

上市公司股份制改制中资产评估操纵的动机及其经济后果¹

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摘要

本文以1997年至2002年上海证券交易所和深圳证券交易所进行招股上市的267家公司为样本，对企业股份制改制过程中大股东操纵资产评估的动机和经济后果进行了研究。本文的研究发现：（一）控股股东有动机操纵评估结果，在改制时以较小的投入获得较大比例的股份，实现对中小股东的利益侵占。股份制改制前大股东完全控股的公司，由于没有制衡股东的约束，控股股东具有更强的动机和能力来操纵评估结果。大股东完全控股股权结构下上市公司的非正常评估增值率高于其他股权结构的上市公司。（二）由于在股份制改造过程中，大股东以较小的资产投入获得了较大的股份，公司的未来盈利能力无法达到其应有的水准。非正常评估增值率越高的上市公司，其未来会计业绩和回报率业绩均显著差于其他上市公司。本文研究表明控股股东在改制过程中存在通过资产评估侵占中小股东权益的行为。

关键词：资产评估、非正常资产评估增值率、经济后果

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一、引言

股份制改制中的资产评估是确定大股东在企业改制上市后控股比例的关键一环。在监督弱化的条件下，大股东在股份制改制中，是否将操纵资产评估结果作为掠夺中小股东权益，增加自身控制权的手段？³本文将主要回答两个问题：（1）股份制改制前大股东完全控股股权结构下，上市公司的非正常净资产评估增值率是否高于其他股权结构上市公司的非正常净资产评估增值率？（2）改制评估中非正常净资产评估增值率越高的上市公司，上市后未来业绩是否越差？⁴

Shleifer and Vishny (1997)、Claessens and Fan (2003) 等认为，在新兴的亚洲国家，公司中存在的主要代理问题是大股东对中小股东的剥削。在中小投资者保护相对较弱的条件下，大股东会利用手中的控制权，通过各种方式从上市公司转移资源，为自身谋取私利，从而侵害中小投资者的利益。众多国内文献研究发现，中国特殊的制度背景使得我国上市公司的控股股东有可能、也更有条件利用手中的控制权侵害外部中小投资者的利益，为自己谋取控制权收益。这些国内研究分别从不同的角度对大股东侵害中小股东权益的行为进行了分析。其中有：关联交易中的并购重组（李增泉、余谦和王晓坤，2005）、现金股利的支付（Lee and Xiao, 2002）、购销业务（Jian and Wong, 2008）、资金占用（Jiang, Lee, and Yue, 2005）等。

相对于其他领域的研究，国内对资产评估的研究并不是很多。原红旗和杨静（2005）从资产置换中资产评估定价角度，对上市公司与其控股股东进行资产置换的动机及其经济后果进行了研究。发现大股东在资产置换的过程中，通过低估上市公司置出资产和高估置入资产从上市公司利益输出；而对有扭亏或者再融资动机的公司，大股东则通过高估置出资产和低估置入资产，对上市公司利益输入。

同已有的研究文献相比，本文研究的意义表现在以下四个方面：

首先，资产评估是中国企业股份制改制过程中特有的重大事项，资产评估是否公允关系到企业发行股票后发起股东和中小股东的权益，也关系到公司上

³ 近年市场上关于资产评估机构“协助”上市公司大股东造假的现象时有发生，典型的案例包括东方资产评估事务所为四川泰港出具虚假关联交易评估，广东大正联合资产评估有限公司参与麦科特造假上市，成都资产评估事务所参与红光实业欺诈上市，上海大华会计师事务所参与西藏圣地股份有限公司股东虚假出资等。

⁴ 根据国有资产管理局在1992年和1995年发布的《国有资产评估管理办法施行细则》和《关于组建上市公司及发行上市股票资产评估若干问题的通知》等有关法规规定，应将企业改制确认的净资产价值作为资产折股和确定各方股权比例的依据。鉴于此，我们采用了非正常净资产评估增值率作为研究的对象。同时，我们将非正常总资产评估增值率作为本文的稳健性检验。

市后持续经营的资产质量。但公司改制时资产评估是否公允，以往对这一重要事项的研究还比较薄弱，我们的研究将有助于对这一重大事项的理解。

其次，以往国内外有关公司上市的会计问题集中在上市前的盈余管理上，如Teoh, Wong, and Rao (1998), Aharony, Lee, and Wong (2000), Aharony, Wang and Yuan (2005) 等研究表明，公司在上市前存在盈余管理行为。而本研究以中国上市公司为制度背景，将公司上市的会计问题拓展到资产评估。大股东除了通过盈余管理外，还在改制评估中存在高估资产的机会主义行为。我们发现，通过这种机会主义行为，大股东以较小的投入获得了较大比例的股份，从而实现了对中小股东的利益侵占。

第三，以往的文献在考察大股东对上市公司的剥削时，采用的主要指标是控股公司和上市公司购销业务、资金占用、现金股利等，而本文从公司改制上市中的资产评估角度，对股权安排过程中大股东的剥削行为进行了探究。我们的研究提供了大股东对中小股东剥削的新指标。

第四，以往资产评估方面的文献，如原红旗和杨静（2005），周勤业、夏立军和李莫愁（2003）主要讨论了特定种类的资产重组中，大股东操纵资产评估的动机。我们以上市前的股份制改制中的评估作为研究对象，包括了发起企业投入的所有资产，资产评估的波及面更大，关系到控股股东在股份公司的持股数量及持股比例。而且，我们的文章从会计业绩和市场业绩两个角度讨论了资产评估的经济后果。

本文后续部分的结构如下：第二部分是对国内外相关研究文献的综述，第三部分为研究的制度背景和研究假说，第四部分是研究样本和数据来源，第五部分为研究设计和实证检验结果，第六部分为相关的稳健性检验，最后是本文的结论和研究的局限性。

二、文献综述

Johnson, La Porta, Lopez-de-Silanes and Shleifer (2000) 将控股股东利用手中的控制权侵害外部中小投资者的利益，为自己谋取私利的行为称为“资产转移” (Tunnelling)。他们发现资产转移更多地出现在投资者权益保护相对较弱的国家，尤其在新兴资本市场更为普遍。Bertrand, Mehta, and Mullainathan (2002) 通过对印度企业集团内部所有公司盈余变动的研究，发现存在显著的大股东侵占中小股东利益的行为。Bae, Kang, and Kim (2002) 发现，韩国集团公司的控股股东将并购作为手段，牺牲小股东利益，为自己转移资源。

Jian and Wong (2008) 的研究发现，中国上市公司的控股公司通过关联交易从上市公司利益输出，但是对有再融资或避免亏损动机的公司，控股股东会通过关联交易等各种方式对上市公司进行补助。市场对关联交易的行为能够在一定程度上鉴别，即对关联交易的公司进行了较低的定价。Aharony, Wang, and

Yuan (2005) 对1999年至2001年在上海证券交易所首次发行公司的关联交易进行了研究。发现在上市前一年, 控股公司通过关联交易向上市公司利益输入; 上市后, 控股公司则通过关联交易从上市公司利益输出。Cheung, Rau, and Stouraitis (2006) 发现投资者将收购资产等形式的关联交易看作是大股东掏空上市公司的行为, 因此对这种交易进行折价。李增泉、余谦和王晓坤 (2005) 发现当公司具有再融资或避亏动机时, 进行的购并活动能够在短期内显著提升公司的会计业绩, 在其他情况下, 进行并购目的在于掏空资产, 会损害公司的价值, 但掏空行为对公司未来的会计业绩却没有显著影响。

国外有关资产评估的研究, 少数讨论资产评估的动机, 其它主要集中在资产评估对价值相关性和后续业绩的研究。Jarrell (1979) 的研究主要是关于美国公用事业单位资产评估的动机。他研究的是1912年至1917年间美国州政府对电力行业的管制是否会引起公用事业单位的资产高估, 基本的假说是政府管制会影响企业管理人员对会计政策的选择, 即会计政策选择的政治成本假说。研究结果表明, 受州政府管制的公用企业, 在管制期间会高估企业的资产价值, 从而提高公用事业的收费标准。Easton, Edey, and Harris (1993), Aboody, Barth, and Kasznik (1999) 分别对澳大利亚公司和英国公司进行资产评估的动机进行了讨论, 研究了固定资产的评估与公司未来经营业绩、公司股价以及公司市场报酬率之间的关系, 研究结果表明, 低负债/权益比例公司选择固定资产重估的动机是为了向公众传递更真实更公允的财务报表信息, 而高负债/权益比例公司主要是将资产重估作为缓解债务契约限制的一项会计政策选择。在国外文献中, 我们能够借鉴的主要就是控制资产负债率指标。Harris and Muller (1998) 研究发现, 在英国的房地产行业, 建筑物和土地的公允价值比历史成本能更好地反映公司的财务状况和盈利能力, 财务状况和盈利能力反映在市场价值和市场回报率中。

目前国内有关大股东利用资产评估侵害中小股东利益的研究还很少。周勤业、夏立军和李莫愁 (2003) 研究发现, 在上市公司输出资产情形中, 与大股东交易的资产评估增值率显著低于非关联交易资产评估增值率; 而在上市公司输入资产的情形中, 与大股东交易的资产评估增值率显著高于非关联交易资产评估增值率, 这说明大股东利用资产评估侵害中小股东的情况比较普遍。原红旗和杨静 (2005) 从资产置换角度研究大股东对上市公司的利益输出和输入行为。研究发现, 绝对控股且无制衡的大股东具有从上市公司利益输出的动机, 这部分上市公司置出资产的非正常评估增值率显著小于置入资产的非正常评估增值率。对于置换前具有扭亏或再融资动机的上市公司, 控股股东有利益输入的动机, 这部分上市公司置出资产的非正常评估增值率显著高于置入资产的非正常评估增值率。

从文献可以看出, 目前有关股份制改制过程中资产评估的研究还很缺乏, 本文将以此为背景, 讨论发起股东在资产评估中的机会主义行为及其经济后果。

三、制度背景和研究假说

在企业股份制改制的过程中，有多个文件对资产评估和折股进行了规范。1992年原国家产管理局颁布的《国有资产评估管理办法施行细则》和1993年公布的《公司法》都对国有企业股份制改制的资产评估问题做了明确规定：公司改制时以净资产价值作为折股和确定各方股权比例的依据。国有资产改制，资产评估增值要经国有资产管理行政主管部门确认。但当时对如何折股没有明确的规定。

1994年发布的《股份有限公司国有股权管理暂行办法》，对企业股份制改制中国有股权的评估、折股做了明确的规定：国有资产严禁低估作价折股，一般应以评估确认后净资产折为国有股的股本，但折股比率（国有股股本/发行前国有净资产）不得低于65%。股票发行溢价倍率（股票发行价格/股票面值）应不低于折股倍数（发行前国有净资产/国有股股本）。国有资产管理局在1995年11月《关于组建上市公司及发行上市股票资产评估若干问题的通知》中规定，在国有企业改制过程中，经国家国有资产管理局确认的净资产值作为折股、溢价和确定股权比例的依据；评估结果作为企业调帐、建帐及报财政部门审批的参考和依据。

从上述文件可以看出，资产评估是企业股份制改制过程中确定大股东股权结构的一个法定要求。即通过资产评估重新确定原企业账面价值，再确定一个折股比例，然后将评估后的企业账面价值与折股比例相乘，确定各股东在评估后的企业价值中的份额。有关资产评估折股的过程，可以参看本文附录中的例子。

资产评估是资产折股和确定上市公司股本的基础，在其他情况一定的前提下，资产评估增值率越高，大股东的折股数越高，其持股比例就会越高。大股东有动机以较少的资产投入获得较大的持股比例，或者在持股比例一定的条件下，投入较少的资产。大股东这种动机可能影响资产评估的结果，进而影响公司未来的经营能力，这就是本研究关注的问题。

我国的资产评估机构依附于政府部门而产生，虽然于1999年实行了脱钩改制，但仍然与原挂靠单位有着千丝万缕的联系，因此，我国资产评估的机构的独立性存在隐患。而且，资产评估行业的法律环境不完善，执法监管体系也不健全，造成资产评估行业法律约束和监管不力，评估不规范的处罚成本较低。这些制度因素导致资产评估机构往往不能中立地执行业务，而受到聘用单位的干预。

但是，大股东干预资产评估的能力受到其他发起人的约束，如果发起人是单一股东，其操纵资产评估的能力可能就比较强；如果发起人非单一股东，其操纵资产评估的能力受到其他股东的约束或者监督，其操控资产评估结果的能力就相对弱一点。就控股股东而言，股份制改制前大股东完全控股的股

权结构，由于没有制衡股东的约束，这种股权类型下的控股股东具有更强的动机和能力通过非公允评估来提高自身在公司上市后的股权。我们因此提出假说1。

假说1：股份制改制前大股东完全控股的股权结构下，非正常评估增值率高于其他股权结构下的非正常评估增值率。

资产价格高估意味着大股东投入的资产不实，以较小的资产获得较高的股权比例，投入资产的实际盈利能力无法达到应有的水准，未来的业绩无法得到保障，可能损害上市公司未来的长期业绩。因而预测，非正常净资产评估增值率高的公司上市后未来的会计业绩会显著下滑。

