0.06)
0.001	0.001	0.0004	0.0002	0.001	0.001	0.0006	0.0006	0.0004
(0.41)	(0.53)	(0.68)	(0.90)	(0.37)	(0.31)	(0.68)	(0.64)	(0.73)
0.23	0.29	0.28	0.07	0.09	0.08	0.23	0.29	0.28
0.22	0.27	0.27	0.05	0.08	0.07	0.22	0.27	0.27
38.68	538.10	50.37	6.68	119.90	10.65	35.61	539.04	46.22
(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
40.86			14.67			43.70		
(0.00)			(0.26)			(0.00)		
			−0.002	−0.022	−0.003	−0.001	−0.001	−0.002
			(0.19)	(0.03)	(0.02)	(0.61)	(0.19)	(0.13)

Table 8 Regression Results after Partitioning the Sample According to Tenure of the Signing Auditor and Audit Firm

	Expected sign	Signing auditor tenure ≤ audit firm tenure (N = 1422)						Signing auditor tenure > audit firm tenure (N = 73)					
		Model I		Model II		Model III		Model I		Model II		Model III	
		$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$
Intercept		0.123	0.234	0.113	0.227	0.115	0.224	0.430	0.535	0.459	0.562	0.453	0.554
		(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
CPA	?	–0.003	–0.003			–0.001	0.001	0.009	0.007			–0.003	–0.003
		(0.01)	(0.06)			(0.81)	(0.56)	(0.24)	(0.36)			(0.77)	(0.80)
DUM	?			–0.016	–0.015					0.032	0.028		
				(0.00)	(0.01)					(0.04)	(0.09)		
*CPA*DUM*	?					–0.003	–0.003					0.007	0.006
						(0.08)	(0.04)					(0.09)	(0.18)
RANK_M	+	–0.001	–0.001	–0.001	–0.001	–0.001	–0.001	–0.001	–0.0004	–0.001	–0.0004	–0.001	–0.0003
		(0.01)	(0.02)	(0.01)	(0.03)	(0.01)	(0.03)	(0.24)	(0.59)	(0.23)	(0.58)	(0.31)	(0.68)
ROA	–	0.015	–0.247	0.014	–0.248	0.014	–0.248	0.021	–0.380	0.002	–0.396	–0.008	–0.405
		(0.27)	(0.00)	(0.31)	(0.00)	(0.30)	(0.00)	(0.87)	(0.01)	(0.99)	(0.00)	(0.95)	(0.00)
BIG15	–	–0.006	–0.008	–0.005	–0.007	–0.005	–0.007	0.022	0.020	0.021	0.019	0.020	0.019
		(0.21)	(0.13)	(0.23)	(0.16)	(0.25)	(0.16)	(0.18)	(0.22)	(0.18)	(0.23)	(0.21)	(0.26)
GW	+	0.0002	0.001	0.0002	0.001	0.0002	0.001	0.013	0.013	0.012	0.013	0.012	0.013
		(0.49)	(0.00)	(0.51)	(0.00)	(0.51)	(0.00)	(0.14)	(0.14)	(0.15)	(0.15)	(0.15)	(0.15)
LEV	+	0.016	0.013	0.016	0.013	0.016	0.013	0.034	–0.005	0.033	–0.006	0.033	–0.005
		(0.02)	(0.07)	(0.02)	(0.07)	(0.02)	(0.07)	(0.46)	(0.92)	(0.46)	(0.90)	(0.46)	(0.91)
CFO	–	–0.177	–0.159	–0.177	–0.159	–0.177	–0.159	0.189	0.264	0.212	0.285	0.212	0.284
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)
SIZE	–	–0.002	–0.006	–0.002	–0.006	–0.002	–0.006	–0.019	–0.023	–0.020	–0.023	–0.019	–0.022
		(0.33)	(0.01)	(0.35)	(0.01)	(0.34)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)
AGE	–	–0.001	–0.001	–0.0005	–0.001	–0.0005	–0.001	–0.005	–0.003	–0.005	–0.003	–0.005	–0.003
		(0.46)	(0.38)	(0.63)	(0.49)	(0.65)	(0.59)	(0.21)	(0.46)	(0.20)	(0.44)	(0.20)	(0.45)
OP	+	–0.011	–0.010	–0.011	–0.010	–0.011	–0.010	0.020	0.028	0.021	0.029	0.022	0.029
		(0.04)	(0.08)	(0.04)	(0.08)	(0.03)	(0.07)	(0.26)	(0.14)	(0.23)	(0.12)	(0.22)	(0.12)
TENURE	+	0.002	0.001	0.001	0.001	0.001	0.001	–0.002	–0.009	–0.002	–0.009	–0.002	–0.009
		(0.17)	(0.52)	(0.26)	(0.52)	(0.22)	(0.65)	(0.77)	(0.22)	(0.70)	(0.11)	(0.73)	(0.21)
R^2		0.09	0.09	0.09	0.28	0.28	0.28	0.31	0.34	0.34	0.40	0.42	0.41
Adj.R^2		0.08	0.08	0.08	0.27	0.28	0.28	0.18	0.22	0.21	0.29	0.31	0.30
F-value		12.5	12.75	11.73	49.53	50	45.88	2.47	2.48	2.58	3.64	3.94	3.53
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Note: (1) N represents the number of observations in the sub-samples; (2) *DUM*, a dummy variable, which equals 1 if the signing auditor tenure is more than 5 years, and 0 otherwise; (3) p-values are listed in parentheses.

