2012年9月 第14卷 第3期
中 国 会 计 与 财 务 研 究
China Accounting and Finance Review
Volume 14, Number 3 – September 2012

基金治理与非流通控股股东“合谋”：基于中国股权分置改革的实证研究*

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摘要

为解决上市公司的股权分置问题，中国政府于2005年起实施了一场改革（亦即股权分置改革），以使上市公司的非流通股能够上市流通。股权分置改革的核心问题是非流通股股东向流通股股东支付多少股改对价，以往的研究表明，机构投资者（基金）持股比例越高，股改对价越低，也就是说，机构投资者倾向于和非流通控股股东“合谋”，以制定一个对流通股股东较低的股改对价（Chen *et al*., 2011；Firth *et al*., 2010）。本文进一步拓展这一研究，旨在考察基金治理是否能够缓解基金管理者与非流通控股股东的“合谋”问题。我们的研究发现，开放式基金和外资背景的基金与非流通控股股东“合谋”的可能性更低，而机构持有份额比例较高的基金则更有可能和非流通控股股东发生“合谋”。

关键词：基金治理、股改对价、股权分置改革
中图分类号：F830.91、F230、F832

* 本文感谢教育部重点研究基地重大项目（10JJD63006）国家自然科学基金项目（71072036和71102134）和教育部新世纪优秀人才支持计划以及上海市曙光计划项目（11SG35）的资助。
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一、引言

在2005年之前，中国国内资本市场上的A股分为非流通股和流通股，非流通股的持有者一般为国家或国有法人，而流通股股东多为个人或机构投资者。这样的股权分置结构不仅影响了资本市场的价格发现功能，也容易引发非流通股股东与流通股股东之间的利益冲突，从而不利于中国资本市场的良性发展。

2005年4月，中国证券监督管理委员会（"证监会"）发起了旨在解决中国上市公司股权分置的一项改革，亦即股权分置改革（后文简称"股改"）。按照股改的要求，公司的非流通股股东须与流通股股东协商确定股改方案，由于股改后会有大量非流通股股票（股本总数的2/3左右）涌入市场，导致股票市场供给大幅增加，从而对当前股价形成价格压力，非流通股股东因此需支付股改对价[1]以抵消流通股股东可能面临的损失。显然，流通股股东意欲获得较高的对价，而非流通股股东则反之。

根据证监会的规定，[2]公司的股改方案须获得2/3流通股股东的表决通过方能实施。作为流通股股东中持股比例最大的机构投资者，[3]共同基金对股改方案的态度是非流通股股东获得足够支持的关键。[4]但是，作为共同基金的代理人，基金管理者却可能和基金投资者存在利益冲突(Mahoney, 2004)。在反复的交流和谈判中，由于如下原因，基金管理者可能倾向于同非流通控股股东"合谋"，从而牺牲流通股股东的利益。

首先，由于中国的基金公司一般是基于净资产的固定比例而非基金绩效获取固定的管理费，因此基金管理者缺乏同非流通控股股东协商以制定较高股改对价的经济动机。其次，共同基金需同上市公司管理层建立稳定的"良好关系"，以便维持信息渠道的畅通，从而获取信息优势。第三，中国基金管理公司的大股东多为大型投资银行，他们可能与上市公司具有某种业务联系，如证券承销或其他投行业务，因此基金管理公司的股东可能缺乏动机对基金管理者与上市公司非流通控股股东之间的"合谋"进行监督。据报道（李利明等，2006），在很多情况下，基金管理者和非流通控股股东之间的谈判事宜并非股改方案本身，而是讨论如何向基金管理者和其他一些机构投资者支付灰色收益。[5]

Chen *et al.*(2011)、靳庆鲁和原红旗(2008)、Firth *et al.*(2010)的研究发现，共同基金或机构投资者所持有的流通股比例越高，股改对价越低。但是，大部分此类研究仅把共同基金视作一个统一体，极少有研究对股改中不同类型基金的角色进行深

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1 股改对价定义为，每10股流通股从非流通股股东处获得的股份数量或折算后的股份数量。

2 2005年，证监会颁布《关于上市公司股权分置改革试点有关问题的通知》，中国证券监督管理委员会、国家资产管理委员会、财政部、中国人民银行和商务部联合颁布《关于上市公司股权分置改革的指导意见》。

3 截至2005年底，共有218家证券基金共管理4,691亿人民币资产。所有证券投资基金投资于A股市场共2,464亿人民币，占所有A股和B股的23.2%。来源：中国证券投资基金行业2005年度统计，《中国证券报》2006年1月6日出版。

4 Firth *et al.* (2010) 提到证监会将基金经理关于股权分置改革决策的投票权，转移至基金管理公司的投资委员会。但是，中国的基金管理公司的投资委员会由基金经理构成，且参与上市公司实地调查和与非流通股东谈判的也是基金经理（Cheng, 2005）。所以，在股改过程中，基金经理在股改对价谈判和投票表决中扮演重要角色。

5 李利明、郭宏超和孙健芳（《经济观察报》，2006年8月13日）提供了一则报道称，私有控股上市银行 — 深圳发展银行发言人向金融媒体披露，公司的首次改革尝试的失败是由于控股股东Newbridge Asia AIV III LP拒绝了基金经理的勒索性交换条件（Wang, 2010）。据《证券时报》（2005年9月5日）称，一些基金经理同上市公司管理层议价，凭其投票权要价200,000人民币。

入考察。我们希望通过分析基金治理机制是否有助于缓解此类“合谋”或代理问题，[6]从而在理论和实务上做出一定的贡献。

衡量基金治理的第一个代理变量为是否属于开放式基金。由于具有赎回机制，相比封闭式基金，开放式基金可能有较高的治理质量，从而较少可能与非流通控股股东进行“合谋”。第二个基金治理的代理变量是基金所从属的管理公司是否具有外资背景。由于声誉效应和文化背景差异，有外资背景的基金与非流通控股股东“合谋”的可能性较低。衡量基金治理的第三个代理变量是机构投资者所持有的基金份额。基金公司的投资者构成，除了个人投资者外，还有保险公司、养老金或一些其他类型的机构投资者。这些持有基金份额的机构投资者一方面具有监督基金管理者的动机(治理假说)。另一方面，由于这些机构的管理者也是代理人，所以基金的机构投资者也可能引致另外的代理问题。此外，大多数基金的机构投资者可能也是国有法人，因此，他们可能缺乏监管基金管理者和上市公司非流通控股股东之间“合谋”行为的动机(代理假说)。

基于1,153个中国上市公司的样本，我们的研究发现，相对封闭式基金和内资背景的基金，开放式基金和具有外资背景的基金较少可能与非流通控股股东进行“合谋”，同时我们还发现，机构投资者持有份额比例较高的基金更有可能与控股股东进行“合谋”，从而引发更为严重的代理问题。进一步的实证分析表明，“合谋”主要发生在非流通股股东提出初始股改方案之前，而不是对价的调整过程中，这一发现与基金管理者和非流通控股股东之间的“合谋”主要是基于隐性合约的推论一致。[7]总之，我们的实证结果表明：共同基金的某些治理特征能够缓解股改中基金管理者和非流通控股股东之间的“合谋”问题。

本文余下部分组织如下。第二部分是制度背景和研究假说的提出。第三部分描述模型设定和样本选择。第四部分讨论实证结果。最后，第五部分总结全文。

二、制度背景和研究假说

2.1. 制度背景

中国股票市场设立时，绝大多数国内上市公司的A股股票被分割为流通股和非流通股。虽然非流通股不能在公开市场转让交易，但非流通股股东依然享有与流通股股东相同的投票权、现金流权和其他法定权利(Huang and Xu, 2009)。这些非流通股通常由国家或特定国有法人所持有，在上市公司中占有较高的股份比例。非流通股股东可以通过协商或拍卖方式转让所持股份，但基于账面价值的转让价通常不反映上市公司的盈利能力(Chen and Yuan, 2005)。这样的股权分置结构引致了一系列对于公司治理的负面影响，从而阻碍了中国资本市场的良性发展与扩张。已有不少研究对此问题有过考察，比如，Chen *et al.*(2009)发现由于流通股和非流通股的差别定价，一些公司倾向于采用高股利支付政策将IPO或股票增发中募集的资金转移至控股股东等掏空行为。

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[6] 我们集中视角于共同基金，主要是因为共同基金是最重要的流通股股东，且其他机构投资者的相关数据难以公开获得。

[7] 隐性合约的缔结和执行需要依赖长期的信任关系。

为了解决股权分置所引致的问题，证监会在若干不成功的尝试之后，于2005年4月推行了股改，改革的主要目的是将所有非流通股转化为流通股。非流通股股东为了获得流通权，必须与流通股股东谈判确定一个双方均能接受的股改方案，以抵消当非流通股股东减持后可能对股价造成的负面影响。股改方案至少须得到三分之二的流通股股东赞成方能通过并实施。

典型的流通股股东是个人和机构投资者，而后者主要由共同基金、保险公司、养老金、证券公司、合格境外机构投资者(QFII)和公司法人等构成。截至2007年底，72.63%的流通股为机构所持有，其中65.23%为共同基金。共同基金由于持有较高比例的流通股份，故而能够在和非流通股股东的谈判中和随后的股改方案表决中扮演重要角色。

关于共同基金在股权分置改革中的作用，可能有两种截然相反的推论。按照基金的议价能力来预测，基金的持股比例越高，股改对价也应越高。原因在于，基金的投票权和谈判能力使其具有较高的议价能力，从而使得基金管理者能够在与非流通控股股东的谈判中，为流通股股东争取到更多的利益。而从基金的代理角度考虑，基金的持股比例可能与股改对价负相关。原因在于，共同基金所固有的代理问题，可能致使其在股改中主动寻租或被动设租，从而在同非流通股股东的谈判中，发生二者之间的"合谋"行为。处于与非流通控股股东"合谋"状态中的基金管理者，为了自身的利益，可能不再代表甚至会牺牲流通股股东的利益。

以往的研究表明，基金持有的流通股比例越高，流通股股东获得的股改对价越低(Chen *et al.*, 2011；靳庆鲁和原红旗，2006；Firth *et al.*, 2010；Wang, 2010)。这些证据与基于基金议价能力的预测相矛盾，而与基金的代理问题一致。附录A中图I展示了股改各方利益相关者之间的关系。

首先，在与上市公司非流通控股股东的谈判中，基金管理者是作为基金投资者的代理人。但是，对于中国的基金管理者而言，薪酬或管理费是基于净资产的固定比例而不是基金绩效。而且，不同于美国的共同基金(Tufano and Sevick, 1997；Guercio *et al.*, 2003；Chen *et al.*, 2008；Kong and Tang, 2008)，中国的所有基金均为没有董事会的契约型基金，[8]所以在中国，缺失来自独立董事的监督。因此，基金管理者可能既有动机又有机会损害基金投资者的利益。

第二，某些机构投资者可能与上市公司存在利益冲突(Brickley *et al.*, 1988；Chen *et al.*, 2007；Davis and Kim, 2007)。在中国，基金管理公司的股东通常为某些投资银行或证券公司。[9]证券公司会承担上市公司的证券承销、兼并收购或其他投行业务。在股改中，证券公司作为上市公司的保荐机构，仅在股改方案最终通过后才能获得报酬。所以，证券公司有动机推动流通股股东对股改方案的认可和赞同。由于这种业务上的联系，基金管理者可能不愿为了流通股股东的利益，而与上市公司的非流通控股股东发生利益冲突。

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8 中国基金管理公司有其自己的董事会和独立董事，但是基金管理公司的股东并不一定等同于基金投资人。基金管理公司的独立董事旨在保护股东的利益，而非基金投资人的利益。

9 例如，富国基金管理公司的最大两名股东为两家投资银行 — 海通证券公司和申银万国证券公司。

第三，基金需要和上市公司的管理层建立稳定的“良好关系”，以便获取信息上的优势。公司管理层在公司的信息方面具有优势，并能够控制信息流向哪些投资者。他们能够滞留信息或限制信息流向某些投资者，而引导信息流向其他投资者。Williams and Ryan (2007)指出，上市公司管理层可能向某些特定股东透露信息，以获得他们的支持。

基金管理者和上市公司非流通控股股东之间的“合谋”，可视为是主要建立在相互信任基础之上的隐性合约。长期而言，作为一种附带好处，可以在市场上塑造一种“良好相处”的声誉，从而促进基金公司与其他公司之间的合作或互动。中国2000年报道的“基金黑幕”揭露了基金管理者的种种不端行为。[10]

当然，基金投资者可诉诸法律来维护其利益，但在大多数情况下，利益受到侵犯的证据非常难以获取。基金投资者保护其利益的另外一个途径，也许是最为切实有效的途径，是依赖基金治理来缓解由于代理问题所导致的隐性损害。基金治理的目标是缓解基金的代理问题，并保护基金投资者的利益。所以，关于基金治理的实证研究，无论在理论上，还是实务上均有一定的现实意义。

2.2. 研究假说的提出

中国的股改为我们从一个全新的视角来考察基金的代理问题提供了机会。现有文献表明，基金管理者倾向于同非流通控股股东“合谋”以制定一个较低的股改对价。因此，从实证的角度，基金的代理问题可以用基金持股比例和股改对价之间的负关系加以衡量，本文研究重点即为基金的治理机制能否缓解因为“合谋”而导致的这种负相关关系。

以往的文献表明，赎回机制对于基金治理具有重要的作用，如果开放式基金的投资者对基金管理者不满意，可以赎回其持有的基金份额，这将实质上减少基金的净资产数额，从而减少基金管理者的报酬。相比而言，封闭式基金的投资者只能在二级市场出售其持有份额，这可能导致基金份额的交易价格下跌，但是并没有改变基金净资产数额。[11]而且，一个被认为管理良好的开放式基金不仅能够保持其原有资本，还能吸引新资本投资于基金。大量涌入的新资本可使基金管理者获得额外收益，并由此进一步改善基金管理者代表基金投资者最大利益而行事的治理机制。Fama and Jensen (1983a, 1983b, 1985)指出，投资者可赎回其资产的选择权是一种重要的治理机制。Sirri and Tufano (1998)认为，基金投资者会根据优良的业绩记录选择投资开放式基金。Qian(2006)发现，有可赎回机制的共同基金发生丑闻的可能性较低。

在中国，一个基金管理公司可能既有开放式基金，也有封闭式基金。由于开放式基金和封闭式基金属于同一个基金管理公司，所以二者之间可能被认为没有区别。但是，开放式基金的赎回机制可能导致基金公司配置更多资源到其管理的开放式基金。虽然中国关于共同基金的法规要求基金公司不能在其控制的基金之间区别对待，但MacKay and Wu (2007)的研究发现，中国的基金管理公司，在资金和人力

[10] 关于共同基金丑闻，详见Mahoney(2004)和Zhang(2006)。
[11] 在封闭式基金的持续期间，基金管理公司必须持有至少0.5%的基金份额。除非基金管理公司持有份额远超过0.5%，否则份额的大幅下跌实际上不会对基金管理公司产生损害。

的分配上都更多倾向于开放式基金。所以，我们预期开放式基金比封闭式基金可能拥有更好的治理质量。

在股改过程中，开放式基金的投资者，如果意识到基金管理者可能和上市公司的非流通控股股东"合谋"，并损害他们的利益，就可能赎回其份额。所以，潜在的可赎回机制能够缓解或约束开放式基金管理者的代理问题。基于上述分析，我们提出研究假说一：

H1: 相比封闭式基金，开放式基金主导的上市公司发生"合谋"的可能性较低。

本文关于基金治理质量的第二个代理变量是基金的外资背景。吸引外国机构投资者进入国内市场是中国政府的长期政策，旨在增加国际化程度，促进中国股票市场的健康发展。由于严格的准入资格，被允许进入中国市场的都是在全球享有盛名的机构投资者。[12]截至2007年底，共有159家基金和28家合资基金公司具有外资背景，管理13,254.4亿人民币的资产，占基金市场的40.45%。[13]一般来讲，我们预期具有外资背景基金的治理结构相比纯粹内资背景的基金公司存在一定优势。

除此之外，"合谋"是一种不具有法律约束力的隐性契约。这种隐性契约的缔结和执行依赖于双方的相互信任。外国机构投资者对国内市场较为陌生，可能在短时间内难以和上市公司的非流通控股股东建立长期"关系"。由于声誉效应和对国内控股股东的不熟悉，在股改中，相比纯粹内资背景的基金，外资背景的基金受代理问题的影响可能更少。根据上述分析，提出本文的第二个研究假说：

H2: 相比内资背景的基金，外资背景基金主导的上市公司发生"合谋"的可能性较低。

第三个考察基金治理质量的代理变量是共同基金的所有权结构。现有文献关于机构投资者发挥治理作用的研究主要集中在上市公司，并形成了两种相反的观点。第一种观点认为，机构投资者能够提高治理质量。例如，Carleton *et al.*(1998)和Smith(1996)研究发现，机构投资者能够发挥监督作用。因此，如果机构投资者有足够的动机，作为基金投资者，至少能够在一定程度上监督基金管理者。在股改中，随着机构投资者持有基金份额的增加，基金管理者更有可能代表基金投资者的利益行事，而与非流通控股股东"合谋"的可能性更低。