同时，如果市场是有效的，投资者能够看穿发起股东操纵资产评估的行为，他们会对非正常评估增值率高的公司有高的折价，长期来看，应当看不到股票回报率长期业绩同非正常评估增值率的关系。但大量的文献表明市场并非那么有效，比如Teoh, Wong, and Rao (1998), Aharony, Wang, and Yuan (2005) 都发现投资者无法看穿上市前的盈余管理，有盈余管理的公司业绩长期下滑。对于盈余管理，无论学术界还是市场都有很大的关注；而对资产评估的研究明显不足。所以我们推断市场无法看穿发起股东对资产评估的操纵，会对股票作出不正确的定价，从而造成非正常增值率高的公司未来长期回报率会下降。

根据以上的分析，提出本文的假说2：

假说2：改制评估中非正常净资产评估增值率越高的上市公司，未来的业绩越差。

四、样本选择

（一）样本

本文选取1997年至2002年上海证券交易所和深圳证券交易所进行招股上市的658家A股公司作为初选样本。根据研究目标，对初选样本进行如下筛选过程：

（1）剔除同时发行B股、H股、N股等外资股的公司。由于这些公司面临境内外双重监管环境和投资者群体，比其他公司受到的市场监督更为严格。大股东行为的动机和能力可能会与其他公司不同，我们剔除这类公司。⁵

（2）剔除招股说明书中关于企业股份制改制时与资产评估相关的财务数据

⁵ 我们仔细阅读了这些公司披露的招股说明书，发现这些上市公司有关资产评估方面的信息比A股上市公司披露的还简略，能够满足我们研究设计的公司数目极少，由于数据的限制，我们没有进行进一步的研究。

缺失的公司。本研究中关于企业股份制改制时与资产评估相关的财务数据均来自于各上市公司的招股说明书。根据有关文件，⁶公司在股份制改制中资产评估的相关数据和资料要求在招股说明书中公开披露，但是，仍然有很多公司未在招股说明书中完整披露企业改制的与资产评估相关的数据，本文剔除了股份制改制中资产评估资料不完全的公司。

(3) 剔除金融行业的公司。由于金融行业公司的资产结构、经营运作等情况与其他行业有较大差异，金融业的会计处理和其他行业的会计处理也有较大差异。本文剔除该类公司。

表1根据上述标准做出筛选，最后获得了267家有效观察值。⁷从表1可以看出，样本在不同年份和不同行业之间的分布很不均衡。从年份看，2001年以后减少的很快，主要是这两年实际招股的公司数据大幅度的下降。在2000年招股的公司数目为140家，到2001年和2002年分别锐减到67家和69家。同时由于这些公司从公司改制到招股时间较长，有关资产评估的信息披露很不完善。从行业看，观察值最集中的行业是制造业，有140家公司。其余行业均没有超过20个观察值，其中有5个行业观察值少于10家。所以我们在回归分析的时候会控制不同的年份和行业。

(二) 数据来源

本文数据来源主要由两部分构成：一是手工数据库，根据上市公司公开披露的招股说明书以及年度报告手工整理和建立，招股说明书和年度报告来自于中国证监会指定信息披露网站—巨潮资讯网(www.cninfo.com.cn)。净资产评估增值率、总资产评估增值率、发起股东是否完全控股、固定资产比重、固定资产成新率、招股时间与改制时间的间隔、评估年度、折股比例、是否发生控股股东变更等数据来自手工数据库。

资产评估机构声誉数据来自中国证监会的研究报告《谁审计中国证券市场—审计市场分析(2001—2002)》。本文用资产评估机构的评估业务收入来度量它们的声誉，评估业务收入排名越往前，表示资产评估机构的声誉越高。⁸

⁶ 1997年1月6日中国证监会颁布了《公开发行股票公司信息披露的内容与格式准则第一号：招股说明书的内容与格式》和2001年3月15日中国证监会颁布了《公开发行证券的公司信息披露内容与格式准则第1号——招股说明书》。

⁷ 由于数据的限制，样本有可能存在选择偏差的问题，但这是数据本身固有的局限性。我们也进一步检验了样本公司和未列入样本的公司在公司规模和资产负债率等特征，发现二者的资产负债率平均值和中位数检验均未有显著差异。从规模看，样本公司的均值和中位数均略高于其他公司，但是均值检验不显著，中位数检验显著为正。有可能规模大的公司在信息披露上更加完整。

⁸ 《谁审计中国证券市场—审计市场分析(2001—2002)》中提供的是1998年至2002年的评估机构的收入排名，上市公司股份制改制评估发生在1998年之前的，这些年度的资产评估机构的评估声誉数据，我们采用1998年的评估声誉数据来近似替代。

表1 样本筛选和样本的行业分布

第一部分：样本的筛选							
招股年度	当年招股公司总数	发行B股等外资股公司数	评估数据和财务数据缺失的公司数	金融业	被删除数据样本合计	最终样本	比例
	A	B	C	E	F	G	H
1997	187	9	89	0	98	89	33.33%
1998	102	3	36	0	39	63	23.60%
1999	93	3	45	1	49	44	16.48%
2000	140	5	81	1	86	54	20.22%
2001	67	3	52	0	55	12	4.49%
2002	69	2	59	2	63	6	2.25%
合计	658	25	362	4	391	267	100.00%

第二部分：样本的行业分布	
行业	观察值
农林牧渔业	10
采掘业	8
制造业	164
电力、煤气及水的生产和供应业	14
建筑业	8
交通运输、仓储业	12
信息技术业	16
批发和零售贸易	12
房地产业	4
社会服务业	11
传播与文化产业	3
综合类	5
合计	267

主承销商声誉数据来自申银万国研究所研究报告。该报告提供了主承销商在1999年至2002年的承销业务收入，本文中的主承销商声誉通过主承销商的承销业务收入排名来度量。主承销商的承销业务收入越多，即排名越靠前，表明它的声誉越高。

地区数据来自樊纲和王小鲁《中国市场化指数——各地区市场化相对进程年度报告（2001，2002，2003，2004）》。本文中的地区数据主要用来衡量各个地区的市场化发展程度。

本文使用的其他数据如公司的财务数据、行业类型、招股时间等来自中国股票市场研究数据库（CSMAR）。

五、研究设计和实证结果

（一）假说1的检验

1、研究模型

如何衡量非正常净资产评估增值率，⁹是本研究的关键。我们计量非正常评估增值率的思想是：首先建立一个模型计算出正常评估增值率，然后将原始评估增值率扣除正常评估增值率后的残差作为非正常评估增值率。

1) 正常评估增值率模型

我们通过如下模型确定正常的资产评估增值率：

$$REV = \alpha_0 + \alpha_1 FARATIO + \alpha_2 FANEW + \alpha_3 LOCAL + \alpha_4 INDUSTRY + \alpha_5 YEAR + \varepsilon \quad (1)$$

模型中因变量为实际的净资产增值率（*REV*）。模型中的自变量是固定资产比重（*FARATIO*）、固定资产成新率（*FANEW*）、地区（*LOCAL*）、行业（*INDUSTRY*）、评估年度（*YEAR*）。陆德明（1998）发现固定资产比重和固定资产成新率是影响资产评估增值率的两个最重要因素。在物价连续不断的变动过程中，与流动资产相比，固定资产周转时间长，其账面价值与重置成本的差异就可能比较大。因此，固定资产在企业资产中的比重和固定资产成新率对资产的正常评估增值率会产生较大影响。所以本文将固定资产比重、固定资产成新率作为正常评估增值率模型的自变量。

由于不同地区、年度和行业的市场发展情况不同，物价以及物价变动在不同的地区、年度和行业都有差异。这些因素都会影响资产评估增值率。由此，我们也将地区、行业、评估年度作为计算正常评估增值率模型的自变量。

⁹ 本文中的非正常净资产评估增值率中不包含无形资产的非正常增值情况，在267个有效样本中，有108家企业改制评估时财务报表中包含无形资产，占总样本的40.45%。其中，企业改制评估时的财务报表中无形资产完全由土地使用权构成的占总样本的21.35%，对于以无偿受让方式取得的土地使用权，就意味着企业改制评估时土地使用权的账面价值为0，但是企业却对它拥有完全的自主支配权，属于企业的资产，在评估时要纳入资产评估的范围。账面值为0而评估值非零，这样无法计算该项资产的评估增值率情况。对于上述无形资产存在的情况而言，每个改制企业并不完全相同，因此，在净资产评估增值率的影响因素分析中，可能会由于每个公司资产评估结果的计算口径不同而影响我们的分析结果。因而本文对资产评估增值率的计算中都去除了无形资产。

模型中自变量的定义具体如下：

固定资产比重 (*FARATIO*)

评估前固定资产比重，即评估前固定资产调整后净值/评估前总资产。¹⁰一般情况下，企业资产的购建日期越接近评估日，其成本就越接近重置成本。流动资产周转时间短，其账面价值与重置成本的差异比较小（残次、冷背和积压品除外）；而固定资产周转时间长，其账面价值与重置成本的差异就可能比较大。鉴于固定资产的特点，这就可能为大股东和评估机构操纵评估结果制造了空间。因此，本文将固定资产比重作为一个影响正常评估增值率的变量，预测它的符号为正。

固定资产成新率 (*FANEW*)，为评估前固定资产调整后账面净值与账面原值的比值。成新率反映固定资产的现行价值与其全新状态重置价值的比率，即固定资产的新旧程度。但由于成新率数据在招股说明书中并未公告，而固定资产的折旧率是表示会计中的新旧程度。所以，本文用固定资产账面的折旧数据来近似替代成新率。固定资产的成新率越高，评估增值率就越低，其操纵的余地越小，因而非正常评估增值率也就越低。所以，符号预测为负。

地区变量 (*LOCAL*)，各地区市场化指数排名，判断标准是根据樊纲和王小鲁《中国市场化指数—各地区市场化相对进程年度报告（2001，2002，2003，2004）》。市场化程度最高的为1，依此类推。该变量用来衡量各个地区的市场化发展程度。市场化程度越高的地区，评估机构更规范。本文将地区变量作为控制变量放入模型中。*INDUSTRY*和*YEAR*分别是行业和控制变量。

我们用上述模型自变量前面的系数，分别将每个公司的固定资产比重、固定资产成新率、地区、行业、评估年度的值代入已建立好的模型的右边，每个公司都可以计算出一个评估增值率，本文将这个评估增值率定义为正常净资产评估增值率。最后用原始净资产评估增值率扣除正常的净资产评估增值率之后的残值作为非正常净资产评估增值率 (*ABREV*)。然后我们采用如下模型对非正常评估增值率的决定因素进行检验：

$$ABREV = \alpha_0 + \alpha_1 CONTROL + \alpha_2 REVAL + \alpha_3 UNWRITER + \alpha_4 SIZE + \alpha_5 LEVERAGE + \alpha_6 STATE + \alpha_7 TIME + \alpha_8 INSTITUTION + \varepsilon \quad (2)$$

¹⁰ 这里的总资产中不包含无形资产，固定资产不包含在建工程。由于在建工程属于正在购建而未完工的固定资产，与已投入使用的固定资产性质有差异。一般来讲，它的重置成本与实际的账面价值是相差很小的，体现不出固定资产周转使用中价值变动的特点。所以本文中的固定资产不包含在建工程。

因变量为非正常净资产增值率 (*ABREV*)，检验企业股份制改制的资产评估结果是否反映了控股股东的机会主义动机。

主要的解释变量为股权结构变量 (*CONTROL*)，该指标采用虚拟变量的形式，如果上市公司改制设立时只有一个发起人，即100%控制上市公司，则取值为1；否则为0。完全控股股东通过改制评估定价过程侵害流通股股东的动机和能力更强，因而更有可能高估资产价值以折更多的股份，从而导致改制评估中非正常净资产评估增值率越高。因此符号预测为正。

主要的控制变量：

中介机构的声誉 (*REVAL*)，主要是借鉴有关审计研究的文献，在审计的文献里，审计师的声誉对审计质量有影响。我们这里引入两个中介机构的声誉。其一为评估机构声誉 (*REVAL*)，哑变量，评估机构业务收入在各年度排名前10的为1；否则为0。本文采用资产评估机构的评估业务收入排名来度量评估机构声誉，评估机构的声誉越高，非正常净资产评估增值率就可能越低。因此符号预测为负。其二为主承销商声誉 (*UNWRITER*)，哑变量，表示主承销机构的承销业务收入排名前5名的为1，¹¹否则为0。主承销商声誉越好，他们辅导的上市公司的质量就越高，公司改制评估的非正常评估增值率就可能越低。所以，预测主承销商声誉变量的符号为负号。

规模 (*SIZE*)，为企业改制评估前总资产的对数，控制资产的复杂程度对资产评估判断的可能影响。

资产负债率 (*LEVERAGE*)，为评估前负债与总资产的比值。这里主要依据Easton, Edey, and Harris (1993), Aboody, Barth, and Kasznik (1999) 等的研究，控制资产负债水平对评估动机的影响。