tenure affects earnings management. Therefore, we divide the sample into five groups according to audit firm tenure to analyse the impact of signing auditor tenure on earnings management after controlling for audit firm tenure. The whole observations are divided into the following five sub-samples in terms of audit firm tenure: 1–2 years, 3–4 years, 5–6 years, 7–8 years, and 9–10 years. Since there are only five observations in the sub-sample of 11 years, our research does not consider this sub-sample. Among the five sub-samples considered, those of 1–2 years and 3–4 years have 51 and 18 observations, respectively, with a signing auditor tenure longer than that of the audit firm, and 2 and 3 observations, respectively, with a signing auditor tenure of more than 5 years. Among the sub-samples of 5–6 years, 7–8 years, and 9–10 years, observations with a signing auditor tenure longer than audit firm tenure are 3, 1, and 0, respectively, and observations with a signing auditor tenure of more than 5 years are 47, 69, and 46, respectively.[9] This means that when compared with the sub-samples of 5–6 years, 7–8 years, and 9–10 years, more cases of clients following signing auditors after such auditors job-hop or their former audit firms dissolve are found in the sub-samples of 1–2 years and 3–4 years. Because of structural differences among the sub-samples and because the effect of audit firm is basically controlled, such variables as *DUM* and *TENURE* are not brought into the regression again. Table 9 presents the regression results. For the sub-samples of 5–6 years, 7–8 years, and 9–10 years, earnings management decreases and audit quality gradually improves with the increase of signing auditor tenure; however, for the sub-samples of 1–2 years and 3–4 years, the negative relation is not significant, and audit quality does not improve.

The reason for the above results may be that more observations of clients following signing auditors after they have changed jobs or their former audit firms have dissolved are found in the sub-samples of 1–2 years and 3–4 years than in the sub-samples of 5–6 years, 7–8 years, and 9–10 years. Of course, another explanation may be that the tenure of signing auditors is relatively short in the sub-samples of 1–2 years and 3–4 years; therefore, auditors have not acquired adequate specialized knowledge of and learned the corresponding risks of specific clients; as a result, both professional capacity and audit quality show no improvement.