另一种观点则认为，机构投资者会导致治理质量恶化，因为机构投资者也有动机利用其投票权去侵占公司资源或谋取私利 (Woidtke, 2002；Davis and Kim, 2007)。以往的研究发现，基金的机构投资者更有可能加剧基金的代理问题。以美国封闭式基金为例，Barclay *et al.* (1993)发现，机构所有权越集中，折价越严重，此现象在共同基金的大股东为非盈利组织时尤其明显。他们将此现象解释为共同基金大股东与小股东之间的利益冲突。他们的进一步研究表明，通过与基金管理者勾结，每一个基金的大股东都可以在某种程度上谋取私利。

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[12] 例如，JP摩根是中国国际基金管理公司的国外合伙人，UBS是国投瑞银基金管理公司的国外合伙人。

[13] 来源：中国共同基金行业2007 年度报告，中国证券业协会出版。

中国共同基金的主要机构投资者包括保险公司、养老金和其他国有法人实体。[14] 中国大多数的保险公司和养老金都是国有性质，所以可能存在与其他国有实体相似的代理问题。而且，这类国有机构可能与国有企业的控股股东享有相似的利益。这一制度背景可能引发双重代理问题，即国有养老基金和保险公司的管理者（代理人）较少有动机去监督基金管理者。因此，基金的机构投资者持有份额比例越高，基金管理者则越有可能和非流通控股股东“合谋”。所以，关于基金的机构投资者的作用问题，我们提出两个竞争性假说（治理假说与代理假说）如下。

H3a：机构持有份额较高的基金所主导的公司发生“合谋”的可能性越低（治理假说）。

H3b：机构持有份额较高的基金所主导的公司发生“合谋”的可能性越高（代理假说）。

附录A中图II展示了三个研究假说的逻辑关系。

三、模型设定和样本选择

3.1. 模型设定

检验假说的基本回归模型如下：

$$\begin{aligned} CR\_FINAL = {} & \alpha_0 + \alpha_1 FUND\_GOV + \alpha_2 FUND + \alpha_3 FUND\_GOV*FUND \\ & + \alpha_4 ROA + \alpha_5 B/M + \alpha_6 VOL + \alpha_7 LIM\_YR + \alpha_8 NPROP \\ & + \alpha_9 INDP\_RATIO + \alpha_{10} HERFINDAHL5 + \alpha_{11} CENTRAL \\ & + \alpha_{12} LOCAL + \alpha_{13} ZHUIJIA + \alpha_{14} ZCHI + \alpha_{15} DIV + \alpha_{16} INJECT \\ & + \sum SEQ + \varepsilon \end{aligned} \quad (1)$$

其中：

CR_FINAL－最终股改对价：非流通股股东应该向流通股股东提供一个双方均能接受的股改方案，以换取流通权。直接支付股份是最常见的方式，其他支付对价的方式包括：认股权证、资产重组、股票回购、注资和现金支付等。在本文中，我们将不同类型的对价支付方式折算为统一度量，即流通股股东每10股可获得的股份数量。具体折算方法如附录B所示。

FUND－共同基金持股比例，此变量定义为股改前，前十大流通股股东中，基金所持有股份数额占总流通股本的比例。

基金治理(*FUND_GOV*)采用三个哑变量，即0/1变量衡量。根据以往文献，共同基金的持股比例(*FUND*)和股改对价(*CR_FINAL*)之间的负相关关系，可能反映了基金的代理问题，所以本文主要关注共同基金的治理机制能否缓解这一代理问题。为

[14] 中国的养老基金是由一个国有实体 — 国家社会保障基金委员会所管理和监督的。就投资组合而言，以社会保障养老基金组合109和社会保障养老基金组合602为例，二者皆投资于若干共同基金。

了检验H1，我们设置了*OPEN*哑变量，如果在一家公司的前十大流通股股东中，开放式基金所持有的流通股比例高于封闭式基金所持有的比例，那么这家公司就被认为是开放式基金占主导的公司，*OPEN*取值为1，否则取值为0。因为开放式基金与非流通控股股东"合谋"的可能性相对较低，我们预期*FUND*OPEN*的系数显著为正。

为了检验H2，我们引入了基金管理公司是否具有外资背景的哑变量。当公司前十大流通股股东中，有外资背景的基金所持有的股份比例大于无外资背景的基金时，哑变量*FOREIGN*取值为1，否则取值为0。因为具有外资背景的基金与非流通控股股东进行"合谋"的可能性相对较低，我们预期*FUND*FOREIGN*的交乘项系数显著为正。

为了检验H3，我们引入了*HIGH_IO*哑变量。对于公司前十大流通股股东中的基金，如果机构投资者平均所持基金份额大于全样本的中位数，则*HIGH_IO*取值为1(即机构持有份额较高的基金占主导的公司)，否则取值为0。如果代理假说成立，即机构持有份额较高的基金与非流通控股股东"合谋"的可能性更高，则预期*FUND*HIGH_IO*的交乘项系数显著为负；如果治理假说成立，即机构持有份额较高的基金可发挥良好的治理作用，则预期交乘项的系数显著为正。

根据以往文献(Chen *et al.*, 2011；靳庆鲁和原红旗，2006；Firth *et al.*, 2010；Li *et al.*, 2011)，我们在模型中加入以下控制变量：*ROA*－总资产回报率，*B/M*－账面价值与市场价值比，*VOL*－股票回报波动率，*LIM_YR*－股改公司非流通股份的限售时间，*NPROP*－非流通股比例，*INDP_RATIO*－独立董事比例，*HERFINDAHL5*－前五大流通股股东的赫芬达尔指数(Herfindahl Index)，*CENTRAL*－中央政府控股哑变量，*LOCAL*－地方政府控股哑变量。*ZHUIJIA*、*ZCHI*、*INJECT*和*DIV*－股改承诺的哑变量，具体包括：追加承诺(*ZHUIJIA*)、增持承诺(*ZCHI*)、注资承诺(*INJECT*)，以及分红承诺。[15]*SEQ*－一组股改批次哑变量，为了控制不同股改批次差异的影响，我们对每一股改批次赋予一个哑变量，研究期间内股改公司分属67个股改批次。

3.2. 样本描述

股改开始时，深交所和上交所共有1,338家A股上市公司。如表1A所示，为了研究的需要，我们按如下程序进行了样本剔除，(1)没有非流通股无须股改的5家公司，(2) 2007年6月31日之前尚未完成股改的104家公司，(3)股改对价数据缺失的4家公司，(4)股票回报波动率数据缺失的16家公司，(5)前十大流通股股东中共同基金所有权结构数据缺失的56家公司，最终样本包含1,153家A股上市公司。样本公司的行业分布如表1B所示。在我们的样本公司中，按照证监会的行业分类标准，其中683家属于制造业，但这并不意味着行业的过度集中，因为我们样本的行业分布与全样本的行业分布非常接近，在所有1,338家A股上市公司中，有56%的公司属于制造业。

[15] 以追加承诺(*ZHUIJIA*)为例，如果公司未来几年股价一旦低于非流通股股东的承诺目标，非流通股股东将向流通股股东追送额外股份或现金，则取值为1，否则取0。其他哑变量的定义与此类似。

表1　样本选择和分布

表1A： 样本选择程序（样本期间：2005年4月29日至2007年7月31日）

选择步骤	公司数量
股权分置改革开始时中国A股上市公司	1,338
剔除没有非流通股的公司	5
剔除截至2007年7月31日尚未完成股改的公司	104
剔除股改对价数据缺失的公司	4
剔除股票回报波动率数据缺失的公司	16
剔除作为公司股东的基金的所有权结构数据缺失的公司	56
最终样本中的公司	1,153

表1B： 样本行业分布

证监会行业分类	公司数量
A. 农、林、牧、渔业	26
B. 采矿业	16
C. 制造业	683
D. 电力、煤气、水的生产和供应业	55
E. 建筑业	24
F. 交通运输、仓储业	48
G. 信息技术业	64
H. 批发和零售贸易	78
I. 金融、保险业	9
J. 房地产业	45
K. 社会服务业	36
L. 传播与文化产业	8
M. 综合类	61
合计	1,153

四、实证结果分析

4.1. 描述性统计

本文的数据来源于WIND数据库，表2报告了各变量的描述性统计量。为了避免极值的影响，我们对所有连续变量按1%及99%分位数进行了极值处理。首先，*CR_FINAL*的均值（中位数）即每持有10股流通股可获得的对价为2.978 (3.000)股。*CR_FINAL*的标准差为0.795，说明该变量在样本公司中存在一定的差异。本文样本中股改对价的分布与其他研究类似，如Li *et al.*(2011)。

*FUND*的均值和中位数分别为0.056和0.003。对于那些前十大流通股股东中没有基金持股的公司，*FUND*取值为0。*OPEN*和*FOREIGN*的均值分别为0.322和0.182，表明在样本中，有32.2% (18.2%)的公司，其前十大流通股股东中的开放式基金（外资背景基金）持股比例较高。*HIGH_IO*的均值是0.244，说明有24.4%的样本公司的基金投资者的机构持有份额较高。

表2： 描述性统计

变量	N	Min	Q1	Mean	Median	Std. Dev.	Q3	Max
CR_FINAL	1153	0.220	2.600	2.978	3.000	0.795	3.400	7.000
CR_RAW	1153	0.000	2.240	2.607	2.700	0.735	3.000	5.780
CR_REV	1153	-2.740	0.200	0.371	0.400	0.328	0.500	3.400
FUND	1153	0.000	0.000	0.056	0.003	0.086	0.090	0.396
ROA	1153	-0.469	0.005	0.016	0.022	0.070	0.046	0.205
B/M	1153	-0.440	0.334	0.532	0.506	0.275	0.699	1.383
VOL	1153	0.037	0.282	0.393	0.390	0.188	0.454	1.423
LIM_YR	1153	1.000	3.000	3.262	3.000	0.942	3.000	7.000
NPROP	1153	0.233	0.553	0.615	0.628	0.114	0.697	0.929
INDP_DIR	1153	0.000	0.333	0.341	0.333	0.051	0.364	0.571
HERFINDAHL5	1153	0.000	0.000	0.003	0.001	0.007	0.004	0.153
CENTRAL	1153	0.000	0.000	0.173	0.000	0.378	0.000	1.000
LOCAL	1153	0.000	0.000	0.475	0.000	0.500	1.000	1.000
ZHUIJIA	1153	0.000	0.000	0.123	0.000	0.329	0.000	1.000
ZCHI	1153	0.000	0.000	0.074	0.000	0.262	0.000	1.000
DIV	1153	0.000	0.000	0.227	0.000	0.419	0.000	1.000
INJECT	1153	0.000	0.000	0.042	0.000	0.201	0.000	1.000
OPEN	1153	0.000	0.000	0.322	0.000	0.468	1.000	1.000
FOREIGN	1153	0.000	0.000	0.182	0.000	0.386	0.000	1.000
HIGH_IO	1153	0.000	0.000	0.244	0.000	0.430	0.000	1.000

*CR_RAW*为初始股改对价。*CR_FINAL*为最终股改对价。*CR_REV*是从初始股改对价到最终股改对价的对价调整额。*FUND*是前十大流通股股东中的基金持股占所有流通股的比例。*ROA*是股改前的总资产回报率。*B/M*是股改前账面价值与市值的比值。*VOL*是股票回报的波动率。*LIM_YR*是非流通股的限售时间。*NPROP*非流通股占总股本的比例。*INDP_DIR*是董事会中独立董事数量占全部董事数量的比例。*HERFINDAHL5*是前五大流通股股东的赫芬达尔指数。*CENTRAL*是一个哑变量，如果公司为中央政府所控制则取值为1，否则取值为0。*LOCAL*是一个哑变量，如果公司为当地政府所控制则取值为1，否则取值为0。*ZHUIJIA*是一个哑变量，用以表明该公司非流通股股东是否做出追加承诺。*ZCHI*是一个哑变量，用以表明该公司非流通股股东是否做出增持承诺。*INJECT*是一个哑变量，用以表明该公司非流通股股东是否做出注资承诺。*DIV*是一个哑变量，用以表明该公司非流通股股东是否做出分红承诺。基金治理质量的三个代理变量为*OPEN*、*FOREIGN*和*HIGH_IO*。*OPEN*是一个哑变量，如果在公司的前十大流通股股东中，相比封闭式基金，开放式基金持有流通股占多数(即为开放式基金占主导)，则取值为1，否则取值为0。*FOREIGN*是一个哑变量，如果在公司的前十大流通股股东中，相比内资背景基金，具有外资背景的基金持有流通股占多数(即为外资背景的基金占主导)，则取值为1，否则取值为0。*HIGH_IO*是一个哑变量，如果在公司的前十大流通股股东中，相比机构持有份额比例较低的基金，机构持有份额比例较高的基金持有的流通股占多数(即为机构持有份额较高的基金占主导)，则取值为1，否则取值为0。

*INDP_DIR*的均值为0.34，标准差为0.051，说明大多数公司的董事会成员中都约有1/3的独立董事。*HERFINDAHL5*的均值为0.003，说明前五大流通股股东的股权集中度较低。*CENTRAL*和*LOCAL*的均值分别为0.173和0.475，说明在研究样本中，17.3%的公司属于中央政府控制，47.5%的公司属于地方政府控制。

4.2. 变量相关系数

变量间的相关系数如表3所示。*CR_FINAL*与*FUND*显著负相关（相关系数= -0.134），与*NPROP*和*LOCAL*显著正相关，这些变量之间的相关关系与现有文献基本一致。

就*OPEN*、*FOREIGN*与*HIGH_IO*之间的相关系数而言，虽然各变量之间的相关系数都显著为正，但最高的相关系数也仅为0.36，说明每一个代理变量都从一个不同的角度衡量了基金的治理质量。

4.3. 假说检验

表4报告了H1至H3的检验结果。模型(1)中*FUND*的系数为-1.577，在1%的水平上显著(t =-9.54)，说明随着基金持股比例增加，股改对价越低。该结果表明基金存在一定的代理问题，这与以往的研究结论一致。*FUND*和*OPEN*交乘项的回归系数为0.634，在1%的水平上显著(t = 2.81)，说明可赎回机制能够在一定程度上缓解共同基金的代理问题，或者说，开放式基金与非流通控股股东“合谋”的可能性较低。就经济意义而言，基金持股比例每变动一个标准差(0.086)，提供给流通股股东的对价将增加0.055股，相对股改对价平均值(2.98)而言，代表1.83%的增加。实证结果表明，当公司的前十大流通股股东中开放式基金占主导时，基金管理者与非流通控股股东进行“合谋”的可能性较低，这与H1的预期一致。

模型(2)提供了检验H2的回归结果。*FUND*的系数为-1.405，并在1%水平上显著(t =-7.34)。*FUND*FOREIGN*交乘项的回归系数显著为正（系数= 0.726，t = 2.08）。从经济意义上来讲，当基金持股比例每增加一个标准差时，提供给流通股股东的对价就增加0.062股（相当于股改对价均值的2.1%）。实证结果显示，因为外资背景的基金可能拥有较好的治理机制，其与非流通控股股东“合谋”的可能性较低。

模型(3)提供了H3的检验结果。*FUND*的系数显著为负（系数 = -0.935，t = -5.82），*FUND*和*HIGH_IO*交乘项的系数显著为负（系数 = -0.758，t = -3.27）。这说明，当基金投资者的机构持有份额越高，提供给流通股股东的对价越低。或从经济意义上说，每当基金持股比例增加一个标准差，机构持有份额较高的基金所控制公司的对价就减少0.065股，相当于股改对价均值的2.2%。如果机构投资者能够促进基金管理者与基金投资者的利益更趋一致，我们应观察到相反的结果。换言之，由于双重代理问题，机构持有份额较高的基金与非流通控股股东的“合谋”现象更严重。