招股时间与改制时间的间隔 (*TIME*)，为招股时间与改制时间间隔的时间长度。由于股票发行时间与企业改制时间存在一定的间隔，本文的主承销商声誉变量、地区变量的设置都是基于股票发行时间的，因此，本文将招股时间与改制时间之间间隔作为控制变量放入模型中。

是否国有控股 (*STATE*)，哑变量，如果公司改制时的第一大股东的性质为国有股，则取值为1，否则为0。由于国有控股和民营控股的企业在改制上市时的动机有差异，并且受到的政府干预程度也不同，可能会影响改制中的资产评估，因此，本文将是否国有控股作为控制变量放入回归模型中。

¹¹ 本文中，主承销商声誉取前5名，而评估机构声誉取前10名，主要是因为评估机构排名数据只有2001年之后比较完整，2001年前的是根据2001年前10名分别在以前年度的排名，如果只包括前5名的话，丢失的数据很多，所以包含到前10名。我们还做了如下的稳健性检验：1) 将主承销商声誉取前10名；2) 采用评估机构和主承销商的客户家数排名作为声誉衡量指标；3) 不包括主承销商的声誉指标。这些都不影响本研究的所有结果。

制度变量 (*INSTITUTION*)，为哑变量，如果公司招股在2001年3月17日前为1，否则为0。2001年3月17日是核准制的正式实施时间。核准制实施的目的是为了消除审批制下政府遴选企业的弊端，转为由市场机制下主承销商选择推荐上市公司，用以控制上市制度的改变对资产评估可能的影响。

2、变量的描述性统计

表2提供了有关回归变量的描述性统计。从表2可以看出，净资产的原始评估增值率平均为32.62%，中位数为20.87%，最大和最小值分别达到365.58%和-96.90%。按照本文设计的方法，非正常净资产增值率平均为6.84%，中位数为0.07%，最大值达到318.44%，最小值为-109.56%。有36%的公司在改制前完全由大股东控制，我们预期这些公司的高估动机强于另外的公司。固定资产的比重平均为36%，中位数为31%，说明这些资产有较大的比重。在评估前，公司的平均负债率为59%，最低为0%，最高的达到93%。平均来讲这些公司从改制到招股时间间隔为1.69年。从这些数据形态看，存在一些极端值，本文采用Winsorisation的方法处理，消除极端值的影响。¹²

表2 变量描述性统计

变量	均值	中位数	一分位	三分位	最大值	最小值
净资产评估增值率	32.62%	20.87%	9.50%	41.00%	365.58%	-96.90%
非正常净资产评估增值率	6.84%	0.07%	-12.54%	13.69%	318.44%	-109.56%
大股东完全控股	0.36	0.00	0.00	1.00	1.00	0.00
评估机构声誉	0.19	0.00	0.00	1.00	1.00	0.00
主承销商声誉	0.35	0.00	0.00	1.00	1.00	0.00
固定资产比重	0.36	0.31	0.19	0.52	1.00	0.00
固定资产成新率	0.71	0.74	0.61	0.82	1.00	0.10
总资产自然对数	10.52	10.47	9.93	11.02	13.52	7.22
资产负债率	0.59	0.63	0.52	0.70	0.93	0.00
招股时间与改制时间间隔	1.69	1.06	0.58	2.20	7.61	0.22
地区	13.98	14.00	7.00	20.00	31.00	1.00
核准制实施	0.07	0.00	0.00	0.00	1.00	0.00

¹² 本文也采用Truncation的方法对极端值进行了处理，不影响回归结果。

3、变量的相关性分析

表3为模型2中变量的相关系数表。¹³因变量非正常评估增值率和解释变量大股东完全控股的相关系数为0.04，不显著，我们将在回归模型中看控制了其他变量之后是否显著。资产规模和资产负债率的相关系数最大，为0.33，招股时间和改制时间的间隔与大股东完全控股的相关系数最小，为-0.43。为了控制可能的多重共线性问题，我们在所有的回归模型中将进行多重共线性检验。

4、多变量分析

表4的左半部分是正常评估增值率的最小二乘法的回归结果。可以看出，固定资产比重的系数为0.122，T值为1.42，没有通过显著性检验，¹⁴但符号为正，说明固定资产在总资产中的比重越大，正常的净资产评估增值率越高。固定资产成新率变量的系数为-0.55，T值为-5.09，在1%水平下显著为负，说明固定资产成新率越高，评估增值率越低。与我们的预期一致。地区变量的符号为正，表明市场化程度越高的地区的增值率越低。

表4的右半部分是非正常净资产评估增值率解释的回归结果。¹⁵可以看出，大股东完全控股的系数为0.081，T值为1.86，在10%水平下显著为正。表明完全控股的股权结构下，控股股东更有能力和动机通过股份制改制的资产评估定价，以较小的投入获取较大的股权比例，侵占中小股东的利益。这个结果和现有的文献观察到的大股东对中小股东的侵害证据一致。如原红旗和杨静（2005）发现，绝对控股且无制衡的大股东通过关联交易从上市公司转移的资产显著高于其他股权结构的公司。这验证了本文的假说1，股份制改制前大股东完全控股的股权结构下，上市公司的非正常评估增值率高于其他股权结构下上市公司的非正常评估增值率。

控制变量中，评估机构声誉变量和主承销商声誉变量符号均为正，但未通过显著性检验。这表明资产评估机构和证券机构作为证券市场中的中介机构，在制约大股东评估定价的操纵方面，没有起到应有的监督作用。总资产自然对数变量在模型中的符号为负，但不显著。资产负债率指标在模型中的符号均显著为正，这和Easton, Edey, and Harris（1993），Aboody, Barth, and Kasznik（1999）的研究一致，他们的研究发现通过资产评估改善资产负债水平是资产

¹³ 本文的所有回归模型的变量都进行了相关性检验，由于篇幅限制，其他模型的变量相关性检验结果没有报告出来。

¹⁴ 在稳健性检验中，以总资产作为因变量时，该固定资产比重显著为正，系数为0.06，T值为1.97，这个结果与陆德明（1998）的研究结果一致，他发现固定资产比重对资产评估增值率具有较强的解释力。

¹⁵ 本文的回归分析都进行了多重共线性检验，多重共线性检验的VIF值均未超过2。因此，本论文的回归分析中都不存在多重共线性问题。

表3 变量的Pearson相关系数表

	非正常净资产 评估增值率	大股东完 全控股	评估机 构声誉	主承销商声誉	总资产自 然对数	资产负 债率	招股时间与改 制时间间隔
大股东完全控股	0.036 (0.561)						
评估机构声誉	0.023 (0.706)	-0.027 (0.661)					
主承销商声誉	0.009 (0.880)	-0.057 (0.354)	0.068 (0.266)				
总资产自然对数	0.069 (0.263)	0.311 (0.000)	0.133 (0.029)	0.003 (0.959)			
资产负债率	0.225 (0.000)	0.086 (0.162)	0.013 (0.833)	-0.072 (0.239)	0.329 (0.000)		
招股时间与改制时间 的间隔	0.137 (0.025)	-0.403 (0.000)	-0.026 (0.676)	0.039 (0.521)	-0.208 (0.001)	0.067 (0.273)	
核准制实施	-0.094 (0.127)	0.119 (0.053)	-0.239 (0.000)	-0.005 (0.935)	-0.067 (0.278)	-0.097 (0.113)	-0.261 (0.000)

注：括号内是p值。

表4 非正常评估增值率的解释

自变量及回归模型参数	正常净资产评估增值率的决定	自变量及回归模型参数	非正常净资产评估增值率作为因变量
截距	0.813 (5.16)***	截距	-0.493 (-1.83)*
固定资产比重	0.122 (1.42)	大股东完全控股	0.081 (1.86)*
固定资产成新率	-0.550 (-5.09)***	评估机构声誉	0.062 (1.22)
地区	0.002 (0.74)	主承销商声誉	-0.018 (-0.46)
行业	控制	总资产自然对数	0.001 (0.06)
评估年度	控制	资产负债率	0.252 (2.11)**
		是否国有控股	0.205 (1.83)*
		招股时间与改制时间的间隔	0.026 (1.83)*
		核准制实施	0.077 (0.73)
N	267	N	267
Adj R-Sq (%)	17.19	Adj R-Sq (%)	3.41

注：首先我们将每个公司的原始净资产评估增值率，固定资产比重、固定资产成新率、地区、行业、评估年度变量的具体值代入模型用最小二乘法进行回归，确定这几个变量前面的系数。然后再分别将每个公司的固定资产比重、固定资产成新率、地区、行业、评估年度的值代入已建立好的模型的右边，从而每个公司都可以确定出一个评估增值率，本文将这个评估增值率定义为正常净（总）资产评估增值率。然后用原始总资产评估增值率扣除正常总资产评估增值率之后的增值率为非正常总资产评估增值率，原始净资产评估增值率扣除正常净资产评估增值率之后的增值率为非正常净资产评估增值率。* 表示在10%水平下双尾检验显著。** 表示在5%水平下双尾检验显著。*** 表示在1%水平下双尾检验显著。

评估的重要动机，中国上市公司也有这个动机来粉饰财务状况。是否国有控股显著为正，表明国有企业的资产评估高于其他企业。招股时间与改制时间的间隔变量为负。制度变量核准制实施的回归结果为负，但不显著。表明核准制的实施作为我国股票发行监管的一项重大制度创新，在规范企业资产评估方面的作用是有限的。

（二）假说2的检验

在会计文献中，长期业绩的衡量可以采用长期会计业绩和长期回报率业绩的方法，本文检验上市公司前的资产评估行为是否有经济后果时，依据研究文献也采用这两种方法。

1、会计业绩

将采用经行业中位数调整后的会计业绩指标作为经济后果的衡量变量，这些指标是：

（1）利息和税前总资产收益率（*ROA*）。息税前总资产收益率可以控制各个公司因不同的资本结构和不同的税收政策对利润产生的影响。

（2）企业的核心业务息税前总资产收益率（*CROA*）。*CROA*指标可以在一定程度上避免*ROA*指标被公司通过非核心业务（即线下项目）进行操纵的缺陷。¹⁶

本文采用了Healy, Palepu, and Ruback (1992) 的研究方法考察上市公司改制评估行为对后续业绩的影响。据此方法，我们对上市后的业绩计量以上市后三年业绩的中位数来计算。由此，会计业绩指标的变动分别为：上市后未来三年的利息和税前总资产收益率（经行业中位数调整后的）的中位数与上市前一年利息和税前总资产收益率（经行业中位数调整后的）的差值、上市后未来三年的核心业务息税前总资产收益率（经行业中位数调整后的）的中位数与上市前一年的核心业务息税前总资产收益率（经行业中位数调整后的）的差值。

为了分析评估行为对会计业绩的影响，本文对影响会计业绩变动的进行多变量分析，采用如下回归模型来研究：

$$PERFORM = \alpha_0 + \alpha_1 ABREV + \alpha_2 OWNCHANGE + \alpha_3 SIZE + \alpha_4 LEVERAGE + \alpha_5 INSTITION + \varepsilon \quad (3)$$

模型中的相关变量定义如下：

因变量*PERFORM*为利息和税前总资产收益率（*ROA*）的变动、核心业务

¹⁶ 因为资产评估提高了资产的帐面价值，以后提取折旧的增加可能会造成业绩的下降，因此，我们又将息税和折旧前的*ROA*和*CROA*作为因变量，我们发现结果并不改变，且非正常净资产评估增值率的系数更加显著。

息税前总资产收益率 (*CROA*) 的变动。两个因变量均为连续性变量, 分别两个模型进行分析。

模型中的主要解释变量为非正常净资产评估增值率 *ABREV*。根据上文的逻辑分析, 非正常评估增值率越高, 控股股东就以越少的资产获得越高的权益比例, 资产的不实程度越高, 因此就会损害公司长远的发展, 从而导致公司未来业绩下降。所以, 本文预测非正常评估增值率变量的符号为负。

我们设置的其他控制变量有: 是否发生控股股东变更 (*OWNCHANGE*)、总资产自然对数 (*SIZE*)、资产负债率 (*LEVERAGE*)、核准制实施 (*INSTITUTION*)。是否发生控股股东变更作为控制变量, 是考虑到有些公司上市后发生了控股股东的变化, 通常新股东的进入会对资产进行重组, 有可能影响其后续业绩。其他变量的定义如前所述。

表5的结果显示, 当因变量为利息和税前总资产收益率 (*ROA*) 的变动时, 主要解释变量非正常净资产评估增值率的回归系数为-0.030, T值为-2.71,

表5 评估结果操纵对公司上市前后会计业绩变动的影响

	ΔROA	$\Delta CROA$
截距	-0.017 (-0.23)	-0.019 (-0.18)
非正常净资产评估增值率	-0.030 (-2.71)***	-0.039 (-2.01)**
是否发生控股股东变更	0.023 (1.26)	-0.016 (-0.65)
上市当年总资产自然对数	-0.011 (-1.66)*	-0.018 (-1.96)**
上市当年资产负债率	0.213 (5.73)***	0.223 (4.52)***
核准制实施	0.013 (0.56)	0.074 (2.32)**
N	267	267
Adj R-Sq (%)	12.72	9.64