We run the regression again according to the method used in Table 9 after eliminating observations where signing auditor tenure is longer than audit firm tenure. The results are presented in Table 10, where the coefficients of *CPA* are insignifi-

[9] The total sample is divided into the following sub-samples based on audit firm tenure:

Sub-sample	1–2 years	3–4 years	5–6 years	7–8 years	9–10 years
Observations	350	408	385	235	112
Observations of signing auditor tenure more than 5 years	2	3	47	69	46
Observations of signing auditor tenure longer than audit firm tenure	51	18	3	1	0

Table 9 The Effect of Signing Auditor Tenure on Earnings Management When Sample is Divided Based on Audit Firm Tenure

	1–2 years (N = 350)		3–4 years (N = 408)		5–6 years (N = 385)		7–8 years (N = 235)		9–10 years (N = 112)	
	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$
Intercept	–0.018	0.172	0.057	0.159	0.301	0.323	0.236	0.360	0.297	0.268
	(0.80)	(0.05)	(0.52)	(0.10)	(0.00)	(0.00)	(0.12)	(0.02)	(0.07)	(0.15)
CPA	–0.0001	0.002	–0.003	–0.003	–0.003	–0.003	–0.006	–0.010	–0.005	–0.004
	(0.98)	(0.64)	(0.29)	(0.37)	(0.17)	(0.10)	(0.05)	(0.06)	(0.06)	(0.20)
RANK_M	–0.001	0.00002	–0.001	–0.001	0.000	–0.001	–0.001	–0.001	–0.002	–0.002
	(0.14)	(0.86)	(0.08)	(0.10)	(0.56)	(0.21)	(0.43)	(0.17)	(0.11)	(0.19)
ROA	–0.029	–0.264	0.152	–0.170	0.095	–0.335	0.396	0.100	0.024	–0.223
	(0.10)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)	(0.40)	(0.37)	(0.00)
BIG15	0.015	0.013	–0.022	–0.033	–0.002	–0.008	–0.007	0.00002	–0.018	–0.013
	(0.04)	(0.17)	(0.02)	(0.00)	(0.76)	(0.32)	(0.57)	(1.00)	(0.19)	(0.37)
GW	0.000	0.001	0.009	0.018	0.000	0.006	0.000	0.0002	0.018	0.048
	(0.60)	(0.02)	(0.00)	(0.00)	(0.92)	(0.17)	(0.91)	(0.92)	(0.14)	(0.00)
LEV	0.020	0.017	0.008	0.006	0.026	0.017	0.040	0.010	0.051	0.039
	(0.02)	(0.13)	(0.38)	(0.57)	(0.16)	(0.42)	(0.23)	(0.70)	(0.15)	(0.33)
CFO	–0.116	–0.095	–0.236	–0.196	0.022	–0.055	–0.374	–0.310	–0.016	–0.058
	(0.00)	(0.01)	(0.00)	(0.00)	(0.52)	(0.15)	(0.00)	(0.00)	(0.75)	(0.33)
SIZE	0.004	–0.005	0.001	–0.003	–0.011	–0.009	–0.007	–0.010	–0.007	–0.004
	(0.19)	(0.25)	(0.88)	(0.49)	(0.00)	(0.02)	(0.27)	(0.10)	(0.32)	(0.61)
AGE	–0.003	–0.001	0.005	0.004	–0.004	–0.007	0.002	–0.001	–0.009	–0.011
	(0.03)	(0.48)	(0.02)	(0.06)	(0.19)	(0.02)	(0.81)	(0.87)	(0.22)	(0.18)
OP	–0.004	–0.008	–0.005	–0.009	–0.005	–0.002	–0.010	–0.020	–0.017	–0.008
	(0.60)	(0.44)	(0.56)	(0.36)	(0.56)	(0.87)	(0.57)	(0.28)	(0.47)	(0.76)
R^2	0.105	0.425	0.162	0.280	0.049	0.240	0.256	0.190	0.152	0.651
Adjust-R^2	0.079	0.408	0.141	0.270	0.024	0.220	0.223	0.150	0.068	0.617
F-statistic	3.970	25.06	7.660	15.70	1.940	11.70	7.700	5.160	1.800	18.87
P.(F-sta)	(0.00)	(0.00)	(0.00)	(0.00)	(0.04)	(0.00)	(0.00)	(0.00)	(0.07)	(0.00)

Note: (1) N represents the number of observations in the sub-samples; (2) p-values are listed in parentheses.