表3： 相关系数矩阵

变量	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
1. *CR_RAW*	1																			
2. *CR_FINAL*	0.911***	1																		
3. *CR_REV*	-0.034	0.381***	1																	
4. *FUND*	-0.113***	-0.134***	-0.070*	1																
5. *OPEN*	-0.043	-0.066*	-0.065*	0.480***	1															
6. *FOREIGN*	-0.037	-0.067*	-0.079**	0.349***	0.360***	1														
7. *HIGH_IO*	-0.049	-0.055	-0.023	0.391***	0.345***	0.265***	1													
8. *ROA*	0.038	0.019	-0.041	0.363***	0.277***	0.159***	0.195***	1												
9. *B/M*	0.069*	0.086**	0.052	-0.223***	-0.024	-0.010	-0.086**	0.117***	1											
10. *VOL*	-0.075*	-0.095**	-0.061*	-0.026	0.013	-0.080**	-0.051	-0.036	-0.123***	1										
11. *LIM_YR*	-0.018	-0.025	-0.020	0.114***	0.122***	0.128***	0.066*	0.161***	0.067*	-0.115***	1									
12. *NPROP*	0.395***	0.403***	0.091**	0.071*	-0.008	-0.016	0.038	0.140***	-0.174***	-0.163***	0.019	1								
13. *INDP_DIR*	0.037	0.021	-0.032	0.023	0.044	0.014	0.009	0.045	-0.048	0.018	-0.011	0.051	1							
14. *HERFINAHL5*	-0.083**	-0.103***	-0.063*	0.597***	0.270***	0.212***	0.192***	0.215***	-0.152***	-0.040	0.021	0.047	0.011	1						
15. *CENTRAL*	0.032	0.032	0.006	0.066*	0.084**	0.051	0.082**	0.046	-0.070*	0.022	0.025	0.061*	-0.049	0.015	1					
16. *LOCAL*	0.123***	0.148***	0.084**	0.056	0.057	0.005	0.027	0.103***	0.168***	-0.028	0.039	0.030	-0.054	0.004	-0.434***	1				
17. *ZHUIJIA*	-0.296***	-0.314***	-0.097**	0.102***	0.011	0.032	0.018	-0.096**	-0.053	-0.017	0.012	-0.125***	0.001	0.146***	-0.122***	-0.088**	1			
18. *ZCHI*	-0.080**	-0.126***	-0.127***	0.065*	0.100***	0.033	0.020	0.108***	0.089**	0.016	0.038	-0.074*	0.027	0.039	-0.031	-0.040	0.088**	1		
19. *DIV*	-0.121***	-0.113***	-0.002	0.155***	0.103***	0.083**	0.069*	0.224***	0.075*	-0.027	0.132***	0.004	-0.017	0.113***	0.003	0.065*	0.040	0.104***	1	
20. *INJECT*	-0.125***	-0.121***	-0.013	0.104***	0.127***	0.105***	0.084**	-0.016	-0.117***	0.015	0.006	0.009	0.004	0.032	0.170***	-0.086**	0.041	0.008	0.022	1

*CR_RAW*为初始股改对价。*CR_FINAL*为最终股改对价。*CR_REV*是从初始股改对价到最终股改对价的对价调整额。*FUND*是前十大流通股股东中的基金持股占所有流通股的比例。*OPEN*是一个哑变量，如果在公司的前十大流通股股东中，相比封闭式基金，开放式基金持有流通股占多数(即为开放式基金占主导)，则取值为1，否则取值为0。*FOREIGN*是一个哑变量，如果在公司的前十大流通股股东中，相比内资背景基金，具有外资背景的基金持有流通股占多数(即为外资背景的基金占主导)，则取值为1，否则取值为0。*HIGH_IO*是一个哑变量，如果在公司的前十大流通股股东中，相比机构持有份额比例较低的基金，机构持有份额比例较高的基金持有的流通股占多数(即为机构持有份额较高的基金占主导)，则取值为1，否则取值为0。其他变量的定义请参照附录C或表2。

关于控制变量，*ROA*的回归系数显著为负，说明业绩越好，股改对价越低。锁定期(*LIM_YR*)的系数显著为负，表明非流通股限售时间越短，控股股东越愿意支付较高的对价。非流通股比例(*NPROP*)的系数显著为正，表明潜在的股票供应增加越大，流通股股东要求的对价会更高。独立董事比例(*INDP_DIR*)的系数显著为正，说明在股权分置改革中，独立董事发挥了一定作用，为流通股股东争取了更多的利益。中央政府(*CENTRAL*)和地方政府(*LOCAL*)控股的哑变量均显著为正，意味着国有公司更可能向流通股股东支付较高的股改对价。

账面价值和市场价值比(*B/M*)在三个回归模型中的回归系数均为正，但只在模型(2)中显著(系数= 0.118，t = 1.71)。以往文献对*B/M*和股改对价之间的关系有不同的解释。Chen *et al.* (2011)以M/B(B/M的倒数)作为股票折价的代理变量，预期对价与股改前的股票折价之间显著正相关。相反，辛宇和徐莉萍(2007)把*M/B*作为衡量公司成长的代理变量(或投资机会)，预期流通股股东会更愿意接受一个投资机会较好公司所提供的较低的股改对价。但是，前述研究均未发现显著的结果。在我们的研究中，*B/M*的回归系数显著为正，表明*B/M*对股改对价的影响可能主要是源于成长机会的作用。与Chen *et al.*(2011)类似，波动率(*VOL*)在三个模型中都为负，但仅在模型(3)中显著。前五大流通股股东的赫芬达尔指数(Herfindahl index)在所有回归模型中均不显著。四个承诺事项的哑变量都显著为负，表明当非流通控股股东做出追加承诺、增持承诺、注资承诺和分红承诺时，流通股股东要求的股改对价会较低。Adj-R^2为39.3%，说明模型具有较好的解释能力。

4.4. 拓展性检验

4.4.1. “合谋”发生时机

前文结果以最终的股改对价(*CR_FINAL*)为因变量。根据证监会的规定，非流通股股东首先向流通股股东提出初始的股改方案(股改说明书)，然后通过征询、路演和谈判，决定股改对价是否修改以及修改的幅度。大多数的股改方案会经历一次或以上的修改，从初始方案到最终方案所经历的时间平均需要44天。所以，对比股改说明书的初始稿和修正稿，我们可以观察到初始对价和最终对价及其调整的大小(对价调整)。这一独特的数据可使我们进一步检验“合谋”发生的时间，即“合谋”究竟是发生在初始股改方案的公布之前，还是在随后的调整过程中。

如前所述，基金管理者与上市公司的非流通控股股东之间的“合谋”，是一种建立在相互信任和长期关系基础上的隐性合约。在此背景下，非流通控股股东会在股改方案公布前私下征求基金管理者的意见，因此，“合谋”更可能发生在初始股改方案的公布之前。此外，这种隐性合约没有法律约束力，更需要以隐蔽的途径通过非正式的方式进行沟通。如果“合谋”发生在对价调整过程中，则“合谋”行为被其他流通股股东发现的可能性会增加，这无疑会增加交易成本。但不可否认的是，“合谋”也的确有可能发生在初始股改方案公布之后的调整过程中。所以，“合谋”究竟发生在初始股改方案公布之前，还是随后的调整过程中是一个有待检验的问题。在前一种情况下，当基金治理较差时，由于“合谋”的原因，非流通控股股东提出的初始对价会较低。在后一种情况下，如果“合谋”发生在调整过程中，当基金治理较差时，非流通控股股东对股改对价的调整会比较少。为检验这一问题，我们用初始对价。

表4： 基金治理与非流通控股股东的"合谋"

	因变量：*CR_FINAL*					
变量	**Coef.**	**T**	**Coef.**	**T**	**Coef.**	**T**
Constant	1.596***	(8.79)	1.620***	(8.89)	1.613***	(8.69)
OPEN	-0.051	(-0.79)				
FOREIGN			-0.093**	(-2.13)		
HIGH_IO					0.053	(1.04)
FUND	-1.577***	(-9.54)	-1.405***	(-7.34)	-0.935***	(-5.82)
OPEN*FUND	**0.634*** **	**(2.81)**				
FOREIGN*FUND			**0.726****	**(2.08)**		
HIGH_IO*FUND					**-0.758*** **	**(-3.27)**
ROA	-1.083***	(-4.13)	-1.077***	(-4.47)	-1.121***	(-4.55)
B/M	0.119	(1.62)	0.118*	(1.71)	0.105	(1.58)
VOL	-0.147	(-1.49)	-0.156	(-1.58)	-0.155*	(-1.65)
LIM_YR	-0.037***	(-5.83)	-0.038***	(-5.69)	-0.041***	(-5.88)
NPROP	2.338***	(8.66)	2.319***	(8.84)	2.339***	(8.98)
INDP_DIR	0.337**	(2.40)	0.337**	(2.29)	0.325***	(2.62)
HERFINDAHL5	1.471	(0.61)	1.048	(0.50)	1.007	(0.46)
CENTRAL	0.237***	(6.26)	0.233***	(5.73)	0.232***	(6.19)
LOCAL	0.269***	(11.18)	0.264***	(10.17)	0.260***	(10.43)
ZHUIJIA	-0.527***	(-16.42)	-0.525***	(-16.39)	-0.527***	(-17.36)
ZCHI	-0.306***	(-4.99)	-0.312***	(-5.06)	-0.313***	(-4.99)
DIV	-0.161***	(-3.01)	-0.159***	(-3.02)	-0.166***	(-3.19)
INJECT	-0.208***	(-3.16)	-0.195***	(-2.91)	-0.220***	(-3.61)
SEQ	YES		YES		YES	
Observations	1153		1153		1153	
Adj-R^2	0.393		0.393		0.393	

本表提供了H1到H3的回归结果。因变量为最终股改对价(*CR_FINAL*)。基金治理质量的三个代理变量是*OPEN*、*FOREIGN*和*HIGH_IO*。如果样本公司的前十大流通股股东中开放式基金所持有的股份占多数，则*OPEN*等于1，否则等于0。如果样本公司的前十大流通股股东中外资背景的基金所持有的股份占多数，则*FOREIGN*等于1，否则等于0。如果样本公司的前十大流通股股东中，机构持有份额较高的基金所持有的股份占多数，则*HIGH_IO*等于1，否则等于0。其他变量定义请参照附录C和表2。异方差和行业聚类效应已控制。***、**和*分别表示1%、5%和10%的显著性水平(双尾)。

表5： “合谋”时机：基金治理与初始对价

	因变量：*CR_RAW*					
变量	**Coef.**	**T**	**Coef.**	**T**	**Coef.**	**T**
Constant	1.292***	(10.26)	1.313***	(10.40)	1.306***	(9.96)
OPEN	-0.034	(-0.59)				
FOREIGN			-0.047	(-0.92)		
HIGH_IO					0.031	(0.48)
FUND	-1.418***	(-6.96)	-1.290***	(-5.95)	-0.829***	(-5.67)
OPEN*FUND	**0.591*** **	**(2.79)**				
FOREIGN*FUND			**0.686****	**(2.10)**		
HIGH_IO*FUND					**-0.566****	**(-2.47)**
ROA	-0.899**	(-2.42)	-0.885**	(-2.48)	-0.922**	(-2.56)
B/M	0.084	(0.82)	0.080	(0.83)	0.074	(0.78)
VOL	-0.069	(-0.72)	-0.070	(-0.71)	-0.075	(-0.81)
LIM_YR	-0.028***	(-3.00)	-0.031***	(-3.09)	-0.031***	(-3.21)
NPROP	2.081***	(10.16)	2.065***	(10.64)	2.078***	(10.57)
INDP_DIR	0.456***	(2.76)	0.455***	(2.69)	0.452***	(2.90)
HERFINDAHL5	2.234	(0.66)	1.802	(0.59)	1.811	(0.58)
CENTRAL	0.227***	(9.25)	0.223***	(8.25)	0.225***	(8.40)
LOCAL	0.230***	(8.93)	0.226***	(8.91)	0.223***	(8.44)
ZHUIJIA	-0.467***	(-6.73)	-0.465***	(-6.71)	-0.468***	(-6.93)
ZCHI	-0.196***	(-5.32)	-0.199***	(-5.78)	-0.201***	(-6.05)
DIV	-0.165***	(-3.07)	-0.164***	(-3.07)	-0.170***	(-3.23)
INJECT	-0.238***	(-3.20)	-0.230***	(-2.97)	-0.245***	(-3.55)
SEQ	YES		YES		YES	
Observations	1153		1153		1153	
Adj-R^2	0.381		0.382		0.381	

因变量是初始股改对价（*CR_RAW*）。基金治理质量的三个代理变量是*OPEN*、*FOREIGN*和*HIGH_IO*。如果在样本公司的前十大流通股股东中，开放式基金持有股份占多数，则*OPEN*等于1，否则等于0。如果在样本公司的前十流通股股东中，外资背景的基金持有股份占多数，则*FOREIGN*等于1，否则等于0。如果在样本公司的前十大流通股股东中，机构持有份额较高的基金持有股份占多数，则*HIGH_IO*等于1，否则等于0。其他变量定义请参照附录C和表2。异方差和行业聚类效应已控制。***、**和*分别表示1%、5%和10%的显著性水平（双尾）。

表6： “合谋”时机：基金治理与对价调整

	因变量：*CR_REV*					
变量	**Coef.**	**T**	**Coef.**	**T**	**Coef.**	**T**
Constant	0.304***	(3.93)	0.307***	(3.89)	0.307***	(4.03)
OPEN	-0.018	(-1.08)				
FOREIGN			-0.047	(-1.46)		
HIGH_IO					0.022	(1.02)
FUND	-0.159	(-1.15)	-0.115	(-0.63)	-0.106	(-0.76)
OPEN*FUND	**0.043**	**(0.36)**				
FOREIGN*FUND			**0.040**	**(0.29)**		
HIGH_IO*FUND					**-0.192**	**(-1.19)**
ROA	-0.184	(-1.05)	-0.192	(-1.07)	-0.199	(-1.10)
B/M	0.036	(0.96)	0.038	(1.04)	0.032	(0.85)
VOL	-0.078***	(-2.68)	-0.086***	(-2.91)	-0.080***	(-2.75)
LIM_YR	-0.008	(-1.10)	-0.008	(-1.00)	-0.010	(-1.22)
NPROP	0.257***	(3.20)	0.254***	(3.02)	0.261***	(3.31)
INDP_DIR	-0.119	(-0.97)	-0.118	(-0.93)	-0.127	(-1.02)
HERFINDAHL5	-0.763	(-0.53)	-0.754	(-0.56)	-0.805	(-0.59)
CENTRAL	0.010	(0.31)	0.009	(0.30)	0.007	(0.23)
LOCAL	0.039**	(1.99)	0.038**	(1.96)	0.037*	(1.89)
ZHUIJIA	-0.060	(-1.42)	-0.060	(-1.43)	-0.059	(-1.42)
ZCHI	-0.110*	(-1.71)	-0.113*	(-1.74)	-0.113*	(-1.71)
DIV	0.004	(0.26)	0.006	(0.36)	0.003	(0.20)
INJECT	0.030	(1.22)	0.034	(1.42)	0.025	(1.04)
SEQ	YES		YES		YES	
Observations	1153		1153		1153	
Adj-R^2	0.117		0.119		0.117	

因变量是调整对价(*CR_REV*)。基金治理质量的三个代理变量是*OPEN*、*FOREIGN*和*HIGH_IO*。如果在样本公司的前十大流通股股东中，开放式基金所持有的股份占多数，则*OPEN*等于1，否则等于0。如果在样本公司的前十大流通股股东中，外资背景的基金所持有的股份占多数，则*FOREIGN*等于1，否则等于0。如果在样本公司的前十大流通股股东中，机构持有份额较高的基金所持有的股份占多数，则*HIGH_IO*等于1，否则等于0。其他变量定义请参照附录C和表2。异方差和行业聚类效应已控制。***、**和*分别表示1%、5%和10%的显著性水平(双尾)。

(*CR_RAW*)及调整对价(*CR_REV*)作为因变量，重新进行相应的回归，其中*CR_REV*定义为初始对价和最终对价之间的差额。

如表2所示，初始对价(*CR_RAW*)的均值和中位数分别为2.607和2.700。调整对价(*CR_REV*)的均值和中位数分别为0.371和0.400，即调整后最终对价比初始对价平均增加了14%至15%。表3显示，两个变量都与基金持股比例(*FUND*)显著负相关(系数= -0.113及-0.070)，说明当基金的持股比例越高，非流通控股股东提出的初始对价和对股改对价的调整都比较低。

表5提供了以*CR_RAW*为因变量的回归结果。在模型(1)中，*FUND*的系数是-1.418，在1%的水平上显著(t =-6.96)，这与前文的发现一致。*FUND*和*OPEN*的交乘项在模型(1)中显著为正(系数= 0.591，t = 2.79)，说明在初始股改方案公布之前，非流通控股股东和开放式基金之间进行“合谋”的可能性较低。在模型(2)中，*FUND*和*FOREIGN*的交乘项系数显著为正(系数= 0.686，t = 2.10)，说明当公司前十大流通股股东中具有外资背景的基金占多数时，基金管理者和非流通控股股东之间进行“合谋”的可能性较低。

至于基金的机构投资者的作用，我们先前的结果显示，机构持有份额较高的共同基金由于存在双重代理问题，更有可能和非流通控股股东进行“合谋”。表5模型(3)显示，*FUND*HIGH_IO*的系数是-0.566，在1%的水平上显著(t = -2.47)，这说明，非流通控股股东和机构持有份额较高的基金之间的“合谋”，更有可能发生在初始股改方案公布之前，这与共同基金的机构投资者的代理假说一致。

与表4的结果相似，影响初始对价最重要的决定因素包括：*ROA*、*LIM_YR*、*NPROP*、*IND_DIR*、*CENTRAL*、*LOCAL*和其他承诺事项。也就是说，对于公司获利能力较差、非流通股限售时间较短、非流通股比例较高以及中央或地方政府控制的上市公司，所提供的初始对价较高。

表6提供了以调整对价(*CR_REV*)为因变量的回归结果。结果显示，*FUND*与基金治理变量的交乘项系数均不显著。三个模型中，影响对价调整的重要因素包括：非流通股比例(*NPROP*)和地方政府控股(*LOCAL*)，说明非流通股比例越高，流通股股东要求的对价调整越多，当地政府所控制的公司在随后的调整过程后也会给出较高的调整幅度。