注: ΔROA 表示上市后未来三年的利息和税前总资产收益率 (经行业中位数调整后) 的中位数与上市前一年利息和税前总资产收益率 (经行业中位数调整后) 的差值。 $\Delta CROA$ 表示上市后未来三年的核心业务形成的息税前总资产收益率 (经行业中位数调整后) 的中位数与上市前一年的核心业务形成的息税前总资产收益率 (经行业中位数调整后) 的差值。* 表示在10%水平下双尾检验显著。** 表示在5%水平下双尾检验显著。*** 表示在1%水平下双尾检验显著。

在1%置信水平下显著为负。控制变量中，资产负债率显著为正，是否发生控股股东变更变量符号为正，但未通过显著性检验。总资产自然对数和核准制实施并未影响公司的会计业绩变动。

当因变量为核心业务息税前总资产收益率（*CROA*）的变动时，主要解释变量非正常净资产评估增值率的系数为-0.039，T值为-2.01，在5%水平下显著为负。说明改制前资产评估增值率越高，未来的业绩越差。控制变量中，是否发生控股股东变更变量不显著。总资产自然对数显著为负，资产负债率显著为正。核准制实施变量在该模型中显著为负，表明核准制的实施对提高上市公司绩效起到了一定的作用。

2、回报率业绩

本文将采用持有回报率的方法，为了消除市场因素的影响，计算了经市场调整后的持有回报率（*HPRM*）。计算的方法如下：

$$HPRM = \{II(1 + R_{im})\} - \{II(1 + R_{mm})\} \quad (4)$$

R_{im} 为公司在*m*月的回报率， R_{mm} 为市场指数在*m*月的回报率（考虑现金红利的市场月报酬率）。对每家公司分别计算其12个月、24个月和36个月的经市场调整后的持有回报率（*HPRM*）。

我们采用如下模型分析大股东不同动机下的评估作价行为是否导致了不同的市场业绩。

$$\begin{aligned} HPRM = & \alpha_0 + \alpha_1 ABREV + \alpha_2 IPODAY + \alpha_3 UNWRITER + \alpha_4 ROA + \alpha_5 RIGHTS \\ & + \alpha_6 SIZE + \alpha_7 LEVERAGE + \alpha_8 LSHAR + \alpha_9 OWNCHANGE + \alpha_{10} TIME1 \\ & + \alpha_{11} TIME2 + \alpha_{12} INSTITUTION + \alpha_{13} INDUSTRY + \varepsilon \end{aligned} \quad (5)$$

回归模型的主要解释变量是非正常净资产评估增值率（*ABREV*），如果市场是有效的，投资者对大股东操纵资产评估的结果应该会有折价，这个指标和长期业绩应当没有明显的关系。如果市场效率不够，投资者有可能会对资产做出错误的定价，长期来看市场会对过去的错误进行调整。最近有关中国资本市场是否有效的研究不多，我们的证据对理解中国资本市场的效率有一定的帮助。

本文设置的其他控制变量有：

上市首日市场回报率（*IPODAY*）。¹⁷以往的研究发现，长期投资回报率与上市首日市场回报率负相关（Debondt and Thaler, 1985; Shiller, 1990; Ritter, 1991；

¹⁷ 这里的上市首日市场回报率是经过市场调整后的回报率，与陈工孟和高宁（2000）的研究设计一致。

陈工孟和高宁，2000）。所以本文也将上市首日市场回报率作为一个控制变量，并预测符号为负。

主承销商声誉（*UNWRITER*）。哑变量，主承销商排名在前5名的为1，否则为0。在股票发行上市过程中，主承销商扮演着重要的角色。在市场的声誉机制作用下，声誉高的主承销商为了自己的利益，给投资者传递质量甄别信号。因此，本文预期主承销商的声誉越高，上市公司的质量越好，未来的长期持有回报率越高，符号预期为正。

上市前一年的利息和税收前总资产收益率（*ROA*）。连续变量，以检验上市后的长期业绩是否与上市前的会计业绩相关。

未来两年内是否配股（*RIGHTS*）。哑变量，如果在上市后未来两年内发生一次配股为1，否则为0。根据原红旗（2003）研究发现，上市公司的配股行为会对配股后的长期回报率业绩产生影响。因而，这里将是否发生配股作为控制变量。

上市当年的总资产自然对数（*SIZE*）。连续性变量，规模越大的公司，能够降低信息的不对称，从而降低投资者的购买风险，也就降低了长期收益的要求。

上市当年的资产负债率（*LEVERAGE*）。连续性变量，控制公司特征因素。

流通股比例（*LSHAR*）。控制股权分置对股票回报率业绩的影响。

是否发生控股股东变更（*OWNCHANGE*）。哑变量，如果公司上市后发生了控股股东的变化为1，否则为0。

成立时间与发行时间间隔（*TIME1*）。连续性变量。如果公司在股票发行前成立的历史越长，则公司信息不对称的可能性越低，投资者的购买风险越小，对长期投资的回报率就越小。因此，本文预测符号为负。

发行时间与上市时间间隔（*TIME2*）。连续性变量。根据陈工孟和高宁（2000）的研究，他们认为，发行时间与上市时间间隔是我国市场特有的变量，我国批准上市是对一个公司质量和管理层能力的肯定，间隔时间越长，意味着公司管理质量越低，因而长期回报率越低。符号预测为负。

核准制实施（*INSTITUTION*）。哑变量，核准制实施之前为1，否则为0。本文期望核准制的实施能够使大股东真正从投资者的利益出发，提高上市公司的质量，从而提高上市公司的长期投资收益。

行业变量（*INDUSTRY*）。哑变量，按照2001年中国证监会颁布的行业分类标准设定，设置11个哑变量。

表6报告了模型的回归结果。可以看出，以上市后12个月和36个月的累积超额回报率为因变量时，非正常评估增值率的符号为负，但不显著。以上市24个月的累积超额回报率为因变量时，非正常净资产评估增值率变量的系数为-0.121，并通过显著性检验，与本文的预期一致。表明非正常净资产评估增值

表6 评估结果操纵影响公司上市后的长期市场回报率业绩的回归分析结果

自变量及回归模型参数	因变量		
	12个月超额 回报率	24个月超额 回报率	36个月超额 回报率
截距	0.718 (1.23)	2.153 (3.59)***	3.146 (3.62)***
非正常净资产评估增值率	-0.042 (-0.73)	-0.121 (-1.81)*	-0.088 (-1.01)
上市首日市场回报率	-0.065 (-1.76)*	-0.131 (-2.89)***	-0.139 (-2.67)***
主承销商声誉	-0.039 -0.61	0.092 (1.37)	0.136 (1.15)
上市前一年ROA	0.193 (0.62)	-1.174 (-2.82)***	-1.23 (-2.41)**
未来两年内是否配股	0.051 (0.61)	-0.017 (-0.16)	-0.190 (-1.23)
上市当年的总资产自然对数	-0.082 (-1.93)*	-0.166 (-3.98)***	-0.296 (-3.93)***
上市当年的资产负债率	0.298 (1.32)	-0.006 (-0.02)	0.461 (1.13)
流通股比例	0.403 (1.20)	0.000 (0.61)	0.000 (0.26)
是否发生控股股东变更	-0.037 (-0.38)	-0.021 (-0.12)	0.179 (1.04)
成立时间与发行时间间隔	0.029 (2.53)***	0.028 (1.79)*	0.001 (0.14)
发行时间与上市时间间隔	0.826 (2.24)**	0.574 (1.21)	0.87 (1.46)
核准制实施	-0.086 (-0.71)	-0.153 (-1.01)	0.30 (1.76)*
11个行业哑变量（未报告）	控制	控制	控制
N	267	267	267
Adj R-Sq (%)	4.31	10.59	13.29

注：* 表示在10%水平下双尾检验显著。** 表示在5%水平下双尾检验显著。*** 表示在1%水平下双尾检验显著。

率越高的公司，发起股东的动机是剥削中小股东，而市场无法看穿这种机会主义的行为，从而降低公司的长期投资回报率。¹⁸同会计业绩的结果相比，非正常评估增值率和长期回报率业绩的关系虽都为负相关关系，但结果不够稳定，只有24个月回报率检验中，非正常评估增值率的系数显著为负。可能的原因是：（1）本研究的样本较小，可能导致长期回报率检验的效力较低；（2）与会计业绩不同，股票业绩既反映了股票的风险因素，也反映了投资者在回报期之前未预期到的消息。但如何定义预期的回报率存在一些困难，我们在回归中控制了一些与风险有关的因素，如公司规模，但是以往文献中还把账面价值与市场价值之比作为重要的风险因素，由于在首发上市前无法去度量公司的市场价值，所以度量这一指标有一些困难。本研究采用市场回报率作为预期回报率，可能遗漏了一些风险因素。

控制变量中，上市公司首日市场回报率变量的系数显著为负，和文献一致。主承销商声誉变量系数为正，但不显著。上市前一年的ROA为-1.174，并且在1%水平显著为负，说明我国上市前的会计业绩存在盈余管理现象。未来两年内是否配股变量为正，但不显著。上市当年的总资产自然对数显著为负，与本文的预期相吻合。表明规模大的公司能够降低信息不对称，从而降低投资者的购买风险，降低长期持有回报率的要求。核准制实施变量在第3年显著为正。上市当年的资产负债率、流通股比例、是否发生控股股东变更、成立时间与发行时间间隔、发行时间与上市时间间隔五个控制变量均不显著。

综合上述的回归分析，研究结果支持本文的假说2。在控股股东完全控股的股权结构下，控股股东更有动机和能力操纵企业股份制改制中的资产评估。由于大股东的操纵，投入的资产不实，导致未来的会计业绩下降。同时由于市场无法看穿大股东的操纵行为，在股票发行时给了错误的定价，导致资产评估操纵程度大的公司未来长期回报率业绩显著差于其他上市公司的业绩。

六、稳健性检验

（一）非正常总资产评估增值率的稳健性检验

上文的假说是通过非正常净资产评估增值率进行验证，为了进一步增强假说验证的可靠性，采用上述方法对非正常总资产评估增值率进行了检验。所有结果均支持假说1和假说2。在检验假说1时，以非正常总资产增值率作为因变量，大股东完全控股（CONTROL）的系数为0.031，T值为2.15，在5%置信水平

¹⁸ 我们也以股票发行超额倍数为替代变量检验了中小股东对大股东剥削的反应，我们发现股票发行超额认购倍数主要是由发行公司的规模、负债水平和审核制度决定的，而非正常评估增值率之间的关系不显著，也说明市场不够有效，投资者无法区分这机会主义的行为。

下显著为正。在检验假说2时，当因变量为长期回报率的时候，非正常评估增值率（*ABREV*）的系数第一年不显著，第二年为-0.36，T值为1.76，在10%置信水平下显著为负。当会计业绩作为因变量时，非正常评估增值率（*ABREV*）的系数均在1%置信水平下显著为负。

（二）非正常净资产评估增值率指标的稳健性检验

上文以最小二乘模型的残值作为非正常净资产增值率的指标，本研究还以实际评估增值率扣除行业增值率的中位数作为非正常评估增值率，本文的假说1和假说2都得到支持，结果不变。在检验假说1时，以非正常净资产增值率作为因变量，大股东完全控股（*CONTROL*）的系数为0.08，T值为1.66，在10%置信水平下显著为正。在检验假说2时，当因变量为长期回报率的时候，非正常评估增值率（*ABREV*）的系数为-0.172，T值为1.91，在10%置信水平下显著为负。当会计业绩*ROA*作为因变量时，非正常评估增值率（*ABREV*）的系数在1%置信水平下显著为负。当会计业绩*CROA*作为因变量时，非正常评估增值率（*ABREV*）的系数在5%置信水平下显著为负。

七、本文的结论和局限性

本文的研究表明控股股东在改制过程中，存在通过资产评估侵占中小股东权益的行为，大股东操纵评估结果的行为导致企业长期业绩的恶化。具体而言，本文的研究得到了以下主要结论：（一）控股股东通过操纵评估结果，在改制时以较小的投入获得较大比例的股份，实现对中小股东的利益侵占。股份制改制前大股东完全控股的公司，由于没有制衡股东的约束，他们具有更强的动机和能力来操纵评估结果。大股东完全控股股权结构下上市公司的非正常评估增值率高于其他股权结构的上市公司。（二）由于在股份制改造过程中，大股东以较小的资产投入获得了较大的股份，公司的未来盈利能力无法达到其应有的水准。非正常评估增值率越高的上市公司，其未来会计业绩和长期回报率业绩均显著低于其他上市公司。

本文虽从资产评估的角度，对上市公司改制时大股东在产权安排中的机会主义动机及其经济后果进行了讨论，但是，本文在研究方法上还存在局限性。

最主要的局限在对非正常资产评估增值率的衡量，本文虽然采用两种方法，分别从净资产增值率和总资产增值率的角度对假说进行了检验，但这两种方法能否准确地度量非正常资产评估增值率是一个值得思考的问题，特别是我们看到大股东操纵的变量在解释非正常增值率的回归模型中是边际显著，是否还有更好的衡量方法？本文抛砖引玉。