Table 10 Regression Results after Eliminating Samples with Signing Auditor Tenure Longer than Audit Firm Tenure

	1–2 years (N = 299)		3–4 years (N = 390)		5–6 years (N = 382)		7–8 years (N = 234)		9–10 years (N = 112)	
	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$
Intercept	–0.033	0.163	0.040	0.134	0.307	0.331	0.244	0.362	0.297	0.268
	(0.64)	(0.08)	(0.66)	(0.19)	(0.00)	(0.00)	(0.11)	(0.02)	(0.07)	(0.15)
CPA	**–0.004**	**–0.001**	**–0.002**	**–0.0001**	**–0.003**	**–0.004**	**–0.006**	**–0.006**	**–0.005**	**–0.004**
	(0.55)	**(0.88)**	**(0.56)**	**(0.98)**	**(0.12)**	**(0.08)**	**(0.04)**	**(0.06)**	**(0.06)**	**(0.20)**
....	....	....	....	....	....	....	....	....		
R^2	0.160	0.460	0.165	0.290	0.055	0.252	0.257	0.187	0.152	0.651
Adjust-R^2	0.131	0.450	0.143	0.270	0.029	0.232	0.225	0.151	0.068	0.617
F-value	5.480	24.89	7.480	15.53	2.140	12.50	7.750	5.140	1.800	18.87
	(0.00)	(0.00)	(0.00)	(0.00)	(0.02)	(0.00)	(0.00)	(0.00)	(0.07)	(0.00)

Note: (1) N represents the number of observations in the sub-samples; (2) for simplicity, this table excludes the results of other variables similar to those in Table 9; (3) p-values are listed in parentheses.

cantly negative in the sub-samples of 1–2 years and 3–4 years. For the sub-sample of 5–6 years, the coefficients of *CPA* are –0.003 and –0.004 with p-values of 0.12 and 0.008 when $|DA_1|$ and $|DA_2|$ are dependent variables, respectively. The coefficients for the sub-samples of 5–6 years, 7–8 years, and 9–10 years are for the most part significantly negative. Moreover, as we eliminate observations with a signing auditor tenure longer than audit firm tenure, signing auditor tenure is no more than 2 years or 4 years in the sub-samples of 1–2 years and 3–4 years, respectively. No obvious improvement in audit quality can be found for short signing auditor tenure as tenure increases, but when it comes to long tenure (from 5 to 10 years), audit quality gradually improves as signing auditor tenure increases. This shows that as signing auditors acquire the special knowledge and perceptions of the specific risks of specific clients, their professional capacity gradually improves, and so does audit quality. Therefore, when signing auditor tenure is shorter than audit firm tenure, as mentioned above, the 5-year mandatory rotation regulation can benefit audit quality.

We also find that the signs of leverage level (*LEV*) and cash flows (*CFO*) are basically consistent with predicted signs; audit opinions (*OP*) are negatively associated with earnings management, and no consistent conclusions are drawn between the corporate governance environment variable and earnings management.