总之，表6的结果表明：治理机制较差的共同基金和非流通控股股东之间的“合谋”，主要发生在初始股改方案的公布之前，而不是对价的调整过程中。这一关于“合谋”时机的实证证据，符合“合谋”行为的发生需要依赖相互信任和长期关系的隐性契约的特征。

4.4.2. 基金股改后的持股期限

从非流通控股股东获得的潜在利益，是共同基金与其“合谋”的一个主要潜在原因。但是，如果基金在股改后立即抛售所持股份，获取未来潜在收益的难度就比较大，这类基金管理者更可能会关注股改中的当前收益(即股改对价)。相反，对于股改后仍计划长期持有的基金而言，由于实现潜在未来收益的可能性更高，基金管理者会更有可能与非流通控股股东“合谋”，从而牺牲流通股股东的当前收益(接受较低的股改对价)，去换取自身的私利。

按照相关规定，中国的基金每6个月会详细披露其持有股票的投资组合。通过对比股改前后基金公司的投资组合，我们可以确定，哪些公司的基金在股改后减持了股份以及减持的幅度(累计售出的股份数加总后，除以总流通股本)。然后，按照样本公司的基金减持比例的中位数，设置*SHORTTERM*哑变量，如果一个样本公司的基金减持超过样本中位数，则*SHORTTERM*取值为1，否则取值为0。我们预期基金管理者和非流通控股股东之间的"合谋"行为，会主要集中在股改后仍计划长期持有的基金样本中。

前文的实证结果表明，基金管理者与非流通控股股东的"合谋"，主要集中在封闭式基金、纯粹内资背景的基金或机构持有份额较高的基金，因此，在本部分的分析中，我们主要是基于上述三个子样本，分别考察共同基金在股改后持有期限的长短与"合谋"之间的关系。在研究设计上，我们主要是在前述模型的基础上增加了基金持有股票期限和基金持股比例的交乘项(*SHORTTERM*FUND*)。按照前文分析，如果共同基金在股改后立即减持所持股份，将会导致其更为关注当前的收益，即股改对价的高低，在这种情况下，*SHORTTERM*FUND*交乘项的回归系数应显著为正。没有编制为表(由于空间所限，我们没有提供有关这部分结果的正式表格)的实证结果支持这一预期，交乘项的回归系数在三个子样本中都显著为正。

综上，由于股改后立即减持的基金更倾向于关注股改过程中当前的收益(股改对价)，所以这样的基金更不可能和上市公司的非流通控股股东发生"合谋"行为。

4.4.3. 内生性问题

以往的文献(如, Gompers and Metrick, 2001)表明，机构投资者的投资偏好与其他投资者可能有所不同。如果不同的偏好导致了不同的股改对价，那么基金和股改对价之间的负相关可能会受到内生性的影响。本文采用文献中最为常用的工具变量法缓解这一内生性问题。

基于相关的研究文献(Gompers and Metrick, 2001；Ke and Ramalingegowda, 2005)，账面价值与市场价值比、股票波动率、股票价格、周转率、增长率、公司年龄和资产回报率会影响机构的投资偏好。但需要注意的是，合适的工具变量应该与机构的投资偏好直接相关，且应该通过它对机构投资偏好的影响而间接影响因变量(在本文中，即股改对价)。因为账面价值与市场价值比、股票波动率和资产回报率是影响股改对价的三个基本变量，所以我们在工具变量的选取中将其余四个变量作为基金持股比例的工具变量。

按照两阶段最小二乘法(2SLS)的估计程序，我们把第一阶段所估计的基金持股比例，放入前述模型再次回归，结果显示，相关的研究结论没有发生实质性改变。由于篇幅所限，我们没有提供相关结果的正式表格，但留存备索。

4.4.4. 股改对价的度量

如前所述，非流通股股东在股改中提供给流通股股东的支付方式，主要包括认股权证、资产重组、股票回购、注资、现金支付和额外股份等。为使各类支付方式具有可比性，本文将不同类型的支付方式统一折合为股改对价。因为最为普遍的对价形式是非流通股股东向流通股股东支付股份，所以，为排除不同支付方式可能会

对结果造成的影响，我们采用只包括支付股份的样本公司重新检验。结果显示，本文的结论没有发生实质性变化。同样，为节省空间考虑，我们没有呈报这一检验的回归结果。

五、结论

共同基金在中国资本市场上的作用日益重要，但是，相比发达国家资本市场，中国的基金与基金投资者的利益冲突可能更为严重。在中国股权分置改革中，基金管理者可能与非流通控股股东进行“合谋”，牺牲流通股股东的利益，主要表现为接受较低的股改对价。本文试图考察基金治理能否在一定程度上缓解基金管理者与非流通控股股东的这一“合谋”行为。

实证结果显示，相比封闭式基金，由于赎回机制，开放式基金主导的上市公司发生“合谋”的可能性更低。与内资背景的基金相比，由于声誉机制和文化背景差异，外资背景基金主导的上市公司发生“合谋”的可能性更低。就基金自身的所有权结构而言，本文的研究发现，机构持有份额较高的基金，可能遭受更为严重的双重代理问题，从而更有可能与非流通控股股东“合谋”。

本研究不仅从全新视角丰富了关于共同基金的研究文献，还对机构投资者的代理问题和新兴市场上基金治理的作用等问题进行了更为深入的探讨。本文的研究发现也可为政府监管部门和个人投资者提供某些启示，比如，政策制定部门应进一步为推动基金“封转开”的进程而创造有利条件，监管部门应进一步鼓励外资机构投资者的发展，进一步完善基金的治理机制，以使基金管理者，基金的机构投资者和基金的个人投资者之间的利益更趋一致。从个人投资者的角度而言，他们应该辩证地看待机构投资者对公司(基金)治理的作用，在投资者保护和法制不健全的新兴资本市场，机构投资者自身的代理问题，在有些情况下可能会恶化而不是改善公司(基金)治理。

本研究主要存在如下研究局限，第一，本文主要考察在某一特定时期和针对某一特定事件(股权分置改革)的基金治理问题，所以研究结论的适用性需要谨慎对待。其次，本文结论是以中国特定制度为背景，考虑到国家之间制度背景上的差异，将其一般化到发达资本市场也应谨慎。

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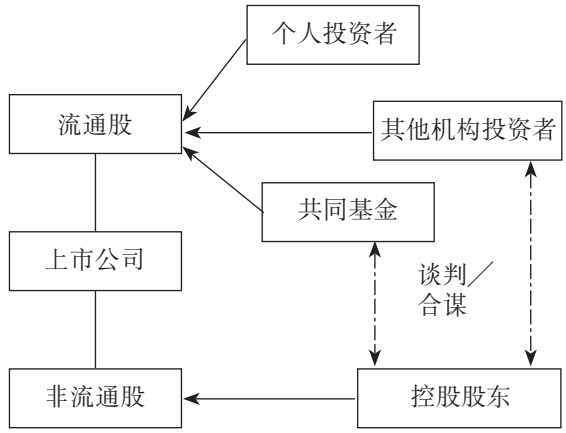
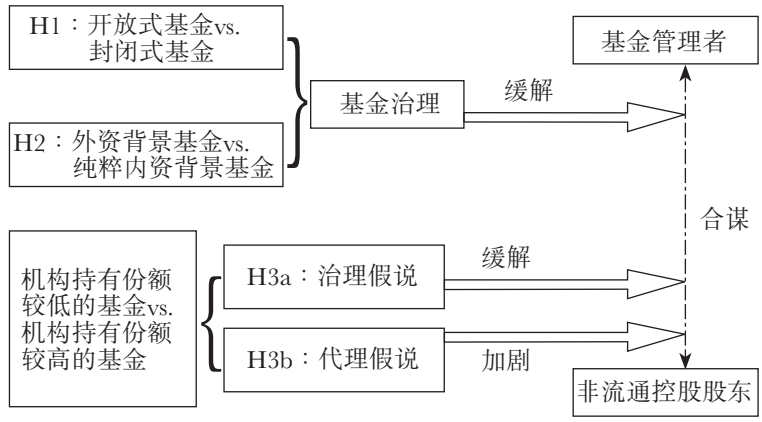
附录A

图I：股权分置改革中的各方关系

共同基金持有上市公司的流通股。基金管理者和其他持有流通股的机构投资者能与非流通控股股东谈判／合谋确定支付给流通股股东的股改对价。本文关注共同基金的理由在于，平均而言，上市公司流通股股东中持股比例最高的机构投资者即为共同基金，并且我们只能取得基金的背景信息。



图II：基金治理，基金管理者和上市公司非流通控股股东之间的“合谋”



附录B：股改对价折算实例

案例1：

G农产品(000061)的股改对价折算：在股改实施后第12个月的最后5个交易日内，所有流通股股东都有权以每股人民币4.25元将其持有股份售予深圳国有资产管理委员会(G农产品的控股股东)。显然，这是一份行权期为360天、执行价为人民币4.25元的欧式认沽权证。基于中国人民银行公布的2.25%的存款年利率，和股权分置改革实施前G农产品的收盘价人民币3.40元，以及股票回报年化波动率0.2946，根据Black-Scholes期权定价模型计算，这一权证价值等于人民币0.916元。据此，将期权支付方式转换为每10股流通股股东从非流通股股东处最终获得的股份数量，G农产品对应的股改对价为2.69股(0.916*10/3.4)。

案例2：

G敖东(000623)的股改对价折算：非流通股以1：0.6074的比例实施缩股，同时向所有股东支付现金股利，非流通股股东再将其所得现金股利转移支付给流通股股东。流通股股东收到的实际税前现金股利为每10股人民币4元。基于股权分置改革前流通股的持股比例(0.5355)，非流通股的缩股比例(1：0.6074)，G敖东的股改对价等于2.23。具体计算方法如下：首先我们假定G敖东共有100份股票，其中53.55份为流通股，46.45份为非流通股。非流通股在执行了1：0.6074的缩股方案后，该公司将有53.55份流通股和28.21份(即46.45*0.6074)非流通股，流通股比例变为0.6549(53.55/(53.55+28.21))。因此，非流通股的缩股可视为是一种从非流通股股东到流通股股东的财富间接转移，其股改对价等于2.23((0.6549 − 0.5355)*10/0.5355)。基于股权分置改革前G敖东的收盘价人民币5.9元，非流通股缩股后相应的对价，以及流通股股东实际收到的税前现金股利(每10股人民币4元)。我们可计算出非流通股股东的派现政策相当于股改对价为0.66 (4*(1 − 0.2) * 1.223/5.9，其中0.2是所得税率，1.223是非流通股股东实施缩股方案的调整因子)。所以，综合派现和缩股，G敖东的综合股改对价为2.89股(即2.23+0.66)。

案例3：

G中富(000659)的股改对价折算：流通股股东每10股获得2.5股股份和0.772元现金。基于股权分置改革前G中富的收盘价人民币3.39元和非流通股股东支付的股份，G中富的股改对价等于2.73股(即2.5+0.772*(1 − 0.2)*1.25/3.39，其中0.2是所得税率，1.25是从非流通股东获得额外股份的调整因子)。

案例4：

G武钢的股改对价折算：流通股股东每10股获得2.5股股份，2.5份看涨期权和2.5份看跌期权。对于看跌期权，流通股股东能以每股执行价人民币3.13元向武钢出售股份。对于看涨期权，流通股股东能从武钢处以每股人民币2.9元的执行价购入股份。二者皆为行权期为12月份的欧式期权。基于存款年利率2.25%，执行价人民币3.13元，和股权分置改革前G武钢的收盘价人民币3.45元和年化波动率0.2397，根据Black-Scholes期权定价模型，看跌期权的价格为0.153元。基于执行价格人民币2.9元，看涨期权的价格为0.701元。最终，武钢的股改对价等于3.27股（即0.153*2.5*1.25/3.45 + 0.701*2.5*1.25/3.45 + 2.5，其中1.25是从非流通股股东获得额外股份的调整因子）。

附录C：

变量标识

变量类型	变量简单释义	标识
因变量	流通股股东最终获得的股改对价	*CR_FINAL*
	非流通股股东最初提出的股改对价	*CR_RAW*
	调整对价，等于*CR_FINAL*和*CR_RAW*的差额	*CR_REV*
哑变量	检验H1的哑变量	*OPEN*
	检验H2的哑变量	*FOREIGN*
	检验H3的哑变量	*HIGH_IO*
自变量	前十大流通股股东中基金的持股比例	*FUND*
	总资产回报率	*ROA*
	股票回报波动率	*VOL*
	独立董事比例	*INDP_DIR*
	锁定期，即非流通股的限售时间	*LIM_YR*
	非流通股占总股本的比例	*NPROP*
	账面价值与市值比	*B/M*
	前5大流通股股东的赫芬达尔指数	*HERFINDAHL5*
	中央政府所控制公司的哑变量	*CENTRAL*
	地方政府所控制公司的哑变量	*LOCAL*
	追加承诺	*ZHUIJIA*
	增持承诺	*ZCHI*
	注入资本承诺	*INJECT*
	分红承诺	*DIV*
	股改批次哑变量	*SEQ*

2012年9月 第14卷 第3期
中 国 会 计 与 财 务 研 究
China Accounting and Finance Review
Volume 14, Number 3 – September 2012

Fund Governance and Collusion with Controlling Shareholders: Evidence from the Split Share Structure Reform in China*

Qingchuan Hou, Qinglu Jin, and Veicheng Yu

Abstract

In 2005, the Chinese Government launched a reform to eliminate the split share structure of listed companies, around two thirds of whose shares were non-tradable. The reform requires holders of non-tradable shares (controlling shareholders) to compensate holders of tradable shares (minority shareholders) so as to obtain the liquidity right. Some studies have found that managers of mutual funds tend to collude with controlling shareholders to set a lower compensation ratio to offer to minority shareholders (Chen *et al.*, 2011; Firth *et al.*, 2010). This paper extends this line of research by examining whether fund governance can mitigate such an agency problem. We find that open-end funds and funds with a foreign background are less inclined to collude with controlling shareholders. In addition, mutual funds with higher institutional ownership are more likely to engage in such collusion, indicating that institutional mutual fund investors may induce serious agency problems in the Chinese mutual funds industry.

Keywords: Fund Governance, Compensation Ratio, Split Share Structure Reform
CLC codes: F830.91, F230, F832

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I. Introduction

Before 2005, Chinese domestic A-shares were divided into non-tradable and tradable shares. Non-tradable shares were generally owned by the state or state-owned entities (controlling shareholders), while the typical holders of tradable shares were individual and institutional investors (minority shareholders).[1] This split share structure not only weakened the price discovery function of the capital market but also caused the interests of the holders of non-tradable shares to deviate from those of the holders of tradable shares, and thus it was detrimental to the sound development of stock markets.

In April 2005, the China Securities Regulatory Commission (CSRC) initiated a reform to eliminate the split share structure in the Chinese market. Under this reform, a firm's controlling shareholders are required to negotiate with the holders of tradable shares to set a compensation scheme whereby in exchange for the latter's agreement to lift the liquidity restriction on non-tradable shares, the former has to make a payment to the latter. Since the market is concerned about a sudden influx of shares subsequent to the reform, the aim of the compensation is to offset the potential adverse price impact on the holders of tradable shares.[2] It is evident that the holders of tradable shares are intent on getting higher compensation while the controlling shareholders want the opposite.

According to the CSRC's rules,[3] a firm's compensation package cannot be finalised until it gains support from at least two thirds of the holders of tradable shares. As the largest type of institutional investors in tradable shares,[4] mutual funds' attitude toward the compensation package is critical for the controlling shareholders to obtain sufficient support. Managers of mutual funds participate in negotiations with controlling shareholders on the compensation package to be offered to holders of tradable shares.[5] However, as the agents of fund unit holders, fund managers may have different objectives to the fund investors (Mahoney, 2004). In repeated communications and negotiations,

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1 A Chinese listed firm's non-tradable shares are mostly held by the controlling shareholders. In this paper, the term "controlling shareholder" is sometimes used interchangeably with "non-tradable-share holder".

2 On average, controlling shareholders would pay out 3 shares for every 10 tradable shares. Accordingly, the compensation ratio is defined as the number of additional shares or equivalent shares finally received from the non-tradable-share holders by the tradable-share holders per 10 shares held.

3 "Notice on Pilot Project on Non-tradable Shares Reform" promulgated by the CSRC and "Guidelines on Non-tradable Shares Reform of Listed Companies" promulgated by the CSRC, the state-owned Assets Regulatory Commission, the Ministry of Finance, the People's Bank of China, and the Department of Commerce in 2005.

4 By the end of 2005, there were 218 securities funds managing 469.1 billion renminbi of assets. All securities investment funds invested 246.4 billion renminbi in tradable A-share stocks, which represents 23.2% of all tradable A- and B-shares. Source: 2005 Annual Statistics of China Securities Investment Fund Industry published by China Securities News on 6 January 2006.