其次，根据相关规定，公司在股份制改制时，资产评估的相关数据和资料被要求在招股说明书中公开披露的。但是，仍然有很多公司未按披露要求在招

股说明书中完整披露企业改制时与资产评估相关的数据，由此可能导致我们的样本存在选择偏差的问题。正如我们在附注六所示，样本公司和非样本公司在公司规模上存在差异，后续的研究可以把资产评估资料的披露作为一个研究课题，来讨论为何有一些公司会详细的披露（有些内容已经属于自愿披露的信息）？而另外一些公司披露的很简略（甚至连基本的要求都没有达到）？

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附录：资产折股的例子

我们以下以两个公司为例，讨论资产评估对股权设置的影响。我们选择了上市公司北新建材（代码为000786）和天利高新（600339）两家公司进行比较。这两家公司有以下特征：

1) 这两个公司总的股本规模接近，新股发行后北新建材的总股本为1.55亿股，天利高新的总股本为1.7亿股。

2) 两个公司的折股率接近，¹⁹北新建材的折股率为0.7289，天利高新的折股率为0.7277。

3) 两个公司的行业均为制造业。

4) 两个公司均为国有控股企业。

5) 两个公司的评估增值率有较大差异，北新建材的评估增值率为131%（非正常增值率为86%），而天利高新的评估增值率为25%（非正常增值率为11%）。

以下是两个公司资产评估与折股和后续业绩的比较。

	北新建材	天利高新
第一部分：折股基本资料		
股票代码	000786	600339
发起股东	唯一发起人为 北新建材（集团）有限公司	新疆独山子天利实业总公司 新疆石油管理局 乌鲁木齐高新房地产有限责任公司 新疆特变电工股份有限公司 上海中大高新电子技术有限公司
行业	制造业	制造业
控股股权性质	国有	国有
上市日期	1997-6-6	2000-12-25
帐面原值	6525万元	10642万元
评估价值	15091万元	13714万元
原始评估增值率	131%	25%
非正常评估增值率	86%	11%
折股比例	0.7289	0.7277
新股发行后原有股东 持股数	1.1亿股	1.1亿股
新股发行后总股数	1.55亿股	1.7亿股
新股发行后原有股东 持股比例	70.97%	64.71%

¹⁹ 我们的样本公司中，折股比例的平均数为0.73，中位数为0.68，标准差为0.11。

 第二部分：上市前后业绩的变化

司上市前一年的ROA	32.48%	19.75%
公司上市后三年	9.67%	7.10%
ROA的中位数		
上市前后ROA的变化	-22.81%	-12.65%

从上面可以看到，北新建材帐面价值为6525万元，其评估增值率为131%，按照0.7289的比例折股后，控股股东持有股数为1.1亿股，发起人持股比例达到70.97%。而天利高新帐面价值为10642万元，评估增值率达到25%，发起人折股后股份总数为1.1亿股，持股比例达到64.71%。可以看出，在折股率比较接近的条件下，资产评估增值率越高，其投入的实际资产越少。

由此可见，资产评估作为企业股份制改制进行产权界定的一个关键环节，尽管在相关法规中都得到了明确的规定；但是，大股东显然有强烈的动机去影响资产评估的结果，从而以较少的投入获得较大的股份。北新建材作为唯一发起股东，有更强的动机和能力去操纵资产评估结果；天利高新有五大发起人，由于相互制衡，操纵评估结果的动机和能力受到制约。所以我们看到前者的非正常评估增值率为86%，远远高于后者的11%。

从经济后果看，由于北新建材资产高估严重，盈利能力被高估，ROA从上市前的32.48%下滑到上市后的9.67%，下滑22.81%；天利高新盈利也有下滑，但下滑幅度要小得多，ROA从上市前的19.75%下滑到7.10%，下滑12.65%。²⁰

²⁰ 业绩下滑还有其他许多因素的影响，在本案例中我们不进行更深入的讨论。

CAUSES AND CONSEQUENCES OF THE MANIPULATION OF ASSET REVALUATION DURING THE IPO PROCESS IN CHINA¹

Hongqi Yuan, Jiwei Wang, and Jing Yang²

ABSTRACT

Using a sample of 267 companies from the Shanghai Stock Exchange and Shenzhen Stock Exchange between 1997 and 2002, we examine the causes and consequences of controlling shareholder manipulation of asset revaluation during the IPO restructuring process. We show that (1) controlling shareholders have strong incentives to manipulate asset revaluation in order to gain a larger share of ownership with less capital injection, and the manipulation is even more serious in companies that were wholly owned by the controlling shareholders before the IPO restructuring; and (2) a company's post-IPO accounting and stock performances are negatively associated with the abnormal asset revaluation rate during the IPO process. This article provides additional evidence of controlling shareholders' expropriation of minority shareholders, and shows the negative consequences of this opportunistic behaviour.

Key words: Assets Revaluation, Economic Consequences, IPO

I. INTRODUCTION

Asset revaluation is a very important factor in determining a controlling shareholder's share of equity ownership during the initial public offering (IPO) restructuring process in China. Because of weak governance and monitoring, the controlling

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shareholder may manipulate asset revaluation to gain a higher share of ownership, and hence expropriate minority shareholders.³ In this paper, we aim to investigate whether the abnormal asset appreciation rate of listed companies that were wholly owned by controlling shareholders before an IPO is higher than that of other listed companies, and whether the companies with a higher abnormal asset appreciation rate during the IPO process experience a lower performance after the IPO.⁴

When ownership is concentrated, the main agency problem is the expropriation of minority shareholders by controlling shareholders (Shleifer and Vishny, 1997; Claessens and Fan, 2003). The expropriation is more serious when protection for minority shareholders is weak, such as the case in China. A great deal of research in China has provided empirical evidence for such expropriating behaviour. For example, controlling shareholders may expropriate minority shareholders through related-party transactions in mergers and acquisitions (M&As) (Li, Yu, and Wang, 2005), cash dividend payouts (Lee and Xiao, 2002), sales and purchases of goods and services (Jian and Wong, 2008), or corporate loans (Jiang, Lee, and Yue, 2005).

However, we have very limited research on asset revaluation. Yuan and Yang (2005) investigate asset exchanges between listed companies and find that the controlling shareholders undervalue replaced assets and overvalue newly injected assets to expropriate minority investors. They also find that companies with previous losses and an intention to refinance tend to overvalue replaced assets and undervalue newly injected assets to help the listed companies. Compared with the existing literature, we investigate the following four new issues.

First, asset revaluation is an important issue during the IPO restructuring process in China. A fair revaluation of the assets injected by existing controlling shareholders not only effectively protects the new minority shareholders' interests, but also maintains a sustainable future performance for the listed company. However, very few studies examine the fairness of asset revaluation during the IPO process in China. Thus, our study helps us better understand this important issue in China.

Second, the existing literature focuses on opportunistic earnings management behaviour during the IPO process (Teoh, Wong, and Rao, 1998; Aharony, Lee, and Wong, 2000; Aharony, Wang, and Yuan, 2005). Based on the different institutional

³ In recent years, many asset revaluation firms have engaged with listed companies in manipulating asset revaluation results. For example, Oriental Assets Appraisal Co. Ltd. provided fraudulent reports on related-party transactions assessment for Sichuan Taigang Co. Ltd.; Guangdong Dazheng United Assets Appraisal Co. Ltd. engaged in the fraud of MACAT Group; Chengdu Assets Appraisal Co. Ltd. was involved in the fraud of Hongguang Industry Co. Ltd.; Shanghai Dahua CPA assisted Tibet Shengdi Co. Ltd. in false capital contribution.

⁴ According to the regulations issued by the State-owned Assets Supervision and Administration Commission (SASAC), the ownership structure should be based on the net asset value. Therefore, we analyse the abnormal net asset appreciation rate herein, and choose the abnormal total asset appreciation rate in the robustness test.

backgrounds of Chinese IPO firms, we find new opportunistic behaviour and the manipulation of asset revaluation by controlling shareholders. In addition to the earnings management found in the literature, we show that controlling shareholders manipulate asset revaluation to gain a higher percentage of ownership by injecting fewer assets during the IPO restructuring process in order to expropriate the interests of incoming minority shareholders.

Third, in the existing literature on controlling shareholders' expropriation, or "tunnelling", of minority interests, the measurements of expropriation include sales and purchases of goods and services, corporate loans, and cash dividends. We introduce a new measurement of tunnelling—asset revaluation by controlling shareholders.

Last, studies like Yuan and Yang (2005) and Zhou, Xia, and Li (2003) discuss the incentives for asset revaluation manipulation by the controlling shareholders only in certain types of asset restructuring activities, such as asset exchanges, mergers, or acquisitions. This paper investigates the pre-IPO asset revaluation process and covers all assets injected by existing controlling shareholders. It provides empirical evidence of how the controlling shareholders convert their assets to shares during the corporatisation process. In addition, we also discuss the economic consequences of asset revaluation, including accounting and stock performances.

The remaining parts of the paper are structured as follows: the second section reviews the related literature; the third section discusses the uniqueness of the institutional background of a Chinese IPO restructuring process and develops the main hypotheses; the fourth section presents the research sample and data; the fifth section describes the research methodology and empirical results; the sixth section contains the robustness test; and the final section presents our conclusions and discusses the study's limitations.

II. LITERATURE REVIEW

Johnson, La Porta, Lopez-Silanes, and Shleifer (2000) demonstrate the expropriation or "tunnelling" of minority shareholders by controlling shareholders. They also find that opportunistic behaviour is more serious in countries where protection of investors' interests is weak, especially in emerging capital markets where there are no sound corporate governance systems or enforcement of law. Bertrand, Mehta, and Mullainathan (2002) examine the propagation of earnings of companies within Indian business groups and find significant expropriation of minority shareholders by the groups' controlling shareholders. In Korea, Bae, Kang, and Kim (2002) find that industrial groups transfer assets to their controlling shareholders through M&A activities.

As Jian and Wong (2008) show, in China the controlling shareholders may transfer assets and profits out of the listed company through related-party transactions. In contrast, when the listed company has previous losses or plans to raise additional capital, its controlling shareholders may prop up the company through related-party transactions. Because such transactions are reported to the market, the market

generally discounts those firms that engage in them. Aharony, Wang, and Yuan (2005) investigate the related-party transactions of companies in the Shanghai Stock Exchange between 1999 and 2001. They find that controlling shareholders prop up their listed subsidiaries through related-party transactions during the year before the IPO and then transfer assets and profits back after the IPO. Cheung, Rau, and Stouraitis (2006) consider some types of related-party transactions, such as asset purchases, to be an indication of expropriation by controlling shareholders, and find that the market discounts these types of transactions. Li, Yu, and Wang (2005) show that controlling shareholders expropriate minority shareholders through M&As, although M&A activities do not significantly affect a firm's future accounting performance. Consistent with existing literature, they also find that controlling shareholders may prop up listed companies when those companies experience previous losses and plan to raise additional capital from the market.

Some Western studies also examine the causes and consequences of asset revaluation. The consequences focus on the value relevance of asset revaluation and its impact on future firm performance. Jarrell (1979) examines the incentives for asset revaluation in the US public utility industry. His main hypothesis is that accounting choice is affected by government regulation, which is consistent with the political cost hypothesis in positive accounting theory. Jarrell (1979) finds that utility companies overvalue their assets to increase the prices of their products. Easton, Edey, and Harris (1993) and Aboody, Barth, and Kasznik (1999) discuss the consequences of asset revaluation in Australian and British firms, respectively. They examine the relationship between fixed asset revaluation and a firm's future profitability and stock prices, as well as stock returns. They show that companies with lower debt-to-equity (D/E) ratios have a revaluation incentive to publicly disclose their financial information on a more true and fair basis, while those with higher D/E ratios tend to treat revaluation as an accounting method to alleviate the restriction of debt covenants. In this paper, we include D/E ratios to control for the possible incentives found in the above studies. Harris and Muller (1998) find that, for the real estate industry in Britain, the fair market value of construction and land represents a better view of the financial position and profitability of a company than the historical cost.

Very few studies in China investigate asset revaluation and the expropriation of minority shareholders. Zhou, Xia, and Li (2003) find an asymmetric relation in asset appreciation rates between controlling shareholders and non-related parties. When assets are transferred out of a listed company, their appreciation rate for controlling shareholders is significantly lower than that for non-related parties. In contrast, when assets are injected, their appreciation rate for controlling shareholders is significantly higher than that for non-related parties. The result indicates the phenomenon of tunnelling in Chinese listed companies. Yuan and Yang (2005) contribute to the tunnelling literature from the perspective of asset exchanges. They find that, in the absence of monitoring by other shareholders, controlling shareholders with effective control have an incentive to transfer assets out of the listed company. The abnormal appreciation rate of these exchange-out assets is lower than

that of the exchange-in assets. In addition, when companies have previous losses or intend to raise additional capital, the controlling shareholders may prop up the listed companies by decreasing the revaluation value of exchange-in assets and increasing the appreciation rate for exchange-out assets.

To the best of our knowledge, few studies have investigated the manipulation of asset revaluation during the IPO restructuring process in China. We aim to demonstrate the incentives for manipulating asset revaluation during the Chinese IPO process, and to show the impact of such behaviour on a firm's future accounting and stock performance.