Furthermore, we partition the sample into two sub-samples according to the sign of discretionary accruals (that is, positive and negative earnings management) to test the attitude of auditors towards specific management patterns in implementing earnings management in China. As Table 11 shows, the coefficients of *CPA* are –0.001 and –0.006, respectively, but not significant within the sample of positive discretionary accruals (DA^+). However, the coefficients of *DUM* and the interaction term (*CPA*DUM*) are basically significantly negative and do not support the policy

Table 11 The Effect of Signing Auditor Tenure on Earnings Management Among Sub-Samples with Positive and Negative Discretionary Accruals (*DA*)

	Expected sign	DA_1^+ Sub-sample (N = 651)			DA_2^+ Sub-sample (N = 721)		
		Model I	Model II	Model III	Model I	Model II	Model III
Intercept		–0.109	–0.115	–0.124	0.096	0.091	0.084
		(0.04)	(0.03)	(0.02)	(0.05)	(0.06)	(0.09)
CPA	?	–0.001		0.003	–0.0006		0.003
		(0.49)		(0.15)	(0.61)		(0.15)
DUM	?		–0.012			–0.008	
			(0.04)			(0.12)	
*CPA*DUM*	?			–0.004			–0.003
				(0.02)			(0.03)
RANK_M	+	–0.0003	–0.0003	–0.0003	0.0003	0.0003	0.0003
		(0.24)	(0.25)	(0.27)	(0.29)	(0.27)	(0.24)
ROA	–	0.023	0.024	0.022	0.794	0.791	0.785
		(0.14)	(0.13)	(0.16)	(0.00)	(0.00)	(0.00)
BIG15	–	–0.002	–0.001	–0.001	–0.005	–0.004	–0.004
		(0.65)	(0.79)	(0.81)	(0.29)	(0.37)	(0.38)
GW	+	0.0002	0.0002	0.0002	–0.0001	–0.0001	–0.00005
		(0.45)	(0.46)	(0.46)	(0.83)	(0.84)	(0.85)
LEV	+	–0.016	–0.016	–0.016	0.001	0.001	0.002
		(0.21)	(0.22)	(0.21)	(0.82)	(0.81)	(0.75)
CFO	–	–0.597	–0.596	–0.597	–0.646	–0.644	–0.645
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
SIZE	–	0.009	0.009	0.009	–0.004	–0.004	–0.004
		(0.00)	(0.00)	(0.00)	(0.05)	(0.06)	(0.06)
AGE	–	0.001	0.001	0.001	0.007	0.007	0.007
		(0.55)	(0.47)	(0.34)	(0.00)	(0.00)	(0.00)
OP	+	–0.008	–0.008	–0.008	0.009	0.009	0.009
		(0.18)	(0.16)	(0.17)	(0.09)	(0.10)	(0.10)
TENURE	+	–0.002	–0.002	–0.002	–0.003	–0.002	–0.003
		(0.06)	(0.10)	(0.05)	(0.02)	(0.02)	(0.01)
R^2		0.647	0.631	0.631	0.69	0.69	0.70
Adjust-R^2		0.626	0.629	0.629	0.68	0.67	0.68
F-statistic		100.08	101.04	92.88	135.83	136.46	125.55
P. (F-sta)		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Note: (1) N represents the number of observations in the sub-samples; (2) *DUM*, a dummy variable, which equals 1 if signing auditor tenure is more than 5 years, and 0 otherwise; (3) p-values are listed in parentheses.