5 Firth *et al.* (2010) claim that "the CSRC took away the voting rights of the individual fund managers for the share structure reform decision and passed them to the investment committee of the fund management company." However, the investment committee of a fund management company in China is composed of fund managers, and it is the fund manager who takes part in the field study in listed firms and in the negotiations with non-tradable-share holders (Cheng, 2005). Therefore, fund managers could still play a significant role in the negotiation and determination of compensation ratios during the process of the reform.

fund managers tend to collude with controlling or non-tradable-share holders for the following reasons.

First, because fund managers in China can only get a fixed management fee, which is based on a fixed proportion of net assets rather than fund performance, they may lack the incentive to negotiate with controlling shareholders for a higher compensation ratio. Second, mutual funds need to build up stable "friendships" with the managements of listed firms so as to retain information channels or advantages. Third, the major shareholders of fund management companies in China are usually large investment banks. These banks may have certain kinds of business connections with listed firms (e.g. securities underwriting or other investment banking services). These shareholders of fund management companies may lack the incentive to monitor mutual fund managers. According to one newspaper article (Li *et al.*, 2006), in many cases, the main bargaining issue between fund managers and non-tradable-share holders is not the compensation plan itself; rather, it is the level of side payments to be given to the managers of mutual funds and other large tradable-share holders.[6]

Empirically, Chen *et al.* (2011), Jin and Yuan (2008), and Firth *et al.* (2010) find that the higher the proportion of tradable shares held by mutual funds or institutional investors, the lower the compensation ratio. However, most of these studies treat mutual funds as a uniform group. Also, there has been little research examining the role of different types of mutual funds in the reform. We contribute to the literature by investigating whether certain fund governance mechanisms can help to mitigate such collusion or the agency problem.[7]

The first proxy for fund governance quality is whether the fund is an open-end fund. Due to the redemption mechanism, open-end funds tend to have better governance quality than closed-end funds and therefore are less likely to collude with controlling shareholders. The second proxy for fund governance is the foreign background of the fund's affiliated management company. We predict that funds with a foreign background are less likely to collude with controlling shareholders because of the reputation effect and/or their unfamiliarity with the business scenarios in China. The third proxy for fund governance is the ownership of mutual fund units by institutional investors. Besides individual fund unit holders, certain institutional investors, such as insurance companies, pension plans, and some other institutions, are also investors in mutual funds. On the one hand, these institutional fund unit holders may be able to monitor fund managers

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[6] One anecdotal example is provided in that article by Li, Guo, and Sun (The Economic Observer, 13 August 2006). It is reported that the spokesman of the Shenzhen Development Bank, a privately controlled listed banking firm, disclosed to the financial media that the firm's first attempt at reform failed because its controlling shareholder, Newbridge Asia AIV III LP, refused the extortionate demands made by fund managers in exchange for their agreement (Wang, 2010). According to an article in Security Times (5 September 2005), some fund managers bargained with the management of listed firms and charged 200,000 to 300,000 renminbi for their voting rights.

[7] We focus on mutual funds because mutual funds are the most important holders of tradable shares and the data of other institutional investors are not publicly available (e.g. their own shareholder structure).

(governance hypothesis). On the other hand, institutional holders of mutual funds may give rise to another agency problem since the managers of these institutions (e.g. the managers of state-owned insurance companies) are the agents of some other stakeholders. Besides, most of the institutional fund unit holders are also state-owned entities and thus may share similar interests with the controlling shareholders of listed firms. Therefore, they may lack the incentive to monitor the managers of mutual funds (agency hypothesis).

Based on a sample of 1,153 listed firms in China, we find that open-end funds and foreign background funds are less inclined to collude with controlling shareholders. In addition, we find that funds with higher institutional ownership are more likely to collude with controlling shareholders and thus induce a more severe agency problem. Additional tests indicate that the collusion primarily takes place before the controlling shareholders propose the first draft of a compensation plan instead of during the negotiation process; this is consistent with the argument based on the implicit contract between controlling shareholders and mutual funds.[8] Overall, our empirical results are consistent with the argument that certain governance features of mutual funds can mitigate the collusion between mutual funds and controlling shareholders in the non-tradable shares reform process.

The remaining parts of the paper are organised as follows: the institutional background and research hypotheses are presented in Part II; the model specification and sample selection are described in Part III; Part IV discusses the empirical results; and Part V concludes the paper.

II. Institutional Background and Hypotheses Development

2.1. Institutional Background

When the Chinese stock markets were established, the A-shares of domestically listed firms were split into tradable and non-tradable shares. Even though non-tradable shares could not be transferred on open markets, non-tradable-share holders had exactly the same voting, cash flow, and other legal rights as tradable-share holders (Huang and Xu, 2009). These non-tradable shares were usually owned by the state or certain state-owned entities and usually accounted for the largest ownership stake in listed firms. Even though non-tradable-share holders could transfer their shares via negotiation or auction, the transfer price was based on the book value, which did not reflect the profitability of a listed firm (Chen and Yuan, 2005). The split share structure had some adverse impacts on corporate governance and thus impeded the proper development and expansion of Chinese capital markets. A considerable number of studies have examined these issues;

[8] An implicit contract is primarily built on a long-term relationship and mutual trust.

for example, Chen *et al.* (2009) find that due to the differential pricing for tradable and non-tradable shares, some firms engaged in tunnelling by employing a high dividend payment policy to divert the proceeds from an initial public offering (IPO) or rights issue into controlling shareholders' pockets.

To remedy the problems induced by the split share structure, the CSRC initiated a reform of non-tradable shares in April 2005 after several unsuccessful experiments. The main objective of the reform was to convert all non-tradable shares into tradable shares. To obtain the liquidity right, non-tradable-share holders had to negotiate a compensation plan with tradable-share holders to offset the potential stock price decline when the former reduce their holdings. The plan had to be approved by at least two thirds of the tradable-share holders before the non-tradable-share holders could obtain the liquidity right.

Typical investors in tradable shares are individuals and institutions, the latter being primarily composed of mutual funds, insurance companies, pension funds, brokerage firms, qualified foreign institutional investors (QFII), and corporate legal persons. By the end of 2007, institutions held 72.63% of tradable shares, 65.23% being owned by mutual funds. Because of their large holdings of tradable shares, mutual funds can play a critical role in the negotiation and determination of a compensation plan proposed by non-tradable-share holders.

There are potentially two opposing arguments about the role of mutual funds in the non-tradable shares reform. The first argument, based on the bargaining power of mutual funds, predicts that ownership by mutual funds is positively associated with the compensation ratio; that is to say, mutual funds can negotiate with controlling shareholders for a higher compensation ratio by exercising their influential voting rights. The second argument is based on the agency problem of mutual funds. As the agents of fund unit holders, fund managers take part in negotiations with non-tradable-share holders. Since fund managers may have different objectives to the fund investors, it is natural to expect that non-tradable-share holders may promise certain implicit or explicit favours to mutual funds in repeated communications and negotiations so as to obtain their support for the reform; that is to say, mutual funds may collude with controlling shareholders, which is detrimental to the interests of minority shareholders.

Several studies document that the higher the proportion of tradable shares held by mutual funds, the lower the compensation ratio offered to tradable-share holders (Chen *et al.*, 2011; Jin and Yuan, 2006; Firth *et al.*, 2010; Wang, 2010). Such an association is contrary to the prediction based on the bargaining power of mutual funds but consistent with the agency problem of mutual funds, which is detailed below. The scenario of the relations between various stakeholders in the reform is illustrated in Figure I of Appendix A.

First, in negotiations with the controlling shareholders of listed firms, the managers of mutual funds act as the agents of the fund holders. However, the compensation or

management fee given to fund managers in China is based on a fixed proportion of net assets rather than on fund performance. Besides, unlike mutual funds in the US (Tufano and Sevick, 1997; Guercio *et al.*, 2003; Chen *et al.*, 2008; Kong and Tang, 2008), mutual funds in China are all contractual funds without a board of directors.[9] Thus, there is lack of monitoring from independent directors in China. Because of the lack of motivation and monitoring, a fund manager may have both the incentive and the opportunity to take advantage of fund holders.

Second, certain institutions may have a conflict of interest in terms of business connections with listed firms (Brickley *et al.*, 1988; Chen *et al.*, 2007; Davis and Kim, 2007). In China, the shareholders of fund management companies are usually certain investment banks.[10] Investment banks engage in current or potential securities underwriting, mergers and acquisitions, or other investment banking services with listed firms. In the non-tradable shares reform, the investment banks serve as the intermediaries which provide advice for the listed companies and they only get paid if the reform plan is approved by the tradable-share holders. Therefore, there is a strong incentive for the investment banks to secure the approval of tradable-share holders through all possible means. Due to such business connections, fund managers may be reluctant to challenge the non-controlling shareholders of listed firms during the process of setting a compensation plan for tradable-share holders.

Third, mutual funds need to build up stable "friendships" with the managements of listed firms so as to retain information channels or advantages. Managers possess superior information about a firm and can also control the flow of information to investors. They can withhold information or limit the flow of information to some investors while facilitating the flow of information to others. Williams and Ryan (2007) indicate that the managements of listed firms may reveal information to specific shareholders in exchange for their support.

The collusion between mutual funds and the controlling shareholder of a listed firm can be regarded as an implicit contract primarily built on mutual trust. As a side benefit, building up a reputation of being a "good partner" also helps a mutual fund to interact with other firms in the long run. In China, "the inside story of mutual funds" reported in 2000 uncovered the professional misconducts of fund managers.[11]

Fund holders may rely on official regulation to uphold justice for them, but in most cases, it is difficult to acquire solid proof in order for official regulation to be executed. Alternatively, they can rely on fund governance to mitigate the implicit infringement

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[9] A fund management company in China has its own board of directors and independent directors on the board, but the shareholders of a fund management company are not necessarily equivalent to fund holders. Independent directors of a fund management company are intended to protect the interests of shareholders rather than the interests of fund holders or investors.

[10] For example, the two largest shareholders of Fullgoal Fund Management Co. are Haitong Securities Company and Shenyin & Wanguo Securities Company, two investment banks.

[11] Please refer to Mahoney (2004) and Zhang (2006) for the details of mutual fund scandals.

of the interests of fund unit holders. The objective of fund governance is to mitigate the agency problems of mutual funds and to protect the interests of fund unit holders. Therefore, empirical research on fund governance is meaningful not only for scholars but also for investors.

2.2. Hypothesis Development

The non-tradable shares reform in China provides an opportunity to examine the agency problem of mutual funds from a new perspective. The existing literature shows that managers of mutual funds tend to collude with controlling shareholders to set a lower compensation ratio. Accordingly, the extent of a mutual fund's agency problem can be proxied by the negative relation between fund ownership and compensation ratio. Then, the issue is whether certain governance characteristics of mutual funds can mitigate this negative relation.

Our first proxy for fund governance is the redemption mechanism of mutual funds. The literature reveals the importance of the redemption mechanism for fund governance. If unsatisfied with fund managers, the unit holders of an open-end fund can redeem their fund holdings, which will substantially reduce the amount of fund assets and hence the management fees received by the fund managers. In contrast, the holders of a closed-end fund can only sell their shares in the secondary market; doing so may cause a deep fall in the unit price, but it will not change the amount of fund assets at all.[12] Furthermore, an open-end fund that is perceived to be well managed can not only keep its original capital but also attract new capital. The enormous inflow of new capital serves as a bonus to the fund's managers and creates incentives for them to perform in the best interests of fund investors. Fama and Jensen (1983a, 1983b, and 1985) point out that the option for investors to redeem their assets is a critical governance mechanism. Sirri and Tufano (1998) show that fund investors rush to open-end funds with good performance records. Qian (2006) finds that the incidence of scandals is lower in mutual funds with the redemption mechanism.

In China, a fund management company may have both open-end and closed-end funds. It can be argued that there is no difference between open-end and closed-end funds since they may both belong to the same fund management company. However, the redemption mechanism of open-end funds may cause a fund manager to allocate more resources to the open-end funds under his or her management. Although the Rules for Mutual Funds in China require that a fund management company must not discriminate between the mutual funds under its control, MacKay and Wu (2007) show that through cross subsidisation and human resources reallocation, fund management companies in

[12] For the duration of a closed-end fund, a fund management company is required to hold at least 0.5% of the fund's shares. Unless its holdings are far beyond 0.5%, a deep fall in share price is practically harmless to a fund management company.

China tend to favour their open-end funds. Therefore, it is expected that open-end funds tend to have better governance quality than closed-end funds.

Within the scenario of the non-tradable shares reform, the unit holders of open-end funds will redeem their holdings if they realise that fund managers may collude with the controlling shareholders of listed firms, something which is detrimental to their interests. Thus, the potential redemption mechanism can mitigate or constrain the agency problem of the managers of open-end funds. The above argument leads to our first hypothesis:

H1: Relative to firms dominated by closed-end funds, collusion with controlling shareholders is less likely to take place in firms dominated by open-end funds.

Our second proxy for fund governance quality is the foreign background of funds. Introducing foreign institutional investors into domestic markets is a consistent policy of the Chinese Government. The objective is to increase the extent of internationalisation and to promote the sound development of Chinese stock markets. Due to the rigorous entry qualification, those who are allowed to enter Chinese markets are internationally renowned institutional investors.[13] By the end of 2007, there were 159 funds and 28 joint venture fund management companies with a foreign background in China; these funds managed 1325.44 billion renminbi of assets and accounted for 40.45% of the fund market.[14] It is expected that, on average, the governance mechanism of funds with a foreign background is inherently better than that of domestic funds; in particular, their worldwide reputation serves as certification or a signal of superior fund governance.

In addition, collusion represents an implicit contract that is unlikely to be legally binding. Agreement upon and the implementation of such an implicit contract are built on mutual trust. Foreign institutional investors are still too new in China's domestic markets to have built up long-term "friendships" with the controlling shareholders of listed firms. The mutual trust between them may not yet be solid enough for both parties to collude for mutual benefit. Due to their inherently better governance, the effect of their reputation, and/or their unfamiliarity with domestic controlling shareholders, foreign background funds tend to suffer less from agency problems than domestic funds under the reform of non-tradable shares. This leads to our second hypothesis:

H2: Relative to domestic funds, collusion with controlling shareholders is less likely to take place in firms dominated by funds with a foreign background.

The third proxy to be examined is the ownership structure of mutual funds. The current literature on the governance role of institutional investors mainly focuses on

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[13] For example, JP Morgan is the foreign partner of China International Fund Management Co. and UBS is the foreign partner of UBS SDIC.

[14] Source: *2007 Annual Report of China Mutual Fund Industry* published by the Securities Association of China.

listed firms and has generated two competing views. The first view is that institutional ownership can enhance the quality of governance; for example, Carleton *et al.* (1998) and Smith (1996) find evidence of active monitoring by large institutional investors (see Karpoff (2001) for a survey). Accordingly, if well motivated, institutions, as the blockholders of a mutual fund, are able to monitor fund managers at least to some extent. Within the scenario of non-tradable shares reform, as institutional unit holders' ownership of a fund increases, fund managers are more likely to perform in the interests of fund unit holders and less likely to collude with controlling shareholders.

A competing point of view is that institutional ownership may result in a deterioration in governance quality since institutional investors also have the incentive to use their voting power to consume corporate resources or to enjoy private benefits that are not shared with minority shareholders (Woidtke, 2002; Davis and Kim, 2007). The existing literature finds that the institutional investors of a mutual fund tend to intensify the agency problem of the fund. Using closed-end funds in the US as their sample, Barclay *et al.* (1993) show that the higher the ownership concentration, the higher the price discount. This phenomenon is especially evident when the large shareholders of mutual funds are non-profit organisations. Barclay *et al.* interpret this phenomenon as the conflict of interests between the large and small shareholders of a mutual fund. Their further investigation confirms that through an alliance with a fund manager, each large shareholder of a fund receives private benefits to a certain extent.

The primary institutions investing in Chinese mutual funds are insurance companies, pension funds, and other state-owned entities.[15] Most insurance companies and pension funds in China are state-owned and thus may have a similar agency problem as other state-owned entities. Besides, such state-owned institutions may share similar interests with the controlling shareholders of state-owned firms. This scenario may give rise to a double-agency problem where the managers (agents) of state-owned pension funds and insurance companies have less incentive to monitor the managers of mutual funds. Then, mutual funds with higher institutional ownership are more likely to collude with controlling shareholders to set a lower compensation ratio to offer to tradable-share holders. Therefore, we provide two competing hypotheses (governance hypothesis vs. agency hypothesis) regarding the role of institutional mutual fund investors:

H3a: Collusion with controlling shareholders is less likely to take place in firms dominated by mutual funds with higher institutional ownership (governance hypothesis).

H3b: Collusion with controlling shareholders is more likely to take place in firms dominated by mutual funds with higher institutional ownership (agency hypothesis).

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[15] The pension funds in China are managed and supervised by the National Council for Social Security Fund, a state-owned entity. For investment portfolios, take Social Security Pension Fund Portfolio 109 and Social Security Pension Fund Portfolio 602 as examples: both invest in several mutual funds.

The three hypotheses are summarised and illustrated in Figure II of Appendix A.