III. INSTITUTIONAL BACKGROUNDS AND HYPOTHESES DEVELOPMENT

During the Chinese IPO restructuring process, the sponsoring companies obtain shares of listed companies by injecting assets. Thus, the valuation of the injected assets is vital in determining the sponsoring companies' percentage of ownership. Various government regulations govern asset revaluation during this restructuring process. From 1992 to 1993, the Chinese government required the percentage of ownership to be based on the value of net assets contributed by the sponsoring companies, but it gave no detailed guidelines on how to convert the values of net assets into shares of equity. In 1994, the government explicitly stated that the injected assets should not be undervalued, and the conversion ratio (equity belonging to sponsoring companies / value of net assets injected by sponsoring companies) should be at least 65 per cent (or a maximum discount rate for sponsoring companies of 35 per cent). Therefore, if the conversion ratio is fixed, an overvaluation of net assets will result in a higher percentage of ownership for the sponsoring companies. This process is presented in the Appendix using two listed companies as a numerical example.

It is feasible for controlling shareholders to manipulate asset revaluation because the appraisal industry in China is still in its infancy. All appraisal companies were associated with the Chinese government before 1999. Since then, although these firms have been legally separated from the government, they have maintained close relations with government authorities. Hence, Chinese appraisal firms have no independent status in substance. This gives the state-owned sponsoring companies room to engage with government-linked appraisal firms in manipulating the revaluation of assets. In addition, the legal environment and the enforcement and monitoring system for asset revaluation services are not strong enough to regulate the industry. In summary, controlling shareholders have the ability and the channel to manipulate asset revaluation in order to gain a greater share in IPO firms.

During the restructuring process, if only one sponsoring company is involved, the opportunistic behaviour is more serious because there are no other parties to monitor the sponsor. On the other hand, multiple sponsoring companies may monitor each other unless they collude. We thus develop the first hypothesis as follows:

Hypothesis 1: For IPO firms that are wholly controlled by a single shareholder before the IPO, the abnormal asset appreciation rate will be higher than that of companies with multiple sponsoring shareholders before the IPO.

An overvaluation of injected assets may affect a firm's future performance. Thus, we predict that the future accounting performance of firms with higher abnormal asset appreciation rates will decrease after the IPO. In addition, it is widely believed that the market is inefficient, and that investors cannot see through opportunistic manipulation by controlling shareholders during the IPO period (Teoh, Wong, and Rao, 1998; Aharony, Wang, and Yuan, 2005). Hence, the valuation of stocks will be corrected when investors realise the manipulation after the IPO. Based on the above analysis, we provide the second hypothesis as follows:

Hypothesis 2: Future accounting and stock performances will be negatively associated with the abnormal asset appreciation rate of listed companies.

IV. SAMPLE SELECTION

1. Sample

Our initial sample includes a total of 658 IPO firms with A shares listed on the Shanghai Stock Exchange and Shenzhen Stock Exchange between 1997 and 2002. We follow the procedure below to derive our final sample used in this study:

1. Exclude companies with foreign shareholders (issuing B shares, H shares, or N shares concurrently). Because these companies are restricted by regulators and investors, both domestic and overseas, market monitoring is much more stringent. Thus, the incentive and power of controlling shareholders to manipulate revaluation may be different.⁵
2. Exclude companies that did not disclose financial information in their IPO prospectuses. Relevant regulations⁶ require companies to disclose information and documentation relating to asset revaluation. But because some firms still did not fully disclose such information, they are excluded from the sample.
3. Exclude companies in the financial industry. With significantly different capital structures, operational processes, and accounting treatments, they might behave differently from firms in other industries.

⁵ We have carefully examined the prospectuses of these companies, and found that the information they disclose on asset revaluation is even less than that disclosed by the A-share companies. Only a few of them satisfy the research requirements, and hence we do not study them further owing to data limitation.

⁶ The CSRC promulgated a prescribed format for IPO firm prospectuses. The first version was published on 6 January 1997 and a revised version on 15 March 2001.

Our final sample includes 267 IPO firms between 1997 and 2002.⁷

As Table 1 shows, the sample's distribution is skewed in both years and industries. Along the time dimension, the number of companies issuing stocks decreases quickly after 2001. In 2000, 140 companies issued shares; that number decreases sharply

Table 1 Sample selection and distribution across industries

Panel A: Sample selection							
Year	Total IPOs	IPOs with foreign-currency denominated shares	IPOs with missing data	IPOs in the financial industry	Total exclusions	Final sample	Percentage of sample over total
	A	B	C	E	F (B + C + E)	G (A-F)	H (G/A)
1997	187	9	89	0	98	89	33.33%
1998	102	3	36	0	39	63	23.60%
1999	93	3	45	1	49	44	16.48%
2000	140	5	81	1	86	54	20.22%
2001	67	3	52	0	55	12	4.49%
2002	69	2	59	2	63	6	2.25%
Total	658	25	362	4	391	267	100.00%

Panel B: Sample distribution across industries	
Industry	Observations
Agriculture	10
Mining	8
Manufacturing	164
Public utilities	14
Construction	8
Transportation and storage	12
Information technology	16
Wholesaling and retailing	12
Real estate	4
Services	11
Entertainment and culture	3
Conglomerates	5
Total	267

⁷ Our sample selection may be subject to selection bias. We further examine the size, leverage ratio, and other factors of companies within and outside the sample, and find no significant differences in the leverage ratio. The mean and median of the sample are slightly larger than those of non-sample companies; the test result for the mean difference is insignificant, but significantly positive for the median difference. This may be because larger companies disclose more information.

to 67 and 69 in 2001 and 2002, respectively. Table 1 also shows that most of our sample firms come from the manufacturing industry (140 firms); no other industry comprises more than 20 firms. Owing to this imbalance, we control for year and industry in the regression analysis.

2. Source of Data

The data in this paper are taken mainly from the prospectuses and annual reports of listed companies. All information is hand-collected from the website www.cninfo.com.cn, which is an information disclosure website approved by the China Securities Regulatory Commission (CSRC). This database contains net asset appreciation rates, total asset appreciation rates, information on whether a firm is wholly owned by the sponsoring shareholder, the fixed assets to total assets ratio, the residue ratio of fixed assets, the time interval between restructuring and IPO, the year of revaluation, conversion ratios, and the ownership change of major shareholders.

The reputation information of the asset appraisal firms is taken from the CSRC's report "Who Audits the China Securities Market—Audit Market Research (2002–2003)". We measure the reputation of these appraisal firms by their revenue from asset revaluation services: the more revenue a firm generates, the higher its reputation ranks.⁸

The reputation information of the lead underwriters is taken from the report of SYWG Research Co., Ltd., which provides information on the revenue of these underwriters between 1999 and 2002. We set the revenue to proxy for the rank of their reputations, with higher revenue representing a better reputation.

Regional data are sourced from the report "NERI Index of Marketisation of China's Provinces" (Fan and Wang, 2001, 2002, 2003, 2004). We use the data mainly to measure the degree of marketisation in different regions.

Other data used in this study include financial information, industry classifications, and the time of the IPO. We extract the data from the China Stock Market and Accounting Research (CSMAR) database.

V. METHODOLOGY AND EMPIRICAL RESULTS

1. Test of Hypothesis 1

(1) Research Model

The measurement of the abnormal net asset appreciation rate⁹ is the key measure of this study. We first establish a model of normal asset appreciation rate. The

⁸ The CSRC's report provides the revenue ranking of appraisal firms from 1998 to 2002. For companies listed before 1998, the 1998 ranking is used instead.

⁹ The assets do not include intangible assets. Among the 267 effective samples, 108 (40.45 per cent) have intangible assets on their balance sheets. Companies having intangible assets of land-use rights comprise only 21.35 per cent of the sample. Some companies have obtained land-use rights for free; hence, their book value is zero before revaluation. Because we cannot calculate the net asset appreciation rate for this type of intangible asset, we eliminate intangible assets from the study.

abnormal net asset appreciation rate then becomes the difference between the actual appreciation rate and the predicted appreciation rate from the model.

The model of normal asset appreciation rate is as follows:

$$REV = \alpha_0 + \alpha_1 FARATIO + \alpha_2 FANEW + \alpha_3 LOCAL + \alpha_4 INDUSTRY + \alpha_5 YEAR + \varepsilon, \quad (1)$$

where the normal asset appreciation rate (REV) is the dependent variable. The independent variables include the ratio of fixed assets to total assets¹⁰ ($FARATIO$), the residue ratio of fixed assets ($FANEW$), location ($LOCAL$), industry ($INDUSTRY$), and year of assessment ($YEAR$). Lu (1998) finds that $FARATIO$ and $FANEW$ are two important factors that may affect the asset appreciation rate. During a period of inflation, the turnover of fixed assets is lower than that of current assets. Thus, the difference between the book value and replacement cost of fixed assets could be larger when there are more fixed assets and when the fixed assets are older. Therefore, we include $FARATIO$ and $FANEW$ as two variables in the model of normal asset appreciation rate.

Owing to differences in location, year of assessment, industry, and market development, prices and price inflation vary with these factors, which in turn affect the asset appreciation rate. Thus, we also introduce the location, industry, and year of assessment into the model as control variables. The independent variables in the model are defined as follows.

The ratio of fixed assets to total assets ($FARATIO$) is calculated as the adjusted net value of fixed assets (before revaluation) over the total assets (before revaluation). Usually, the asset value will approach the replacement cost as the purchase date gets closer to the date of assessment. The lower (higher) the turnover ratio of an asset is, the smaller (larger) the difference between its book value and replacement cost. Such a feature provides some leeway for controlling shareholders and the appraisal institutions to manipulate the assessment result. Therefore, $FARATIO$ is chosen as one of the variables, and the sign is estimated to be positive.

The residue ratio of fixed assets ($FANEW$) is calculated as the adjusted net value of fixed assets (before revaluation) over the original book value. A better way is to use the ratio of the current carrying value of fixed assets over the replacement cost. However, as such a ratio is not disclosed in the prospectus, we use the depreciation rate of fixed assets instead. The sign is estimated to be negative.

The location ($LOCAL$) refers to the ranking of the NERI Index of Marketisation for different regions. The standard is derived from the report “NERI Index of Marketisation of China’s Provinces” (Fan and Wang, 2001, 2002, 2003, 2004). The score for the most marketised region is 1. This variable is used to measure the degree of marketisation for different regions. A lower score indicates a higher

¹⁰ The total assets exclude intangible assets, and the fixed assets exclude works-in-progress. Generally speaking, as works-in-progress are incomplete, the replacement cost of these assets is very close to their book value. Therefore, we eliminate works-in-progress from our calculation of fixed assets.

standard of the appraisal institutions. We also include *INDUSTRY* and *YEAR* to control for industry and year impact on the assessment.

The difference between the predicted value of *REV* from Equation (1) and the original asset appreciation rate is the abnormal net asset appreciation rate (*ABREV*). We employ the following model to test the determinants of this rate:

$$ABREV = \alpha_0 + \alpha_1 CONTROL + \alpha_2 REVAL + \alpha_3 UNWRITER + \alpha_4 SIZE + \alpha_5 LEVERAGE + \alpha_6 STATE + \alpha_7 TIME + \alpha_8 INSTITUTION + \varepsilon \quad (2)$$

The dependent variable *ABREV* is the abnormal net asset appreciation rate. The main independent variable is the ownership structure (*CONTROL*), which takes the value of 1 if there is only one sponsoring shareholder during the pre-IPO restructuring process, and 0 otherwise. The only controlling shareholder has both a stronger incentive and the ability to tunnel, which produces a higher *ABREV*. Hence, we estimate the sign to be positive.

The main control variables are defined as follows.

For the reputation of intermediaries, we employ the method commonly used in the audit literature, which shows that an auditor's reputation will affect audit quality. Here we introduce two reputation measures. One is the reputation of the appraisal firm (*REVAL*), which takes the value of 1 if its annual revenue ranks among the top 10, and 0 otherwise. Thus, we use annual revenue to measure the reputation of the firm. Because higher revenue indicates a higher reputation, which may lower the *ABREV*, we therefore estimate the sign to be negative. The other measure is the reputation of the IPO underwriter (*UNDERWRITER*), which takes the value of 1 if the underwriter's revenue ranks among the top five, and 0 otherwise.¹¹ Similarly, we expect better monitoring from underwriters with better reputations; thus, we estimate the sign to also be negative.

The size (*SIZE*) is defined as the natural logarithm of total assets before revaluation. It represents the effects of complexity of assets on asset revaluation.

The capital structure (*LEVERAGE*) is calculated as the total liability over total assets before revaluation. According to Easton *et al.* (1993) and Aboody, Barth, and Kasznik (1999), *LEVERAGE* represents the effects of the asset/liability ratio on the incentives for revaluation.

The time interval from restructuring to IPO (*TIME*) is defined as the time period between restructuring and IPO.

Whether the company is held by the government (*STATE*) is a dummy variable, which equals 1 if the largest shareholder is the government during the restructuring process, and 0 otherwise. Because state-owned companies and private companies

¹¹ We use the top five for underwriters but top 10 for appraisal firms for the following reasons. The ranking data for appraisal firms are incomplete before 2001, and a lot of data will be missed if we consider the top five appraisal firms only. Some robustness tests are conducted: (1) the top 10 underwriters; (2) the number of clients, rather than revenue from clients, as the ranking index for underwriters and appraisal firms; and (3) exclusion of the reputation of underwriters. The test results are similar to those of the study.

have different incentives for listing on the stock market, the level of government intervention differs. This in turn affects the asset revaluation during the restructuring process.