Expected sign	DA_1^- Sub-sample (N = 844)			DA_2^- Sub-sample (N = 774)		
	Model I	Model II	Model III	Model I	Model II	Model III
	–0.174	–0.172	–0.173	–0.208	–0.208	–0.209
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
?	0.001		0.0008	–0.0002		0.001
	(0.25)		(0.67)	(0.85)		(0.65)
?		0.0028			–0.004	
		(0.52)			(0.44)	
?			0.0004			–0.001
			(0.76)			(0.48)
–	0.0003	0.0003	0.0003	0.0004	0.0004	0.0004
	(0.15)	(0.17)	(0.16)	(0.09)	(0.10)	(0.10)
+	0.094	0.094	0.094	0.325	0.325	0.325
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
+	0.002	0.003	0.002	0.008	0.008	0.008
	(0.55)	(0.50)	(0.57)	(0.07)	(0.06)	(0.06)
–	0.001	0.001	0.001	–0.002	–0.002	–0.002
	(0.41)	(0.39)	(0.39)	(0.02)	(0.02)	(0.02)
–	–0.012	–0.013	–0.012	–0.024	–0.025	–0.025
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
+	–0.396	–0.396	–0.396	–0.465	–0.466	–0.465
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
+	0.007	0.007	0.007	0.009	0.008	0.008
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
+	0.00001	–0.00003	–0.00002	0.002	0.002	0.002
	(0.99)	(0.97)	(0.99)	(0.09)	(0.08)	(0.08)
–	–0.002	–0.002	–0.002	–0.013	–0.013	–0.013
	(0.69)	(0.68)	(0.70)	(0.02)	(0.02)	(0.02)
–	–0.001	–0.001	–0.001	–0.001	–0.001	–0.001
	(0.28)	(0.41)	(0.28)	(0.50)	(0.59)	(0.50)
	0.355	0.348	0.348	0.67	0.67	0.67
	0.343	0.333	0.333	0.66	0.66	0.66
	39.33	39.20	36.02	138.79	138.94	127.18
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

of mandatory rotation for signing auditors. Moreover, when signing auditor tenure is more than 5 years, the increase of tenure improves audit quality better than a tenure of 5 years or less. For the sub-sample of negative discretionary accruals (DA^-), the signs of the coefficient of *CPA* are neither consistent nor significant, indicating that as signing auditor tenure increases, auditors make no restrictions on negative earnings management. This is consistent with the findings in recent overseas literature (e.g., Myers *et al*., 2003; Kim *et al*., 2003). Negative earnings management may be one type of accounting information conservatism (conservative financial reporting behaviour); auditors do not advocate aggressive financial reporting, and they may thus tolerate negative earnings management.

In addition, we find that the sign of size (*SIZE*) in samples with positive discretionary accruals differs from the predicted sign, while that in samples with negative discretionary accruals is consistent with the predicted sign. The signs of cash flows (*CFO*) and operating income (*ROA*) in both the positive and negative sub-samples differ from the predicted signs, showing the distinctive effect of cash flows and profitability on both positive and negative earnings management.

VI. ROBUSTNESS TESTS

We conduct the following sensitivity tests to make our results robust. (1) The balance sample may exclude companies that are listed before 1998 but delisted between 1998 and 2002, and companies newly listed from 1998 to 2002; because these companies often have many problems, for which auditor independence may play a critical role, excluding them may lead to a bias in sample choice. Therefore, we run the OLS regression with the non-balanced sample between 1998 and 2002 in terms of the models from Tables 7 to 12 and find that the conclusions are basically consistent with those stated in this paper. The main regression results are listed in Table 12.[10] (2) To control for the annual effect, we add a yearly dummy variable in the

[10] As suggested by the anonymous reviewers, we choose the non-balanced sample between 1998 and 2002 to study again, and finally obtain 3377 observations involving 924 listed companies. Specific processes are presented in the following table. Since the VIF values of *DUM* and *CPA*DUM* are higher, around 25 and 30, respectively, consistent with Table 7, we do not use the *CPA, DUM*, or *CPA*DUM* variables in the regression.

	Observations
Observations of non-financial industries between 1998 and 2002 (A)	4597
Less: Observations where the number of companies is less than 10 in one industry between 1998 and 2002 (B)	82
Observations used to calculate *DA* (C = A – B)	4515
Less: Observations missing data of signing auditor tenure between 1998 and 2002 (D)	1122
Observations with zero main operating revenue between 1997 and 2001 (E)	16
Observations of the non-balanced sample (F = C – D – E)	3377

Table 12 The Effect of Signing Auditor Tenure on Earnings Management (N = 3377) (non-balanced sample)