III. Model Specification and Sample Selection

3.1. Model specification

The basic regression model to test the hypotheses is as follows:

$$\begin{aligned} CR\_FINAL = {} & \alpha_0 + \alpha_1 FUND\_GOV + \alpha_2 FUND + \alpha_3 FUND\_GOV*FUND \\ & + \alpha_4 ROA + \alpha_5 B/M + \alpha_6 VOL + \alpha_7 LIM\_YR + \alpha_8 NPROP \\ & + \alpha_9 INDP\_RATIO + \alpha_{10} HERFINDAHL5 + \alpha_{11} CENTRAL \\ & + \alpha_{12} LOCAL + \alpha_{13} ZHUIJIA + \alpha_{14} ZCHI + \alpha_{15} DIV \\ & + \alpha_{16} INJECT + \sum SEQ + \varepsilon, \end{aligned} \tag{1}$$

where:

CR_FINAL is the compensation ratio: the number of additional shares or equivalent shares finally received from the controlling shareholders by the tradable-share holders per 10 tradable shares held. A comprehensive compensation package would be offered by controlling shareholders to tradable-share holders in exchange for the liquidity rights. Directly giving additional shares to tradable-share holders is the most usual way of compensating them. Other ways to offer compensation include warrants, asset restructuring, stock repurchase, asset injection, and cash payouts. In this paper, the different types of compensation are aggregated into a single measure, that is, the additional shares offered to tradable-share holders per 10 tradable shares (as illustrated in Appendix B).

FUND is the proportion of tradable shares held by mutual funds. It is defined as the aggregate ownership by the mutual funds among the top 10 tradable-share holders divided by the total number of tradable shares before the beginning of the reform process. The negative coefficient of *FUND* indicates the existence of collusion between mutual funds and controlling shareholders.

Three indicator variables are employed as proxies for fund governance quality (*FUND_GOV*). Since the agency problem of mutual funds can be proxied by the negative relation between fund ownership (*FUND*) and compensation ratio (*CR_FINAL*), our interest is concentrated on whether certain governance characteristics of mutual funds can mitigate that negative relation or the interaction term in the regression (*FUND*FUND_GOV*). To test H1, the indicator variable *OPEN* is used to classify the sample. If among one firm's 10 largest tradable-share holders, the number of tradable shares held by open-end funds is greater than that held by closed-end funds, the firm is regarded as having a greater proportion of open-end fund ownership (i.e. firm dominated by open-end funds); then, *OPEN* is set to equal 1 (otherwise, it is 0). We run the regression with the interaction term between firm-level fund ownership (*FUND*) and the indicator

for firms with greater open-end fund ownership among their 10 largest tradable-share holders (*OPEN*=1). We expect that the coefficient of *FUND*OPEN* will be significantly positive since open-end funds are less likely to collude with controlling shareholders.

To test H2, we identify the samples based on the foreign background of the fund management company. The indicator variable *FOREIGN* is defined as when, among the firm's 10 largest tradable-share holders, ownership by mutual funds with a foreign background is greater than that by domestic funds (i.e. firm dominated by foreign background funds); then, *FOREIGN* is set to equal 1 (otherwise, it is 0). We expect that the coefficient of the interaction term between *FUND* and the indicator for firms with greater ownership by funds with a foreign background among their 10 largest tradable-share holders (*FOREIGN*=1) will be significantly positive since funds with a foreign background are less likely to collude with controlling shareholders.

To test H3, we partition the samples based on the ownership of fund units by institutional investors. For mutual funds among the firm's 10 largest tradable-share holders, if the average ownership of fund units by institutional investors is greater than the median of the whole sample, *HIGH_IO* is set to equal 1 (i.e. firms dominated by funds with high institutional ownership); otherwise, it is 0. We expect that the coefficient of the interaction term between *FUND* and the indicator for sample firms with a greater proportion of shareholdings among their 10 largest tradable-share holders owned by funds with a higher-than-median institutional ownership (*HIGH_IO* =1) will be significantly negative if the agency hypothesis holds and positive if the governance hypothesis holds.

Based on the prior literature (Chen *et al.*, 2011; Jin and Yuan, 2006; Firth *et al.*, 2010; Li *et al.*, 2011), we include the following variables as controls: *ROA* – return on assets; *B/M* – book to market ratio before the reform; *VOL* – stock returns volatility; *LIM_YR* – length of lockup period, which is defined as the length of the lockup period in terms of number of years; *NPROP* – proportion of non-tradable shares in total shares; *INDP_RATIO* – ratio of independent directors on the board of the listed firm; *HERFINDAHL5* – Herfindahl index of the top five tradable-share holders ownership; *CENTRAL* – indicator of firms owned by the central government, which is set equal to one if the firm is owned by the central government and zero otherwise; *LOCAL* –indicator of firms owned by the local government, which is set equal to one if the firm is owned by the local government and zero otherwise; *ZHUIJIA*, *ZCHI*, *INJECT*, and *DIV* – indicators for promise items, including the promise to conditionally distribute additional shares or cash (*ZHUIJIA*), the promise to increase holdings (*ZCHI*), the promise to inject capital (*INJECT*), and the promise to pay cash dividends (*DIV*), all of which are dummy variables;[16] *SEQ* – a group of reform batch dummies: In order to control the effect of

[16] Take *ZHUIJIA* as example: It is set equal to 1 if the non-tradable-share holders promise to distribute additional shares or cash to the tradable-share holders once the stock performance or stock price falls below the target in the next few years and 0 otherwise. Other indicator variables are defined in the same way.

batch difference, a dummy variable is assigned for each different batch, and there are 67 batches in total.

3.2. Sample Description

At the time the split-share structure reform started, 1,338 A-share firms were listed on the Shenzhen and Shanghai stock exchanges. As summarised in Panel A of Table 1, among these firms, the following cases are excluded from our study: (1) 5 firms without non-tradable shares; (2) 104 firms which had not finished implementing the reform by 31 July 2007; (3) 4 firms for which compensation ratio data are missing; (4) 16 firms for which stock returns volatility data are missing; and (5) 56 firms for which the data on the ownership structure for the mutual funds among their 10 largest tradable-share holders are missing. The final sample consists of 1,153 firms. The industry distribution of the sample firms is reported in Panel B of Table 1. Within our sample firms, 683 belong to the manufacturing industry according to the CSRC Industry Classification Code. This does not represent industry concentration because the industry distribution of our sample is similar to that of the whole sample, where out of the 1,338 A-share firms, 56% belong to the manufacturing industry.

Table 1: Sample Selection and Distribution (29 April 2005-31 July 2007)

Panel A: Sample selection procedure

Selection Procedure	**No. of Firms**
A-share listed firms in China at the time the non-tradable shares reform started	1,338
Excluding the firms without non-tradable shares	5
Excluding the firms which had not completed the reform by 31 July 2007	104
Excluding the firms for which compensation ratio data are missing	4
Excluding the firms for which stock returns volatility data are missing	16
Excluding the firms for which the mutual funds, as their blockholders, lack ownership structure data	56
Firms in the final sample	1,153

Panel B: Sample industry distribution

CSRC Industry Classification	No. of Firms
A. Agriculture, forestry, livestock farming, fishery	26
B. Mining	16
C. Manufacturing	683
D. Electric power, steam and hot water production and supply	55
E. Construction	24
F. Transport and storage	48
G. Information Technology	64
H. Wholesale and retail trade	78
I. Finance and insurance	9
J. Real estate	45
K. Social service	36
L. Communication and Cultural Industry	8
M. Comprehensive	61
Total	1,153

IV. Empirical Results

4.1 Descriptive Statistics

The data in our research are from the WIND Database. Table 2 reports the descriptive statistics. All of the continuous variables are winsorised at the top 1st and bottom 99th percentiles in order to avoid outlier problems. First, the mean (median) of *CR_FINAL* is 2.978 (3.000) shares per 10 shares held. The standard deviation of *CR_FINAL* is 0.795, suggesting some variations across firms. The distribution of the compensation ratios in our sample is similar to that in other studies, such as Li *et al.* (2011).

The mean and the median of *FUND* are 0.056 and 0.003 respectively. For those firms where there is no fund ownership among their 10 largest tradable-share holders, the *FUND* is zero. The means of *OPEN* and *FOREIGN* are 0.322 and 0.182 respectively, indicating that 32.24% (18.2%) of the sample firms have open-end (foreign background) funds dominating among their 10 largest tradable-share holders. The mean of *HIGH_IO* is 0.244, indicating there 24.4% of the sample firms have high institutional ownership funds dominating among their 10 largest tradable-share holders.

The mean of *INDP_DIR* is 0.34. However, there is little variance in this variable, indicating that in most firms, around 34% or so of the board members are independent directors. The mean of *HERFINDAHL5* is 0.003, indicating a lower concentration of top five tradable-share holders ownership. The means of *CENTRAL* and *LOCAL* are 0.173 and 0.475 respectively, indicating that 17.3% of the firms in our sample are controlled by central government and 47.5% by local government.

Table 2: Descriptive Statistics

Variables	N	Min	Q1	Mean	Median	Std. Dev	Q3	Max
CR_FINAL	1153	0.220	2.600	2.978	3.000	0.795	3.400	7.000
CR_RAW	1153	0.000	2.240	2.607	2.700	0.735	3.000	5.780
CR_REV	1153	-2.740	0.200	0.371	0.400	0.328	0.500	3.400
FUND	1153	0.000	0.000	0.056	0.003	0.086	0.090	0.396
ROA	1153	-0.469	0.005	0.016	0.022	0.070	0.046	0.205
B/M	1153	-0.440	0.334	0.532	0.506	0.275	0.699	1.383
VOL	1153	0.037	0.282	0.393	0.390	0.188	0.454	1.423
LIM_YR	1153	1.000	3.000	3.262	3.000	0.942	3.000	7.000
NPROP	1153	0.233	0.553	0.615	0.628	0.114	0.697	0.929
INDP_DIR	1153	0.000	0.333	0.341	0.333	0.051	0.364	0.571
HERFINDAHL5	1153	0.000	0.000	0.003	0.001	0.007	0.004	0.153
CENTRAL	1153	0.000	0.000	0.173	0.000	0.378	0.000	1.000
LOCAL	1153	0.000	0.000	0.475	0.000	0.500	1.000	1.000
ZHUIJIA	1153	0.000	0.000	0.123	0.000	0.329	0.000	1.000
ZCHI	1153	0.000	0.000	0.074	0.000	0.262	0.000	1.000
DIV	1153	0.000	0.000	0.227	0.000	0.419	0.000	1.000
INJECT	1153	0.000	0.000	0.042	0.000	0.201	0.000	1.000
OPEN	1153	0.000	0.000	0.322	0.000	0.468	1.000	1.000
FOREIGN	1153	0.000	0.000	0.182	0.000	0.386	0.000	1.000
HIGH_IO	1153	0.000	0.000	0.244	0.000	0.430	0.000	1.000

CR_RAW is the initial compensation ratio proposed by the firm for the first time. *CR_FINAL* is the compensation ratio finally approved and accepted by the tradable-share holders. *CR_REV* is the revision from the initial compensation ratio to the final compensation ratio. *FUND* is the proportion of mutual fund holdings among the 10 largest tradable-share holders to total tradable shares. *ROA* is return on total assets before the reform. *B/M* is the book to market ratio before the reform. *VOL* is the volatility of stock return. *LIM_YR* is the length of lockup period. *NPROP* is the proportion of non-tradable shares in the total shares. *INDP_DIR* is the number of independent directors to the total number of directors on the board. *HERFINDAHL5* is the Herfindahl index of the top five tradable-share holders ownership. *CENTRAL* is a dummy variable which is equal to 1 if the firm is controlled by central government and zero otherwise. *LOCAL* is a dummy variable; it is equal to 1 if the firm is controlled by local government. *ZHUIJIA* is a dummy variable to indicate the availability of promise to conditionally distribute additional shares or cash. *ZCHI* is a dummy variable to indicate the availability of promise to increase holdings. *INJECT* is a dummy variable to indicate the availability of promise to infuse capital. *DIV* is a dummy variable to indicate the availability of promise to pay future dividends The three proxies for fund governance quality are *OPEN*, *FOREIGN*, and *HIGH_IO*. *OPEN* is a dummy variable; it is equal to 1 if, among the firm's 10 largest tradable-share holders, the tradable shares held by open-end funds are greater than those held by closed-end funds (i.e. dominated by open-end funds) and 0 otherwise. *FOREIGN* is a dummy variable; it is equal to 1 if the firm is dominated by foreign background funds and 0 otherwise. *HIGH_IO* is a dummy variable; it is equal to 1 if the firm is dominated by funds with high institutional ownership and 0 otherwise.

4.2. Correlations between Variables

The correlations between the variables produced by a univariate analysis are shown in Table 3. *CR_FINAL* is significantly negatively correlated with *FUND* (corr. coef. = -0.134), which is consistent with the existing literature. Consistent with other studies, *CR_FINAL* is also significantly positively correlated with *NPROP* and *LOCAL*.

As to the correlations between *OPEN*, *FOREIGN*, and *HIGH_IO*, all of the coefficients are significantly positive. It should be noted that none of the coefficients is greater than 0.4, indicating that each proxy measures the governance quality of mutual funds from a different perspective.

4.3. Test of Hypotheses

The results of the multiple regressions to test H1 to H3 are presented in Table 4. The coefficient of *FUND* in column (1) is -1.577 and is statistically significant at the 1% level (t = -9.54), indicating that the compensation ratio tends to be lower as fund ownership increases. This result shows the agency problem of mutual funds and is consistent with previous studies. As to the effect of fund ownership when open-end funds dominate a sample firm's 10 largest tradable-share holders (*OPEN* = 1), the coefficient of the interaction term between *FUND* and *OPEN* is 0.634 and is significant at the 1% level (t = 2.81), indicating that the redemption mechanism can mitigate the agency problem of mutual funds to some extent or that the managers of open-end funds are less likely to collude with controlling shareholders. In terms of economic magnitude, as the fund ownership increases by one standard deviation (0.086), the compensation ratio offered to tradable-share holders increases by 0.055 shares, which represents an increase of 1.83% on average (relative to the mean of *CR_FINAL*). The empirical evidence indicates that when a firm's 10 largest tradable-share holders are dominated by open-end funds, fund managers are less likely to collude with controlling shareholders. This is consistent with H1: collusion is less likely to take place in firms dominated by open-end funds due to the redemption mechanism.

The results of the regression to test H2 are reported in column (2) of Table 4. The coefficient of *FUND* in column (1) is -1.405 and is significant at the 1% level (t = -7.34). As to the effect of fund ownership when a firm's 10 largest tradable-share holders are dominated by funds with a foreign background, the interaction term *FUND*FOREIGN* is positive and statistically significant (coef. = 0.726, t = 2.08). In terms of economic magnitude, the compensation ratio offered to tradable-share holders increases by 0.062 shares or 2.1% (relative to the mean of *CR_FINAL*) as fund ownership increases by one standard deviation. The empirical results show that foreign background funds tend to be less likely to collude with controlling shareholders since they may have better governance quality.

Table 3: Correlation Matrix

VAR	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
1. *CR_RAW*	1																			
2. *CR_FINAL*	0.911***	1																		
3. *CR_REV*	-0.034	0.381***	1																	
4. *FUND*	-0.113***	-0.134***	-0.070*	1																
5. *OPEN*	-0.043	-0.066*	-0.065*	0.480***	1															
6. *FOREIGN*	-0.037	-0.067*	-0.079**	0.349***	0.360***	1														
7. *HIGH_IO*	-0.049	-0.055	-0.023	0.391***	0.345***	0.265***	1													
8. *ROA*	0.038	0.019	-0.041	0.363***	0.277***	0.159***	0.195***	1												
9. *B/M*	0.069*	0.086**	0.052	-0.223***	-0.024	-0.010	-0.086**	0.117***	1											
10. *VOL*	-0.075*	-0.095**	-0.061*	-0.026	0.013	-0.080**	-0.051	-0.036	-0.123***	1										
11. *LIM_YR*	-0.018	-0.025	-0.020	0.114***	0.122***	0.128***	0.066*	0.161***	0.067*	-0.115***	1									
12. *NPROP*	0.395***	0.403***	0.091**	0.071*	-0.008	-0.016	0.038	0.140***	-0.174***	-0.163***	0.019	1								
13. *INDP_DIR*	0.037	0.021	-0.032	0.023	0.044	0.014	0.009	0.045	-0.048	0.018	-0.011	0.051	1							
14. *HERFINAHL5*	-0.083**	-0.103***	-0.063*	0.597***	0.270***	0.212***	0.192***	0.215***	-0.152***	-0.040	0.021	0.047	0.011	1						
15. *CENTRAL*	0.032	0.032	0.006	0.066*	0.084**	0.051	0.082**	0.046	-0.070*	0.022	0.025	0.061*	-0.049	0.015	1					
16. *LOCAL*	0.123***	0.148***	0.084**	0.056	0.057	0.005	0.027	0.103***	0.168***	-0.028	0.039	0.030	-0.054	0.004	-0.434***	1				
17. *ZHULIJIA*	-0.296***	-0.314***	-0.097**	0.102***	0.011	0.032	0.018	-0.096**	-0.053	-0.017	0.012	-0.125***	0.001	0.146***	-0.122***	-0.088**	1			
18. *ZCHI*	-0.080**	-0.126***	-0.127***	0.065*	0.100***	0.033	0.020	0.108***	0.089**	0.016	0.038	-0.074*	0.027	0.039	-0.031	-0.040	0.088**	1		
19. *DIV*	-0.121***	-0.113***	-0.002	0.155***	0.103***	0.083**	0.069*	0.224***	0.075*	-0.027	0.132***	0.004	-0.017	0.113***	0.003	0.065*	0.040	0.104***	1	
20. *INJECT*	-0.125***	-0.121***	-0.013	0.104***	0.127***	0.105***	0.084**	-0.016	-0.117***	0.015	0.006	0.009	0.004	0.032	0.170***	-0.086**	0.041	0.008	0.022	1

CR_RAW is the initial compensation ratio proposed by the firm for the first time. *CR_FINAL* is the compensation ratio finally approved and accepted by the tradable-share holders. *CR_REV* is the revision from the initial compensation ratio to the final compensation ratio. FUND is the proportion of mutual fund holdings among the 10 largest tradable-share holders to total tradable shares. *OPEN* is a dummy variable; it is equal to 1 if the firm is dominated by open-end funds and 0 otherwise. *FOREIGN* is a dummy variable; it is equal to 1 if the firm is dominated by foreign background funds and 0 otherwise. *HIGH_IO* is a dummy variable; it is equal to 1 if the firm is dominated by funds with high institutional ownership and 0 otherwise. Please refer to Appendix C or Table 2 for the definitions of the independent variables.