The institution variable (*INSTITUTION*) is a dummy variable, which takes the value of 1 if the company was listed before 17 March 2001, and 0 otherwise. Before 17 March 2001, IPO firms were subject to a quota (a limit of capital they could raise), and hence there was a lot of government intervention during the period. Since 2001, an approval system for IPOs has been used, with the screening process based on the quality of the company. Thus, the two different IPO systems may have some impact on asset revaluation.

(2) Descriptive Statistics

Table 2 presents the descriptive statistics of all regression variables. It shows that, for the original net asset appreciation rate, the mean is 32.62 per cent, the median 20.87 per cent, and the maximum and minimum values are 365.58 per cent and -96.90 per cent, respectively. For the abnormal net asset appreciation rate, the mean is 6.84 per cent, the median 0.07 per cent, and the maximum and minimum values are 318.44 per cent and -109.56 per cent, respectively. Of the observations, 36 per cent are controlled by controlling shareholders. The mean of *FARATIO* is 36 per cent, and the median is 31 per cent, indicating a relatively high percentage of fixed assets. Before revaluation, the mean of leverage is 59 per cent, with the maximum at 93 per cent and minimum at 0 per cent. On average, it takes these companies 1.69 years to restructure. We winsorise all variables to control for any impact from outliers.¹²

Table 2 Descriptive Statistics

Variable	Mean	Median	First quartile	Third quartile	Maximum	Minimum
Net asset appreciation rate	32.62%	20.87%	9.50%	41.00%	365.58%	-96.90%
<i>ABREV</i>	6.84%	0.07%	-12.54%	13.69%	318.44%	-109.56%
<i>CONTROL</i>	0.36	0.00	0.00	1.00	1.00	0.00
<i>REVAL</i>	0.19	0.00	0.00	1.00	1.00	0.00
<i>UNDERWRITER</i>	0.35	0.00	0.00	1.00	1.00	0.00
<i>FARATIO</i>	0.36	0.31	0.19	0.52	1.00	0.00
<i>FANEW</i>	0.71	0.74	0.61	0.82	1.00	0.10
<i>SIZE</i>	10.52	10.47	9.93	11.02	13.52	7.22
<i>LEVERAGE</i>	0.59	0.63	0.52	0.70	0.93	0.00
<i>TIME</i>	1.69	1.06	0.58	2.20	7.61	0.22
<i>LOCAL</i>	13.98	14.00	7.00	20.00	31.00	1.00
<i>INSTITUTION</i>	0.07	0.00	0.00	0.00	1.00	0.00

¹² We use the truncation method as well to deal with the extremes, and the regression results are not affected.

(3) Correlation Analysis

Table 3 provides the correlation coefficient for the variables in Equation (2).¹³ The correlation coefficient between the dependent variable *ABREV* and the main independent variable *CONTROL* is 0.04 and insignificant. We will further test their association in the multivariate analysis. *SIZE* and *LEVERAGE* are positively correlated with a larger coefficient of 0.33, while *TIME* and *CONTROL* show the smallest coefficient of -0.43 . To control for the potential problems of multicollinearity, we test for it in all the regression models.

(4) Multivariable Analysis

The left panel of Table 4 shows the regression results for Equation (1) using ordinary least squares (OLS) regression. The coefficient of *FARATIO* is 0.122 with an insignificant t-value of 1.42,¹⁴ indicating a positive relationship between *FARATIO* and *REV*. The coefficient of *FANEW* is -0.55 with a t-value of -5.09 , which is significant at the 1 per cent level. This indicates a negative relationship between *FANEW* and *REV*. The positive coefficient of *LOCAL* is consistent with our estimation that a region with a higher marketisation level will have a lower *REV*.

The right panel of Table 4 shows the regression results of Equation (2) using OLS regression.¹⁵ The coefficient of *CONTROL* is 0.081 with a t-value of 1.86 (significant at the 10 per cent level). This means that when controlling shareholders effectively control the company, they have both a stronger incentive and the ability to gain a larger share of equity with less capital investment through asset revaluation during the IPO restructuring process at the expense of minority shareholders. The result is consistent with the empirical evidence found in the existing literature. Yuan and Yang (2005) find that, in the absence of multiple controlling shareholders, controlling shareholders with effective control tend to transfer significantly more assets out of the listed company than those of companies with a different ownership structure. Thus, our results are consistent with the first hypothesis.

2. Test of Hypothesis 2

In the accounting literature, long-term performance is measured by both accounting performance and stock returns. We follow the literature and employ both performance measures in this study to test the economic consequences of asset revaluation.

¹³ We conduct a significance test for all variables in the regression model, but do not present some results for simplicity.

¹⁴ In the robustness test, we use total assets as the dependent variable. The coefficient of *FARATIO* is 0.06 with a t-value of 1.97 (significant at the 5 per cent level), which is consistent with the finding in Lu (1998).

¹⁵ All the regression models are tested for multicollinearity. All VIF values are below 2, indicating that multicollinearity is not a problem in this study.

Table 3 Pearson Correlation

	<i>ABREV</i>	<i>CONTROL</i>	<i>REVAL</i>	<i>UNDERWRITER</i>	<i>SIZE</i>	<i>LEVERAGE</i>	<i>TIME</i>
<i>CONTROL</i>	0.036 (0.561)						
<i>REVAL</i>	0.023 (0.706)	-0.027 (0.661)					
<i>UNDERWRITER</i>	0.009 (0.880)	-0.057 (0.354)	0.068 (0.266)				
<i>SIZE</i>	0.069 (0.263)	0.311 (0.000)	0.133 (0.029)	0.003 (0.959)			
<i>LEVERAGE</i>	0.225 (0.000)	0.086 (0.162)	0.013 (0.833)	-0.072 (0.239)	0.329 (0.000)		
<i>TIME</i>	0.137 (0.025)	-0.403 (0.000)	-0.026 (0.676)	0.039 (0.521)	-0.208 (0.001)	0.067 (0.273)	
<i>INSTITUTION</i>	-0.094 (0.127)	0.119 (0.053)	-0.239 (0.000)	-0.005 (0.935)	-0.067 (0.278)	-0.097 (0.113)	-0.261 (0.000)

Note: This table reports the Pearson correlation coefficients and p-values in parentheses.

Table 4 Determinants of Abnormal Net Asset Appreciation Rate

	Dependent value = Actual net asset appreciation rate (Eq. (1))		Dependent variable = Abnormal net asset appreciation rate (Eq. (2))
Intercept	0.813 (5.16)***	Intercept	-0.493 (-1.83)*
<i>FARATIO</i>	0.122 (1.42)	<i>CONTROL</i>	0.081 (1.86)*
<i>FANEW</i>	-0.550 (-5.09)***	<i>REVAL</i>	0.062 (1.22)
<i>LOCAL</i>	0.002 (0.74)	<i>UNDERWRITER</i>	-0.018 (-0.46)
<i>INDUSTRY</i>	Controlled	<i>SIZE</i>	0.001 (0.06)
<i>YEAR</i>	Controlled	<i>LEVERAGE</i>	0.252 (2.11)**
		<i>STATE</i>	0.205 (1.83)*
		<i>TIME</i>	0.026 (1.83)*
		<i>INSTITUTION</i>	0.077 (0.73)
N	267	N	267
Adj R-Sq (%)	17.19	Adj R-Sq (%)	3.41

Note: The left panel reports the regression results for Equation (1). We use the estimated coefficients to calculate the normal net asset appreciation rate. The abnormal rate is the difference between the actual rate and the estimated normal rate from Equation (1). The right panel reports the regression results for Equation (2). T-statistics are reported in parentheses. *, **, and *** represent two-tailed significance levels of 10%, 5%, and 1%, respectively.

(1) Accounting Performance

We adopt various industry median-adjusted accounting measures, which are defined as follows.

ROA (earnings before interest and income tax expense / total assets). *ROA* is used to control for the effects of capital structure and tax impact on profits.

CROA (core earnings before interest and income tax / total assets). *CROA* may eliminate the effect of manipulation of non-core business income (below-the-line items) on *ROA*.¹⁶

¹⁶ We also try earnings or core earnings before interest, tax, and depreciation (EBITDA), because asset revaluation will increase the carrying value of assets, and hence future depreciation expenses. We find that the result does not change, and that the coefficient of the abnormal net asset appreciation rate is even more significant.

We adopt the methodology of Healy, Palepu, and Ruback (1992) to examine the effects of asset revaluation on the future performance of a company. We measure the company's post-IPO accounting performance based on the median performance measures during the three years after the IPO. Thus, the change in accounting performance is the post-IPO performance minus the corresponding accounting performance in the year before the IPO.

To test the impact of asset revaluation on accounting performance, we use multivariable analysis.

$$PERFORM = \alpha_0 + \alpha_1 ABREV + \alpha_2 OWNCHANGE + \alpha_3 SIZE + \alpha_4 LEVERAGE + \alpha_5 INSTITUTION + \varepsilon \quad (3)$$

The dependent variable *PERFORM* is defined as the change in *ROA* and *CROA*. Both *PERFORMs* are continuous variables. The main explanatory variable is *ABREV*. As mentioned above, a higher *ABREV* means that the controlling shareholders gain a larger share of equity with fewer assets. The overvaluation of assets will undermine the company's long-term development, indicating a decrease in its future accounting performance. Thus, we estimate the sign to be negative. Other control variables include ownership changes in controlling shareholders (*OWNCHANGE*), the natural logarithm of total assets (*SIZE*), capital structure (*LEVERAGE*), and the implementation of the IPO approval system (*INSTITUTION*). When the controlling ownership changes, the new controlling shareholder will usually restructure the assets, which may affect the company's future performance. The definitions of the other variables are the same as defined above.

As Table 5 shows, when the dependent variable is the change in *ROA*, the coefficient of the main explanatory variable *ABREV* is -0.030 with a t-value of -2.71 (a significance level of 1 per cent). This indicates that a higher asset appreciation rate leads to a weaker future performance of the company. For control variables, the coefficient of *OWNCHANGE* is insignificant. *SIZE* is negative and *LEVERAGE* positive. *INSTITUTION* is significantly negative, indicating the positive effects of the new IPO approval system on the performance of IPO firms.

(2) Stock Return Performance

We adopt the buy-and-hold market-adjusted abnormal return in this study and calculate it as follows:

$$HPRM = \{\Pi(1 + R_{im})\} - \{\Pi(1 + R_{mm})\}, \quad (4)$$

where R_{im} is the return of the company in month m , and R_{mm} is the return of the market index in month m (we consider the monthly market yield of cash dividends). We calculate the *HPRM* for each company for 12, 24, and 36 months after the IPO.

We establish the following model to analyse whether different incentives for asset revaluation by major shareholders result in different long-term market performances:

Table 5 The Impact of Asset Revaluation on Future Accounting Performance

	ΔROA	$\Delta CROA$
Intercept	-0.017 (-0.23)	-0.019 (-0.18)
<i>ABREV</i>	-0.030 (-2.71)***	-0.039 (-2.01)**
<i>OWNCHANGE</i>	0.023 (1.26)	-0.016 (-0.65)
<i>SIZE</i>	-0.011 (-1.66)*	-0.018 (-1.96)**
<i>LEVERAGE</i>	0.213 (5.73)***	0.223 (4.52)***
<i>INSTITUTION</i>	0.013 (0.56)	0.074 (2.32)**
N	267	267
Adj R-Sq (%)	12.72	9.64

Note: ΔROA is the difference between the median *ROA* (adjusted by the industry median) for the 3-year post-IPO period and the *ROA* (adjusted by the industry median) in the year before the IPO. $\Delta CROA$ is the difference between the median *CROA* (adjusted by the industry median) for the 3-year post-IPO period and the *CROA* (adjusted by the industry median) in the year before the IPO. T-statistics are reported in parentheses. *, **, and *** represent two-tailed significance levels of 10%, 5%, and 1%, respectively.

$$\begin{aligned}
 HPRM = & \alpha_0 + \alpha_1 ABREV + \alpha_2 IPODAY + \alpha_3 UNWRITER + \alpha_4 ROA + \alpha_5 RIGHTS \\
 & + \alpha_6 SIZE + \alpha_7 LEVERAGE + \alpha_8 LSHAR + \alpha_9 OWNCHANGE \\
 & + \alpha_{10} TIME1 + \alpha_{11} TIME2 + \alpha_{12} INSTITUTION + \alpha_{13} INDUSTRY + \varepsilon \quad (5)
 \end{aligned}$$

The main explanatory variable in the regression model is *ABREV*. In an efficient market, investors should be able to see through opportunistic manipulation behaviour, and there should be no relation between long-term performance and the abnormal appreciation rate of assets; otherwise, we should be able to observe some relation. Thus, the empirical evidence in this paper may also contribute to the literature on the efficiency of Chinese capital markets.