	Expected sign	Model I		Model II		Model III	
		$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$
Intercept		0.185	0.253	0.182	0.249	0.186	0.254
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CPA	?	–0.003	–0.003			–0.003	–0.003
		(0.00)	(0.01)			(0.05)	(0.05)
DUM	?			–0.008	–0.007		
				(0.03)	(0.09)		
*CPA*DUM*	?					0.0001	0.0004
						(0.91)	(0.74)
RANK_M	+	0.00003	–0.00013	0.00005	–0.00011	0.00003	–0.0001
		(0.86)	(0.51)	(0.78)	(0.57)	(0.86)	(0.50)
ROA	–	0.003	0.001	0.003	0.001	0.003	0.001
		(0.35)	(0.70)	(0.38)	(0.76)	(0.35)	(0.71)
BIG15	–	–0.027	–0.097	–0.027	–0.097	–0.027	–0.097
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
GW	+	0.000	0.00000	0.00000	0.000	0.000	0.000
		(0.30)	(0.33)	(0.31)	(0.34)	(0.30)	(0.33)
LEV	+	0.023	0.022	0.023	0.023	0.023	0.022
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CFO	–	0.041	0.037	0.040	0.036	0.041	0.037
		(0.01)	(0.03)	(0.01)	(0.03)	(0.01)	(0.03)
SIZE	–	–0.006	–0.009	–0.006	–0.009	–0.006	–0.009
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
AGE	–	0.001	0.001	0.001	0.001	0.001	0.0005
		(0.16)	(0.51)	(0.10)	(0.40)	(0.17)	(0.56)
OP	+	–0.004	0.011	–0.004	0.011	–0.004	0.011
		(0.34)	(0.01)	(0.33)	(0.01)	(0.34)	(0.01)
TENURE	+	–0.00005	0.001	–0.001	–0.0002	–0.00004	0.001
		(0.95)	(0.56)	(0.39)	(0.84)	(0.96)	(0.54)
R^2		0.05	0.15	0.04	0.15	0.04	0.15
Adjust-R^2		0.04	0.15	0.04	0.15	0.04	0.15
F-statistic		13.91	54.54	13.54	54.05	12.75	49.99
P. (F-sta)		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CPA + *CPA*DUM*						–0.0029	–0.0026
						(0.00)	(0.00)

Note: (1) N stands for the number of the sub-sample observations; (2) p-values are listed in parentheses.

model and find that the conclusion is not affected. (3) Ranking the audit firms by client asset size, and further substituting the former Big 15 audit firms for the current top 10 audit firms annually, we re-run the regression and find that the conclusions are basically not affected. (4) Taking into account the fact that discretionary accruals may affect audit opinions, and owing to the potential endogeneity between the two, we eliminate observations with non-standard audit opinions and run the regression again; we find that the conclusions still hold (see Table 13). (5) We run the OLS regression with the balanced sample, the positive *DA* sample, and the negative *DA* sample, which are all truncated according to 3 times the standard deviation of the control variables, and find that the results are basically consistent with those stated in this paper.

Table 13 Regression Results of the Total Sample after Eliminating Companies with Non-standard Audit Opinions