Column (3) of Table 4 provides the results of the regression to examine H3. The coefficient of *FUND* is negative and significant (coef. = -0.935, t = -5.82). The interaction term between fund ownership (*FUND*) and the indicator for the sample firms whose 10 largest tradable-share holders are dominated by funds with higher-than-median institutional ownership (*HIGH_IO* = 1) is significantly negative (coef. = -0.758, t = -3.27). This indicates that a lower compensation ratio would be offered to tradable-share holders when a firm's 10 largest tradable-share holders are dominated by funds with higher institutional ownership. Or, in terms of economic magnitude, the compensation ratio for firms dominated by funds with higher institutional ownership will decrease by 0.065 shares as fund ownership increases by one standard deviation, representing a reduction of 2.2% (relative to the mean of *CR_FINAL*) on average. If institutional investors could monitor fund managers to ensure that they perform in the interests of fund unit holders, we would observe the contrary. The empirical results support the agency hypothesis (H3b) of the institutional ownership of mutual funds: that is, due to the double-agency problem, collusion with controlling shareholders tends to be more severe for mutual funds with higher institutional ownership.

As for the control variables, the coefficient of *ROA* is significantly negative across three columns, indicating that the better the performance, the lower the compensation ratio. The lockup period (*LIM_YR*) is significantly negative in all three columns, showing that controlling shareholders are willing to offer a higher compensation ratio for a shorter lockup period. Proportion of non-tradable shares (*NPROP*) is positively associated with compensation ratio in three columns, suggesting that the higher the potential increase in supply once the lockup period ends, the higher the compensation required by tradable-share holders to offset the possible price decline. As regards the percentage of independent directors on the board (*INDP_DIR*), this is significantly positive across three columns; this demonstrates that independent directors play some role in the split share structure reform. The indicator of firms controlled by central (*CENTRAL*) and local (*LOCAL*) government are both significantly positive, suggesting that such firms are more likely to offer a higher compensation ratio to tradable-share holders.

Book to market ratio (*B/M*) has positive coefficients in three columns but is only significant in column (2) (coef. = 0.118, t = 1.71). In the literature, there are different explanations for the relation between B/M and compensation ratio. Chen *et al.* (2011) employ *M/B* (the reciprocal of *B/M*) as a proxy for price discount and expect that there will be a positive relationship between the compensation ratio and the price discount before the reform. In contrast, Xin and Xu (2007) treat *M/B* as a proxy for growth (or investment opportunity) and expect that tradable-share holders would accept a lower compensation ratio for a firm with a higher *M/B* ratio or better investment opportunity. However, none of these studies finds significant results. In our study, *B/M* has positive signs in the regressions. It is possible that the growth opportunity effect dominates. Similar to Chen *et al.* (2011), volatility (*VOL*) remains negative in three columns but is significant only in column (3). The Herfindahl index of the top five largest tradable-

share holders (*HERFINDAHL5*) is not significant in any column. All four promise item dummies are negative and statistically significant in all three columns; this indicates that when controlling shareholders promise to distribute additional shares or cash or to increase holdings, the compensation ratio will be lower. The adjusted-R square is 39.3%, indicating the good explanatory power of the model.

Table 4: Fund Governance and Collusion with Controlling Shareholders

	Dependent Variable: *CR_FINAL*					
Variables	**Coef.**	**T**	**Coef.**	**T**	**Coef.**	**T**
Constant	1.596***	(8.79)	1.620***	(8.89)	1.613***	(8.69)
OPEN	-0.051	(-0.79)				
FOREIGN			-0.093**	(-2.13)		
HIGH_IO					0.053	(1.04)
FUND	-1.577***	(-9.54)	-1.405***	(-7.34)	-0.935***	(-5.82)
OPEN*FUND	**0.634*** **	**(2.81)**				
FOREIGN*FUND			**0.726** **	**(2.08)**		
HIGH_IO*FUND					**-0.758*** **	**(-3.27)**
ROA	-1.083***	(-4.13)	-1.077***	(-4.47)	-1.121***	(-4.55)
B/M	0.119	(1.62)	0.118*	(1.71)	0.105	(1.58)
VOL	-0.147	(-1.49)	-0.156	(-1.58)	-0.155*	(-1.65)
LIM_YR	-0.037***	(-5.83)	-0.038***	(-5.69)	-0.041***	(-5.88)
NPROP	2.338***	(8.66)	2.319***	(8.84)	2.339***	(8.98)
INDP_DIR	0.337**	(2.40)	0.337**	(2.29)	0.325***	(2.62)
HERFINDAHL5	1.471	(0.61)	1.048	(0.50)	1.007	(0.46)
CENTRAL	0.237***	(6.26)	0.233***	(5.73)	0.232***	(6.19)
LOCAL	0.269***	(11.18)	0.264***	(10.17)	0.260***	(10.43)
ZHUIJIA	-0.527***	(-16.42)	-0.525***	(-16.39)	-0.527***	(-17.36)
ZCHI	-0.306***	(-4.99)	-0.312***	(-5.06)	-0.313***	(-4.99)
DIV	-0.161***	(-3.01)	-0.159***	(-3.02)	-0.166***	(-3.19)
INJECT	-0.208***	(-3.16)	-0.195***	(-2.91)	-0.220***	(-3.61)
SEQ	YES		YES		YES	
Observations	1153		1153		1153	
Adj-R2	0.393		0.393		0.393	

This table presents the results of the OLS regression to test H1 to H3. The dependent variable is the final compensation ratio (*CR_FINAL*). The three proxies for fund governance quality are *OPEN*, *FOREIGN*, and *HIGH_IO*. If the sample firms' 10 largest tradable-share holders are dominated by open-end funds, *OPEN* is equal to 1; otherwise, it is 0. If the sample firms' 10 largest tradable-share holders are dominated by foreign background funds, *FOREIGN* is equal to 1; otherwise, it is 0. If the sample firms' 10 largest tradable-share holders are dominated by mutual funds with high institutional ownership, *HIGH_IO* is equal to 1; otherwise, it is 0. Coefficients and T-statistics are reported. Please refer to Appendix C or Table 2 for the definitions of the independent variables. Heteroscedasticity and clustering by industry have been considered. ***, **, and * indicate the 1%, 5%, and 10% significance levels (two-tailed) respectively.

4.4. Additional tests

4.4.1. When does the collusion happen: before the proposal or during the negotiation?

Our main results are based on the final compensation ratio (*CR_FINAL*) approved and accepted by the tradable-share holders. According to the CSRC rules, the controlling shareholders first propose a compensation plan to the tradable-share holders. Then, the blockholders of tradable shares are consulted on whether this draft needs amendments. Most compensation plans will experience one revision. The process from initial proposal to final approval generally takes 44 days on average. Accordingly, we can observe both the initial compensation ratio and the revision of the compensation ratio after negotiation. Such unique data allow us to further examine whether the collusion takes place before the announcement of the first draft of the compensation plan or during the negotiation process.

As previously mentioned, the collusion between mutual funds and the controlling shareholders of the listed firm represents an implicit contract that is primarily built on mutual trust and long-term relationship. In such cases, the controlling shareholders privately consult with fund managers about the compensation plan before the announcement. Therefore, it is possible that the collusion takes place before the public announcement of the compensation proposal. Besides, such an implicit contract is not legally binding. It requires covert and informal communications before the proposal is announced. If the collusion takes place during the negotiation process, the possibility of the collusion being detected by other tradable-share holders would be higher, and this would significantly increase the transaction cost. However, there is no denying that the collusion could also happen during the negotiation process after the announcement of the proposal. Therefore, it is an open question whether the collusion takes place before the proposal is announced or during the negotiation process. In the former case, the initial compensation ratio offered by the controlling shareholders tends to be lower when firms are dominated by funds with worse governance. In the latter case, there would be less revision to the proposal during a negotiation process where collusion is present. To examine these predictions, we rerun model (1) with the initial compensation ratio (*CR_RAW*) or revision of compensation ratio (*CR_REV*) as the dependent variable, where *CR_REV* is defined as the difference between the compensation ratio initially proposed and the compensation ratio that is finally approved.

As shown in Table 2, the mean and the median of initial compensation ratio (*CR_RAW*) are 2.607 and 2.70, respectively. The mean and the median of the revision of compensation ratio (*CR_REV*) are 0.371 and 0.40 respectively, representing a 14%~15% increase in the initial compensation ratio after the negotiation process. As reported in Table 3, both variables are significantly inversely associated with fund ownership (*FUND*) (corr. coef. = -0.113 and -0.070 respectively), indicating that as the shareholdings by mutual funds increase, both the initial compensation ratio and the

revision of the compensation ratio offered by the controlling shareholders tend to be lower.

Table 5 reports the results of the regression with *CR_RAW* as the dependent variable. As indicated in column (1), the coefficient of *FUND* is -1.418 and is significant at the 1% level (t = -6.96), which is consistent with previous findings. Since open-end funds are less likely to collude with controlling shareholders due to the redemption mechanism, the initial compensation ratio would be higher when a firm's 10 largest tradable-share holders are dominated by open-end funds. The interaction term between *FUND* and *OPEN* is positive and statistically significant (coef. = 0.591, t = 2.79) in column (1), indicating that before the initial proposal of a compensation ratio, there is less possibility of collusion between controlling shareholders and open-end funds. We predict that funds with a foreign background are less likely to collude with controlling shareholders. As indicated in column (2) of Table 5, the coefficient of the interaction term between *FUND* and *FOREIGN* is significantly positive (coef. = 0.686, t = 2.10), indicating that the initial compensation ratio tends to be higher when a firm's 10 largest tradable-share holders are dominated by funds with a foreign background.

As to the role of institutional mutual fund investors, our previous results show that mutual funds with high institutional ownership are more likely to collude with controlling shareholders to set a lower compensation ratio due to the double-agency problem. If that is the case, the collusion between controlling shareholders and funds with high institutional ownership is more likely to take place before the settlement of the initial compensation ratio. As indicated in column (3) of Table 5, the coefficient of *FUND***HIGH_IO* is -0.566 with a significance level of 1% (t = -2.47), which is consistent with the agency hypothesis of institutional mutual fund investors.

Consistent with the results in Table 4, the most important determinants of the initial compensation ratio are *ROA*, *LIM_YR*, *NPROP*, *IND_DIR*, *CENTRAL*, *LOCAL*, and other promise items. That is to say, the initial compensation ratio tends to be higher for firms that (a) have a worse accounting performance, a shorter lock-up period, and higher non-tradable shareholdings and (b) are controlled by the central or local government.

The results of employing revision of compensation ratio (*CR_REV*) as the dependent variable are presented in Table 6. Neither *FUND* nor the interaction term between *FUND* and the fund governance indicators is statistically significant. Since the initial compensation ratio is the result of collusion, there is less need for further collusion during the negotiation process. The important determinant of revision across the three columns is the proportion of non-tradable shareholdings (*NPROP*), indicating that the higher the proportion of non-tradable shares, the larger the revision of the compensation ratio requested by other tradable-share holders. Firms controlled by local government tend to offer a higher compensation ratio after the negotiation process, as indicated by the significantly positive coefficient of *LOCAL*.

Table 5: Timing of Collusion: Fund Governance and the Initial Proposal

	Dependent Variable: *CR_RAW*					
Variables	**Coef.**	**T**	**Coef.**	**T**	**Coef.**	**T**
Constant	1.292***	(10.26)	1.313***	(10.40)	1.306***	(9.96)
OPEN	-0.034	(-0.59)				
FOREIGN			-0.047	(-0.92)		
HIGH_IO					0.031	(0.48)
FUND	-1.418***	(-6.96)	-1.290***	(-5.95)	-0.829***	(-5.67)
OPEN*FUND	**0.591*** **	**(2.79)**				
FOREIGN*FUND			**0.686****	**(2.10)**		
HIGH_IO*FUND					**-0.566****	**(-2.47)**
ROA	-0.899**	(-2.42)	-0.885**	(-2.48)	-0.922**	(-2.56)
B/M	0.084	(0.82)	0.080	(0.83)	0.074	(0.78)
VOL	-0.069	(-0.72)	-0.070	(-0.71)	-0.075	(-0.81)
LIM_YR	-0.028***	(-3.00)	-0.031***	(-3.09)	-0.031***	(-3.21)
NPROP	2.081***	(10.16)	2.065***	(10.64)	2.078***	(10.57)
INDP_DIR	0.456***	(2.76)	0.455***	(2.69)	0.452***	(2.90)
HERFINDAHL5	2.234	(0.66)	1.802	(0.59)	1.811	(0.58)
CENTRAL	0.227***	(9.25)	0.223***	(8.25)	0.225***	(8.40)
LOCAL	0.230***	(8.93)	0.226***	(8.91)	0.223***	(8.44)
ZHULJIA	-0.467***	(-6.73)	-0.465***	(-6.71)	-0.468***	(-6.93)
ZCHI	-0.196***	(-5.32)	-0.199***	(-5.78)	-0.201***	(-6.05)
DIV	-0.165***	(-3.07)	-0.164***	(-3.07)	-0.170***	(-3.23)
INJECT	-0.238***	(-3.20)	-0.230***	(-2.97)	-0.245***	(-3.55)
SEQ	YES		YES		YES	
Observations	1153		1153		1153	
Adj-R2	0.381		0.382		0.381	

The dependent variable is the raw compensation ratio (*CR_RAW*). The three proxies for fund governance quality are *OPEN*, *FOREIGN*, and *HIGH_IO*. If the sample firms' 10 largest tradable-share holders are dominated by open-end funds, *OPEN* is equal to 1; otherwise, it is 0. If the sample firms' 10 largest tradable-share holders are dominated by foreign background funds, *FOREIGN* is equal to 1; otherwise, it is 0. If the sample firms' 10 largest tradable-share holders are dominated by mutual funds with high institutional ownership, *HIGH_IO* is equal to 1; otherwise, it is 0. Heteroscedasticity and clustering by industry have been considered. ***, **, and * indicate the 1%, 5%, and 10% significance levels (two-tailed) respectively. Please refer to Appendix C or Table 2 for the definitions of the independent variables.

Table 6: Timing of Collusion: Fund Governance and Compensation Ratio Revision

	Dependent Variable: *CR_REV*					
Variables	**Coef.**	**T**	**Coef.**	**T**	**Coef.**	**T**
Constant	0.304***	(3.93)	0.307***	(3.89)	0.307***	(4.03)
OPEN	-0.018	(-1.08)				
FOREIGN			-0.047	(-1.46)		
HIGH_IO					0.022	(1.02)
FUND	-0.159	(-1.15)	-0.115	(-0.63)	-0.106	(-0.76)
OPEN*FUND	**0.043**	**(0.36)**				
FOREIGN*FUND			**0.040**	**(0.29)**		
HIGH_IO*FUND					**-0.192**	**(-1.19)**
ROA	-0.184	(-1.05)	-0.192	(-1.07)	-0.199	(-1.10)
B/M	0.036	(0.96)	0.038	(1.04)	0.032	(0.85)
VOL	-0.078***	(-2.68)	-0.086***	(-2.91)	-0.080***	(-2.75)
LIM_YR	-0.008	(-1.10)	-0.008	(-1.00)	-0.010	(-1.22)
NPROP	0.257***	(3.20)	0.254***	(3.02)	0.261***	(3.31)
INDP_DIR	-0.119	(-0.97)	-0.118	(-0.93)	-0.127	(-1.02)
HERFINDAHL5	-0.763	(-0.53)	-0.754	(-0.56)	-0.805	(-0.59)
CENTRAL	0.010	(0.31)	0.009	(0.30)	0.007	(0.23)
LOCAL	0.039**	(1.99)	0.038**	(1.96)	0.037*	(1.89)
ZHUIJIA	-0.060	(-1.42)	-0.060	(-1.43)	-0.059	(-1.42)
ZCHI	-0.110*	(-1.71)	-0.113*	(-1.74)	-0.113*	(-1.71)
DIV	0.004	(0.26)	0.006	(0.36)	0.003	(0.20)
INJECT	0.030	(1.22)	0.034	(1.42)	0.025	(1.04)
SEQ	YES		YES		YES	
Observations	1153		1153		1153	
Adj-R2	0.117		0.119		0.117	

The dependent variable is the revision of compensation ratio (*CR_REV*). The three proxies for fund governance quality are *OPEN*, *FOREIGN*, and *HIGH_IO*. If the sample firms' 10 largest tradable-share holders are dominated by open-end funds, *OPEN* is equal to 1; otherwise, it is 0. If the sample firms' 10 largest tradable-share holders are dominated by foreign background funds, *FOREIGN* is equal to 1; otherwise, it is 0. If the sample firms' 10 largest tradable-share holders are dominated by mutual funds with high institutional ownership, *HIGH_IO* is equal to 1; otherwise, it is 0. Heteroscedasticity and clustering by industry have been considered. ***, **, and * indicate 1%, 5% and 10% significance levels (two-tailed) respectively. Please refer to Appendix C or Table 2 for the definition of independent variables.