Other control variables are as follows:

We use the market return on the IPO day (*IPODAY*¹⁷), since according to previous research, long-term investment returns are negatively related to the market returns on the IPO date (Debondt and Thaler, 1985; Shiller, 1990; Ritter, 1991; Chen and Gao, 2000). Thus, we expect the sign to be negative.

The reputation of the underwriter (*UNWRITER*) is a dummy variable, which takes the value of 1 when the underwriter ranks among the top five, and 0 otherwise. The underwriter plays a very important role in the IPO of the company. Underwriters with a higher reputation will try to enhance their own interests and send signals of quality to investors. Thus, the higher reputation of the underwriter may indicate

¹⁷ We use the same measure as Chen and Gao (2000).

better quality of the listed firm. We would then expect a positive sign for this variable.

We use the ROA for the one year before the IPO (*ROA*) to test whether long-term performance relates to the accounting performance before the IPO.

The rights offering (*RIGHTS*) is a dummy variable with a value of 1 if it is launched within 2 years after the IPO, and 0 otherwise. According to Yuan (2003), rights offerings will affect the long-term performance of the company, and so we select *RIGHTS* as a control variable.

We use the natural logarithm of total assets in the year of IPO (*SIZE*). Because a large firm could reduce information asymmetry and the risk for investors, investors would then require a lower rate of return.

We use the capital structure (*LEVERAGE*) in the year of IPO to control for the capital structure of the company.

We use the liquid share ratio (*LSHAR*) to control for the impact of the split share structure on stock return performance.

The ownership change in major shareholders (*OWNCHANGE*) is a dummy variable, which takes the value of 1 if there is any change in controlling shareholders, and 0 otherwise.

We use the time interval from founding to IPO (*TIME1*), since having a longer history may reduce the information asymmetry of an IPO firm and the risk for investors.

We use the time interval from the issuance of a prospectus to listing on the market (*TIME2*). According to Chen and Gao (2000), *TIME2* is a unique variable in the Chinese capital market. The approval process is an indicator of a company's quality; if it takes longer to obtain approval, the company's quality may be lower.

The implementation of the new IPO approval system (*INSTITUTION*) takes the value of 1 before the implementation, and 0 otherwise. The approval system is expected to emphasise the quality of a firm and eventually increase the long-term investment return.

There are 11 industry (*INDUSTRY*) dummies according to the industry classification promulgated by the CSRC in 2001.

Table 6 shows the results of the regression model. When the 12- and 36-month cumulative excess returns are the dependent variables, the sign of *ABREV* is negative but not significant. When the 24-month cumulative excess return is the dependent variable, the coefficient of *ABREV* is -0.121 and significant at the 10 per cent level. The results indicate that investors cannot see through the opportunistic revaluation manipulation of the controlling shareholders during the IPO restructuring process.¹⁸

¹⁸ We also use the over-subscription rate as a control variable to test the minority shareholders' reaction to expropriation. We find that the over-subscription rate is determined by the size and the leverage ratio of the company. The correlation with the abnormal asset appreciation rate is insignificant, indicating that the market is inefficient, and that investors are not able to discover the opportunistic behaviour.

Table 6 The Impact of Asset Revaluation on Post-IPO Stock Returns

	Dependent Variable		
	Abnormal return in 12 months	Abnormal return in 24 months	Abnormal return in 36 months
Intercept	0.718 (1.23)	2.153 (3.59)***	3.146 (3.62)***
<i>ABREV</i>	-0.042 (-0.73)	-0.121 (-1.81)*	-0.088 (-1.01)
<i>IPODAY</i>	-0.065 (-1.76)*	-0.131 (-2.89)***	-0.139 (-2.67)***
<i>UNDERWRITER</i>	-0.039 (-0.61)	0.092 (1.37)	0.136 (1.15)
<i>ROA</i>	0.193 (0.62)	-1.174 (-2.82)***	-1.23 (-2.41)**
<i>RIGHTS</i>	0.051 (0.61)	-0.017 (-0.16)	-0.190 (-1.23)
<i>SIZE</i>	-0.082 (-1.93)*	-0.166 (-3.98)***	-0.296 (-3.93)***
<i>LEVERAGE</i>	0.298 (1.32)	-0.006 (-0.02)	0.461 (1.13)
<i>LSHAR</i>	0.403 (1.20)	0.000 (0.61)	0.000 (0.26)
<i>OWNCHANGE</i>	-0.037 (-0.38)	-0.021 (-0.12)	0.179 (1.04)
<i>TIME1</i>	0.029 (2.53)***	0.028 (1.79)*	0.001 (0.14)
<i>TIME2</i>	0.826 (2.24)**	0.574 (1.21)	0.87 (1.46)
<i>INSTITION</i>	-0.086 (-0.71)	-0.153 (-1.01)	0.30 (1.76)*
Dummy variables for the 11 industries (not reported)	controlled	Controlled	Controlled
N	267	267	267
Adj R-Sq (%)	4.31	10.59	13.29

Note: T-statistics are reported in parentheses. *, **, and *** represent two-tailed significance levels of 10%, 5%, and 1%, respectively.

Compared with accounting performance, the stock return tests are not consistent across models and measures. We observe a significant negative association only in the 24-month regression model. We offer the following possible reasons: (1) the small sample size may reduced the power of the test for long-term returns; or (2) compared with accounting performance, the stock performance reflects both risk factors in the market and unexpected news before the end of the holding period. However, it is difficult to define the expected return. We include certain factors related to risk, such as company size, but do not consider another important risk

factor—the book-to-market ratio. Since it is impossible to calculate the market value for IPO firms during the pre-IPO period, we do not consider it in this study. In addition, the market return is taken as the expected return. Hence, we may have missed some other risk factors in this paper.

For control variables, the coefficient of *IPODAY* is negative, which is consistent with the literature. The coefficient of *UNDWRITER* is positive, but not significant. The *ROA* is -1.174 and highly significant at the 1 per cent level, indicating the presence of earnings management in the accounting information of the listed companies. The coefficient of *RIGHTS* is positive but not significant. The coefficient of *SIZE* is significantly negative and is consistent with our expectation, indicating that a large company could reduce information asymmetry and the risk for investors. The coefficient of *INSTITUTION* is significantly positive in the third year. The test results for *LEVERAGE*, *LSHAR*, *OWNCHANGE*, *TIME1*, and *TIME2* are insignificant.

The above empirical results are consistent with our second hypothesis. With effective control over the listed company, the controlling shareholders have both the incentive and the ability to manipulate asset revaluation during the IPO restructuring process. Because these controlling shareholders gain a larger share of ownership by injecting fewer assets, the company's accounting performance will decrease in the future. Meanwhile, because the market cannot detect such opportunism, we observe a long-term underperformance during the post-IPO period.

VI. ROBUSTNESS TEST

1. Robustness Test of the Abnormal Total Asset Appreciation Rate

We test the above hypotheses based on the abnormal net asset appreciation rate. We rerun all the tests based on the abnormal total asset appreciation rate, and all the results support the two hypotheses. In the test of Hypothesis 1, the coefficient of *CONTROL* is 0.031 with a t-value of 2.15 (significance level of 5 per cent). In the test of Hypothesis 2, when stock returns are the dependent variable, the coefficient of *ABREV* is insignificant in year 1, and -0.36 in year 2, with a t-value of 1.76 (significance level of 10 per cent). When the dependent variable is accounting performance, all the coefficients of *ABREV* are highly significant at the significance level of 1 per cent.

2. Robustness Test of the Abnormal Net Asset Appreciation Rate

The above measure of the abnormal net asset appreciation rate is based on the residual value of Equation (1). We also employ the industry median-adjusted actual net asset appreciation rate to test both hypotheses, and get qualitatively similar results. In the test of Hypothesis 1, the coefficient of *CONTROL* is 0.08 with a t-value of 1.66 (significance level of 10 per cent). In the test of Hypothesis 2, when the dependent variable is stock returns (*ROA*), the coefficient of *ABREV* is -0.172

with a t-value of 1.76 (significance level of 10 per cent). When the dependent variable is *CROA*, the coefficient of *ABREV* is highly significant at the 5 per cent level.

VII. CONCLUSIONS AND LIMITATIONS OF THE STUDY

We provide evidence for the expropriation of minority interests by controlling shareholders through asset revaluation during the IPO restructuring process in China. Such manipulation of asset revaluation eventually undermines a company's long-term performance. Specifically, we find first that controlling shareholders gain a larger share of equity with less capital investment by manipulating asset evaluation, at the expense of minority shareholders' interests, during the IPO process. In the absence of multiple large shareholders, the controlling shareholders with effective control have both stronger incentives and the ability to manipulate the asset revaluation; the abnormal asset appreciation rate of these companies is also higher than that of companies with a different ownership structure. And second, we find that the controlling shareholders' payment of less capital for a larger share of equity undermines the company's future profitability. For companies with a higher abnormal asset appreciation rate, their future accounting performance and long-term investment returns are lower than those of other companies.

This paper does have certain limitations. The major one is the measurement of the abnormal net asset appreciation rate. Although this paper adopts two different approaches, the reliability of both measures is still questionable. In particular, we observe only marginal significance in the regression model linking the *CONTROL* variable with the abnormal net asset appreciation rate. We leave the measurement issue for future studies.

In addition, regulations require companies to disclose all data and information regarding asset revaluation in the prospectus. But because a number of companies did not fully disclose such information, the sample may suffer from selection bias. As Footnote 7 shows, the sample and non-sample companies differ in size. Hence, why some companies do not disclose information about asset revaluation would be an interesting question to explore in the future.

REFERENCES

Please refer to pp. 86–87.

APPENDIX

Example of conversion of net assets to shares

We provide this example to show how controlling shareholders manipulate asset revaluation to gain different shares of ownership in IPO companies, using two IPO firms to conduct the comparison. One is Beijing New Building Material Group (BNBM, stock code 000786), and the other is Tianli Hightec Co. Ltd. (THC, stock code 600339). The main features of the two companies are summarised below.

- 1) They both have similar quantities of common stocks (par value of all Chinese shares is 1 renminbi): the total number of shares after the IPO is 155 million for BNBM and 170 million for THC.
- 2) They both have similar conversion ratios,¹⁹ 0.7289 for BNBM and 0.7277 for THC.
- 3) Both are in the manufacturing industry.
- 4) Both are state-owned companies.
- 5) Their asset appreciation rates differ significantly: 131 per cent for BNBM (*ABREV* is 86 per cent), and 25 per cent for THC (*ABREV* is 11 per cent).

The book value of BNBM is 65.25 million renminbi, and the original asset appreciation rate is 131 per cent, which gives a revaluation of 150.91 million renminbi. Given a conversion ratio of 0.7289, BNBM's controlling shareholders received 110 million shares, or 70.97 per cent of the total shares after the IPO. In contrast, THC's book value is 106.42 million renminbi, and its original asset appreciation rate is only 25 per cent, which gives a revaluation of 137.14 million renminbi. Given a conversion ratio of 0.7277, THC's controlling shareholders received 110 million shares, or 64.71 per cent of the total shares after the IPO. The comparison indicates that, given similar conversion ratios, a higher asset appreciation rate from revaluation will lead to a higher level of ownership after an IPO.

Asset revaluation is an important process for Chinese IPO restructuring. Although the government has promulgated some relevant regulations, the controlling shareholders still have strong incentives and the ability to manipulate revaluation in order to gain a larger share of equity with less capital injection. In this example, BNBM has only one sponsoring company in the IPO process, whereas THC has five. We conjecture that THC's multiple sponsoring companies monitor each other, and thus we observe a much lower abnormal asset appreciation rate (11 per cent) than that of BNBM (86 per cent).

The table below presents their post-IPO performances. BNBM's *ROA* drops dramatically from 32.48 per cent in the year before the IPO to 9.67 per cent for the 3 years after. In contrast, the decrease in performance for THC is much smaller (from 19.75 per cent to 7.10 per cent).²⁰

¹⁹ In our sample, the mean of the conversion ratios is 0.73, the median is 0.68, and the standard deviation is 0.11.

²⁰ Other factors also affect the decrease in *ROA*.

	BNBM	THC
Part 1: Basic information		
Stock code	000786	600339
Sponsoring shareholders	Beijing New Building Material Group Co. Ltd. (the only one)	Xinjiang DuShanZi Industrial Group CNPC Xinjiang Petroleum Wulumuqi GaoXin Real Estate Co. Ltd. TBEA Xinjiang Shanghai ZhongDa Technology Co.
Industry	Manufacturing	Manufacturing
State Ownership	State-owned	State-owned
Date of listing	6 June 1997	25 December 2000
Book value	65,250,000 RMB	106,420,000 RMB
Assessed value	150,910,000 RMB	137,140,000 RMB
Original asset appreciation	131%	25%
Abnormal asset appreciate	86%	11%
Conversion ratio	0.7289	0.7277
Shares of sponsoring shareholders	110 million shares	110 million shares
Shares of new investors	155 million shares	170 million shares
Ownership of sponsoring shareholders after IPO	70.97%	64.71%
Part 2: Change in performance		
<i>ROA</i> one year before IPO	32.48%	19.75%
Median <i>ROA</i> for the 3 years following IPO	9.67%	7.10%
ΔROA	-22.81%	-12.65%