	Expected sign	Total sample after eliminating companies with non-standard audit opinions (N = 1230)					
		Model I		Model II		Model III	
		$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$	$\|DA_1\|$	$\|DA_2\|$
Intercept		0.103	0.172	0.096	0.165	0.099	0.165
		(0.03)	(0.00)	(0.04)	(0.00)	(0.04)	(0.00)
CPA	?	–0.003	–0.003			–0.001	0.0001
		(0.03)	(0.04)			(0.66)	(0.98)
DUM	?			–0.012	–0.012		
				(0.02)	(0.02)		
*CPA*DUM*	?					–0.002	–0.002
						(0.31)	(0.14)
RANK_M	+	–0.001	–0.0004	–0.001	–0.0004	–0.001	–0.0004
		(0.05)	(0.14)	(0.06)	(0.15)	(0.05)	(0.15)
ROA	–	0.195	0.084	0.193	0.081	0.194	0.082
		(0.00)	(0.04)	(0.00)	(0.05)	(0.00)	(0.05)
BIG15	–	–0.006	–0.007	–0.005	–0.007	–0.005	–0.006
		(0.26)	(0.18)	(0.26)	(0.19)	(0.29)	(0.22)
GW	+	0.007	0.009	0.007	0.009	0.007	0.009
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
LEV	+	0.038	0.035	0.038	0.035	0.038	0.035
		(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
CFO	–	–0.189	–0.204	–0.190	–0.205	–0.189	–0.205
		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
SIZE	–	–0.002	–0.005	–0.002	–0.005	–0.002	–0.005
		(0.33)	(0.03)	(0.34)	(0.04)	(0.33)	(0.03)
AGE	–	–0.001	–0.0003	–0.0005	–0.0002	–0.0005	–0.0001
		(0.60)	(0.79)	(0.67)	(0.86)	(0.68)	(0.91)
TENURE	+	0.002	0.002	0.002	0.002	0.002	0.002
		(0.09)	(0.15)	(0.13)	(0.17)	(0.10)	(0.16)
R^2		0.11	0.13	0.12	0.12	0.11	0.13
Adjust-R^2		0.10	0.11	0.10	0.11	0.10	0.11
F-statistic		14.81	16.42	14.84	16.55	13.56	15.15
P. (F-sta)		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

Note: (1) N stands for the number of the sub-sample observations; (2) p-values are listed in parentheses.

VII. CONCLUSIONS AND LIMITATIONS

With a sample of listed A-share companies in mainland China between 1998 and 2002 before the policy on a 5-year mandatory rotation of signing auditors was implemented, we use discretionary accruals, which are estimated with the modified Jones model and the Jones model, respectively, to measure audit quality. Discretionary accruals are divided into positive and negative to study the relation between signing auditor tenure and audit quality. We find the following results: (1) An increase in signing auditor tenure significantly improves audit quality. For a long tenure (more than 5 years), the restriction effect on earnings management is obviously greater than that for a short tenure (5 years or less). (2) When the tenure of the signing auditor is longer than that of the audit firm, audit quality declines as signing auditor tenure increases. (3) On the other hand, when the tenure of the signing auditor is shorter than or the same as that of the audit firm, audit quality improves with the increase in signing auditor tenure. Moreover, the restriction effect imposed by a long tenure (more than 5 years) is evidently greater than that imposed by a short tenure (5 years or less). (4) The increase of signing auditor tenure helps restrain positive earnings management. (5) However, this increase does not control negative earnings management. The implication of these conclusions for regulators is that the policy on the 5-year mandatory rotation of signing auditors should be implemented according to specific circumstances. If signing auditor tenure is longer than audit firm tenure, the policy can be carried out; otherwise, it does nothing to improve audit quality.

Limitations include the following points: (1) Like the research of Myers *et al*. (2003), the data are sourced from prior to when the mandatory rotation regulation of signing auditors was implemented; thus, our research may have some limitations when its results are applied in a setting of mandatory rotation since under the regulation of mandatory rotation, auditors or management may make different decisions. However, the policy on the mandatory rotation of signing auditors *per se* is a regulatory decision based on auditors' previous behaviour, and thus the conclusions of this paper still have a positive significance to be referenced by regulators. (2) As Hribar and Nichols (2007) find, some company characteristic variables, such as variations in cash flows, net income, and operating revenue, should be added into the model with the absolute value of discretionary accruals as the dependent variable; otherwise, the results may be affected. But in this paper these characteristic variables are not considered. (3) Owing to restrictions on the data source, our research fails to consider the case where the signing auditor and the audit project-in-charge are not the same person, but changing the project-in-charge may have a potential effect on audit quality. We will conduct further research on this point.

REFERENCES

Please refer to pp. 29–32.