Overall, the evidence is consistent with the prediction that the collusion between certain types of mutual funds and controlling shareholders primarily takes place before the public announcement of the first draft of a compensation plan rather than during the negotiation process. Such results based on the timing of the collusion confirm the findings in Section 4.3.

4.4.2. Investment horizon of mutual funds

The potential benefits to be gained from controlling shareholders are the reason why mutual fund managers would collude with controlling shareholders to set a lower compensation ratio. However, it is difficult to quantify the net benefits to mutual funds since some benefits would in some ways be realised in the future. If mutual funds dump their shareholdings after the split share structure reform, they may not be able to realise the potential benefits from controlling shareholders in the future. Such mutual funds would be more likely to focus on current benefits, and the trade-off between side-benefits and the compensation ratio would be more likely to shift toward the latter. In contrast, mutual funds with a relatively longer investment horizon could realise the potential future benefits and thus would be more likely to collude with controlling shareholders to set a lower compensation ratio.

Mutual funds in China are required to disclose their shareholdings in detail every six months. We compare the shareholdings of mutual funds during the split share structure reform with the first available shareholdings reported in the semi-annual or annual reports. For each sample firm, if the mutual funds reduce their shareholdings after the reform, we add the number of sold shares together and divide this by the number of total tradable shares. We then calculate the median of the percentage of reduced shareholdings held by the mutual funds in the sample. If the reduction of the shareholdings of mutual funds in one sample firm is higher than the sample median, we set an indicator variable, *SHORTTERM*, to equal 1; otherwise, it is set to 0. We expect that the collusion between controlling shareholders and mutual funds tends to concentrate on mutual funds with relatively longer investment horizons.

Since the empirical results indicate that collusion with controlling shareholders tends to concentrate on closed-end funds, domestic funds, or funds with higher institutional ownership, we examine the impact of investment horizon based on these three sub-samples. We add an interaction term between the indicator of short-term investment horizon and fund ownership, *SHORTTERM*FUND*, in the baseline regression model. If mutual funds with a short-term investment horizon cannot obtain long-term benefits in the future and thus tend to concentrate on short-term benefits, the trade-off between other benefits and the compensation ratio will be more likely to shift toward the latter. The coefficient of the interaction term should be significantly positive. The empirical results support this prediction. The interaction term has a positive and significant coefficient across all three sub-samples. Due to space constraints, the results are not tabulated.

Therefore, the results indicate that funds with short-term investment horizons are less likely to acquire future potential benefits. Therefore, they tend to concentrate on current benefits (i.e. the compensation ratio). In other words, funds with a relatively longer investment horizon could realise potential benefits in the future and thus are more likely to collude with controlling shareholders to set a lower compensation ratio.

4.4.3 The endogeneity issue

According to the literature (e.g. Gompers and Metrick, 2001), the investment preference of institutional investors is significantly different from that of other investors. If a different preference results in a different compensation ratio, then the negative relation between mutual fund and compensation ratio may be due to other factors. We address this endogeneity concern using a simultaneous two-stage least squares (2SLS) estimation, while the key issue is to obtain appropriate instrumental variables.

Based on the prior literature that studies the determinants of institutional ownership (e.g. Gompers and Metrick, 2001; Ke and Ramalingegowda, 2005), book-to-market ratio, volatility, stock price, turnover ratio, momentum, firm age, and ROA should be strong instruments for mutual fund ownership. It is notable that the appropriate instruments should be strongly correlated with the mutual fund ownership measure and should influence the dependent variable (in our case, compensation ratio) indirectly through its effect on mutual fund ownership. Because book-to-market ratio, volatility, and ROA are three basic variables in the determinants of compensation ratio, we drop these three variables and keep the other four measures as instrumental variables of mutual fund ownership.[17]

In the first stage, we obtain the instrumented ownership of mutual funds using the coefficient estimates. In the second stage, we rerun all of the regressions; the results do not change qualitatively. Due to space limitations, the results are not tabulated, but they are available upon request.

4.4.4. Definition of compensation ratio

As mentioned before, a comprehensive compensation package offered to tradable-share holders may include warrants, asset restructuring, stock repurchase, asset injection, cash payouts, additional shares, and so on. To make the various types of compensation package comparable, the different types of compensation are aggregated into a single measure. Since the most prevalent form of compensation is to distribute additional shares to tradable-share holders, we perform the tests on the sample firms where the compensation ratio only includes additional shares. The main results are qualitatively similar and consistent with our predictions. The results are not tabulated due to space limitations.

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[17] To test the validity of the instruments, the F-value (F-test is performed on the coefficients of the instruments) is 41.54 and significant at the 1% level. As to the Sargan test to examine whether instrumental variables are valid, the $\chi^2(3)$ is 4.376 with a p value of 0.2236, indicating that the instrumental variables are uncorrelated with the error term.

V. Conclusion

Mutual funds are playing an increasingly significant role in China's stock markets. However, unlike their counterparts in developed markets, mutual funds in China may not perform in the best interests of fund unit holders. In the split share structure reform in China, it has been documented that mutual funds tend to collude with non-tradable-share holders (controlling shareholders) to set a lower compensation ratio. This paper has sought to examine whether fund governance can help to mitigate this agency problem.

The empirical evidence shows that collusion with controlling shareholders is less likely to take place in firms dominated by open-end funds since such funds are expected to have better governance quality than closed-end funds due to the redemption mechanism. The evidence also shows that relative to domestic funds, collusion with controlling shareholders is less likely to take place in firms dominated by foreign background funds due to the inherent better governance, reputation effect, and/or unfamiliarity with domestic relationships of such funds. As to the effect of fund ownership structure, it is found that collusion with controlling shareholders is more likely to take place in firms dominated by mutual funds with higher institutional ownership. In other words, fund governance seems to deteriorate as institutional investors' ownership of mutual fund units increases; this could be attributable to the double-agency problem. Overall, the empirical results are broadly consistent with the prediction that certain fund governance mechanisms can help to mitigate the collusion between mutual funds and the controlling shareholders of listed firms.

This study not only enriches the mutual funds literature from a new perspective but also gives a deeper insight into the research on the agency problem and the governance effect of mutual funds in emerging markets. Based on the findings from this study, we may be able to generate some implications for government regulators and individual investors. For instance, regulators could encourage the development of foreign institutional investors and facilitate the transition of closed-end funds to open-end funds. They could also implement some procedures to improve the governance mechanisms of mutual funds so as to align the interests of fund managers with those of individual fund unit holders. From the perspective of individual investors, they could pay particular attention to those funds with high institutional ownership since such funds may be likely to suffer from more severe agency problems in an emerging market with insufficient investor protection and weak legal enforcement such as China.

There are some limitations of the study that are worth mentioning. Our tests concentrate on a certain period and a special event, and thus the results should be extrapolated to other periods with caution. Moreover, these results come from the Chinese setting and generalising them to developed markets, such as the US, should be viewed with caution given the vast institutional differences that exist between two countries.

References

Please refer to pp. 74-76.

Appendix A

Figure I: Relation between the various parties in the split share structure reform

Mutual funds hold tradable shares in listed firms. The fund managers and other institutional holders of tradable shares can negotiate/collude with the controlling shareholders of listed firms to determine the compensation package offered to the tradable-share holders. The reason that this study focuses on mutual funds is because they account for the largest proportion of institutional investors in the tradable shares of listed firms and we can only get background information on mutual funds.

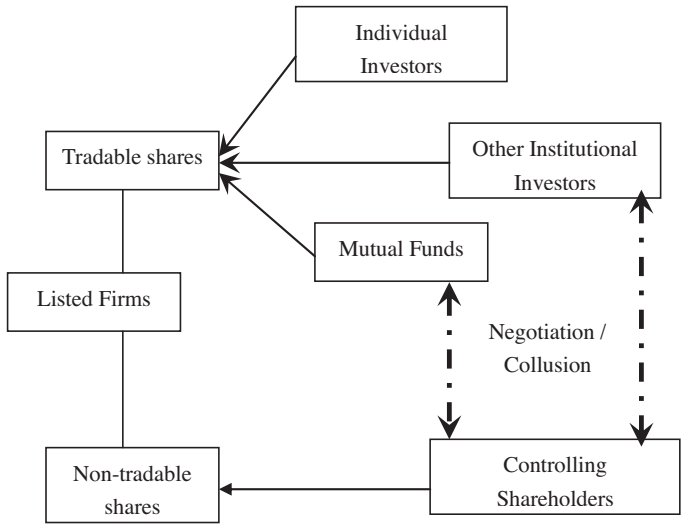
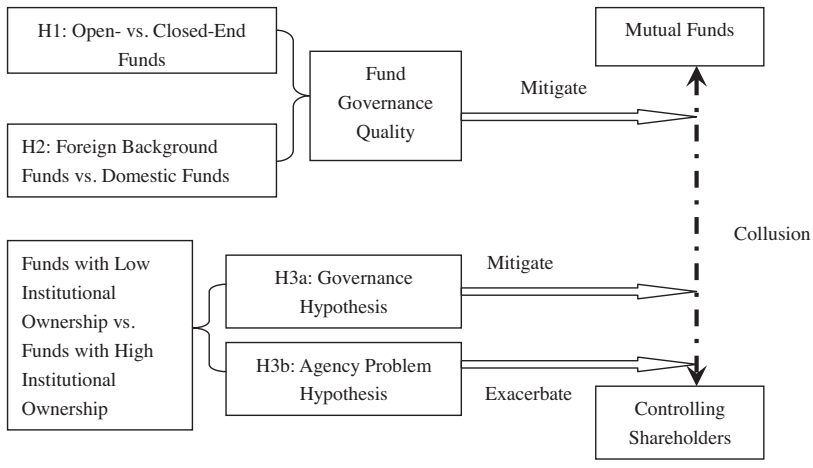


Figure II: Three hypotheses about the role of fund governance quality in mitigating the collusion between mutual funds and the controlling shareholders of listed firms.



Appendix B: Examples of compensation ratio calculation

Case 1:

The compensation ratio scheme of G Agricultural Products (000061): In the last five trading days of the twelfth month after the implementation of the reform, all tradable-share holders had the right to sell their shares at the price of 4.25 renminbi per share to the Shenzhen state-owned Assets Supervision Commission (the controlling shareholder of G Agricultural Products). Obviously, this is a European warrant with a deposit period of 360 days and a strike price of 4.25 renminbi. Based on the one-year deposit interest rate of 2.25% announced by the People's Bank of China and the latest closing price of 3.40 renminbi before the announcement of the non-tradable shares reform and the annual volatility of stock return of 0.2946, this warrant's value equals 0.916 renminbi according to the Black-Scholes option pricing model. Therefore, to convert the compensation to the number of additional shares or equivalent shares finally received by the tradable-share holders from the non-tradable-share holders, the compensation ratio per 10 tradable shares of G Agricultural Products is 2.69 shares (0.916*10/3.4).

Case 2:

The compensation ratio scheme of G Aodong (000623): The non-tradable shares are implemented reverse split with the proportion of 1:0.6074 and, at the same time, cash dividends are paid to all shareholders. The non-tradable-share holders pay all of their cash dividends to the tradable-share holders. The actual pre-tax cash dividend received by the tradable-share holders per 10 shares is 4 renminbi. Based on the latest proportion of tradable shares (0.5355) before the announcement of the non-tradable shares reform and the proportion (1:0.6074) of non-tradable shares with reverse split, the compensation ratio of G Aodong is equivalent to 2.23. The detailed calculation is as follows: It is first assumed that there are 100 G Aodong shares in total. Because 53.55% of the total shares were tradable shares before the non-tradable shares reform, there are 53.55 tradable shares and 46.45 non-tradable shares. If the non-tradable shares undergo reverse split as 1:0.6074, afterwards, this firm has 53.55 tradable shares and 28.21 (i.e. 46.45*0.6074) non-tradable shares. Thus the proportion of tradable shares will be 0.6549 (53.55/(53.55+28.21)). The reverse split of non-tradable shares is regarded as an indirect wealth transfer from the controlling shareholders to the tradable-share holders. The equivalent compensation ratio after the reverse split of the non-tradable shares is 2.23 ((0.6549–0.5355)*10/0.5355). Based on the latest closing price of 5.9 renminbi before the announcement of the split share structure reform and the corresponding compensation ratio after the reverse split of the non-tradable shares, the actual pre-tax cash received by the tradable-share holders is 4 renminbi per 10 shares. This means that the equivalent compensation ratio is 0.66 (4*(1–0.2) * 1.223/5.9, where 0.2 is the income tax rate and 1.223 is the adjusting factor for the reverse split). Accordingly, the total compensation ratio after the reverse split of the non-tradable shares and the cash dividends payout will be 2.89 shares (i.e. 2.23+0.66).

Case 3:

The compensation ratio scheme of G Zhongfu (000659): The tradable-share holders get 2.5 shares and 0.772 cash per 10 shares. Based on the latest closing price of 3.39 renminbi before the announcement of the split share structure reform and the shares paid by the non-tradable-share holders, the compensation ratio of G Zhongfu is equivalent to 2.73 shares (i.e. 2.5 + 0.772*(1 – 0.2)*1.25/3.39, where 0.2 is the income tax rate and 1.25 is the adjusting factor for additional shares received from non-tradable-share holders).

Case 4:

The compensation ratio scheme of G Wugang (600005): The tradable-share holders get 2.5 shares, 2.5 copies of the call option, and 2.5 copies of the put option per 10 shares. For the put option, the tradable-share holders can sell one share to Wugang at the exercise price of 3.13 renminbi. As for the call option, the tradable-share holders can buy one share from Wugang at the exercise price of 2.9 renminbi. Both warrants are European options with a deposit period of 12 months. According to the Black-Scholes option pricing model, the price of the put option is calculated as 0.153 renminbi based on a one-year deposit interest rate of 2.25%, the exercise price of 3.13 renminbi, the latest closing price of 3.45 renminbi before the announcement of the split share structure reform, and an annual volatility of 0.2397. The price of the call option is calculated as 0.701 renminbi based on the exercise price of 2.9 renminbi. Finally, the compensation ratio of Wugang is equivalent to 3.27 shares (i.e. 0.153*2.5*1.25/3.45 + 0.701*2.5*1.25/3.45 + 2.5, where 1.25 is the adjusting factor for additional shares received from non-tradable-share holders). There is no income tax because shareholders are only taxed on cash dividends.

Appendix C

Symbols of Variables

Variable Type	Variable	Symbol
Dependent Variables	Compensation ratio finally approved and accepted by tradable-share holders	*CR_FINAL*
	Compensation ratio initially proposed by non-tradable-share holders at the beginning of the negotiation process	*CR_RAW*
	Revision of compensation ratio after the negotiation between tradable-share holders and non-tradable-share holders, or the difference between *CR_FINAL* and *CR_RAW*	*CR_REV*
Indicator Variables	Indicator variable to test H1	*OPEN*
	Indicator variable to test H2	*FOREIGN*
	Indicator variable to test H3	*HIGH_IO*
Independent Variables	Proportion of a firm's tradable shares held by mutual funds among the top 10 tradable-share holders	*FUND*
	Return on assets	*ROA*
	Stock returns volatility	*VOL*
	Percentage of independent directors	*INDP_DIR*
	Length of lockup period	*LIM_YR*
	Proportion of a firm's non-tradable shares in total shares	*NPROP*
	Book to market ratio	*B/M*
	Herfindahl index of top 5 tradable-share holders ownership	*HERFINDAHL5*
	Indicator of firms controlled by central government	*CENTRAL*
	Indicator of firms controlled by local government	*LOCAL*
	Promise to conditionally distribute additional shares or cash	*ZHUIJIA*
	Promise to increase holdings	*ZCHI*
	Promise to infuse capital	*INJECT*
	Promise to pay future dividend	*DIV*
	Reform batch dummies	*SEQ*