

股权集中、股权制衡对大股东侵占行为的影响研究¹

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摘要

通过一个简单的理论模型,本文描述了股权集中以及股权制衡对大股东侵占行为的抑制作用,并利用我国上市公司关联交易的数据进行实证检验,结果显示:股权集中、股权制衡在公司治理中具有积极效果。此外,研究还发现,股权集中在大股东持股水平较低的情况下可能会引起侵占效应,且股东性质影响了股权制衡的效果,暗示着股东性质可能是影响大股东选择监督或合谋的重要因素之一。

关键词:大股东侵占、股权集中、股权制衡、关联交易

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一、引言

近二十年来,世界范围内越来越多的研究发现大多数公司股权结构不是分散、而是相对集中,在这种集中的股权结构下,大股东和小股东之间经常出现严重的利益冲突,即大股东掠夺小股东的行为,因为大股东可以凭借其对公司的控制权谋取私利,同时只按照其拥有的股权比例部分承担由于利益转移而给公司带来的损失。大量的研究支持了上述观点(Shleifer and Vishny, 1997; La Porta *et al.*, 1999; Claessens *et al.*, 2002; Bena and Hanousek, 2006)。这些研究表明大股东可能采取多种手段侵占小股东利益,如支付给企业高级管理者(往往由控制性股东或其亲属担任)过高的报酬、通过上市公司担保而取得贷款、关联交易、窃取公司的投资机会或者迫使公司投资于不盈利但却有利于控制性股东的投资项目等。Johnson *et al.* (2000)形象地使用“隧道效应”或“掏空”(tunnelling)一词来描述控制性股东转移企业资源的行为。尤其,在东亚等新兴市场中,各种治理机制对小股东的保护措施不够,这种掏空行为严重(Bertrand *et al.*, 2002; Bae *et al.*, 2002; Chang, 2003; Joh, 2003)。

在中国资本市场上,上述现象并不鲜见。事实上,由于我国历史原因、法律和监管的缺陷以及上市公司当前脆弱的治理系统,大股东侵占小股东利益的现象十分严重(Jian and Wong, 2003; 陈晓、王琨, 2005)。因此,上市公司的关联交易问题一直受到市场监管部门的密切关注并导致一系列旨在规范关联交易及其信息披露等政策规定的出台。然而,遗憾的是,正如Jian and Wong (2003)指出的,尽管关联交易问题受到全世界公众和政府的关注,但却鲜有这方面的学术研究成果,我国也不例外。目前,国内这方面的研究成果较为鲜见,而且几乎所有关于大股东侵占的研究都直接从股权结构跳到公司绩效(陈信元、汪辉, 2004; 徐莉萍等, 2006; 刘星、刘伟, 2007),或者集中在资金占用、企业并购等方面(李增泉等, 2004; 贺建刚、刘峰, 2005)。少量研究虽然提供了较为全面的关联交易证据(陈晓、王琨, 2005; 唐清泉等, 2005),然而,这些研究没有直接研究大股东的侵占行为,而是直接把关联交易当成大股东侵占的具体形式,从而忽略了关联交易的有效性,例如,一些针对亚洲企业集团的研究认为在新兴市场中企业集团透过内部交易和内部资本市场的运作可以降低交易成本从而提高成员企业价值(Khanna and Palepu, 1997, 2000)。也就是说,这些研究未能针对大股东侵占行为提供全面的、直接的经验证据,或者未能对机会主义与有效的关联交易进行区分,从而使得已有研究成果难以有效地对我国上市公司治理机制的改革实践提供指导与借鉴。

基于此,本文以我国上市公司关联交易为研究对象,探讨我国上市公司股权集中、股权制衡的治理机制与大股东侵占之间的关系,以期探索从根本上缓解我国上市公司治理问题的机制性安排。相比于以往的研究文献,本文的贡献主要体现在三个方面:1)在理论方面,已往有关股权制衡的研究往往强调了大股东之间的监督机制,而忽略了大股东之间同样存在合谋以共同剥削小股东的情形;实际上,股权制衡能否发挥作用,其核心是几个大股东相互博弈的结果是采取监督或合谋的方式;文中研究发现股东性质影响了我国上市公司股权制衡的治理效果,暗示着股东性质可能是影响大股东采取监督或合谋的重要因素之一,从而在理论上扩展了我国现有股权制衡的研究视角。2)在实证方面,文中较为全面、直接地检验股权集中、股权制衡的治理作用,结果表明股权集中、股权制衡能有效地抑制大股东侵占,而以往

研究多数采取间接的方式(如公司绩效)且结论各异;因此,文中所提供的证据将会对大股东控制下的公司治理问题有更好的理解。3)在具体分析上,文中采取合并关联股东的持股比例以及利用 Shapley 权力指数以减少对股权集中度与股权制衡度的估算误差,而之前的大多数研究均未加以调整;这些测量方法的改进对于今后大股东控制下的公司治理研究具有一定的参考价值。

后文结构安排如下:第二部分通过一个简单的理论模型刻画了股权集中、股权制衡对大股东侵占行为的抑制作用;第三、四部分利用我国上市公司的关联交易数据检验上述模型所推导的命题;第五部分进一步讨论了股权集中所引致的侵占效应、以及大股东的股权性质对检验结果的影响;最后部分是结论及研究局限。

二、一个简单的理论模型

假设公司存在一个控制性股东(持股比例为 α_1)、其他大股东(持股比例为 α_2)以及众多的小股东,而且控制性股东选择“掏空”公司资源的比例 s ($0 < s < 1$)以最大化自身收益,同时其他大股东选择与控制性股东合谋并就控制权收益的分配进行讨价还价。

若“掏空”行为得以实施,公司利益受损为 sRI ,其中,公司投资规模为 I ,收益率为 R ;相应地,其他大股东面临的损失为 α_2sRI 。因此,控制性股东必须支付一个“单边收益” T 给其他大股东,且 T 必须不少于其他大股东的保留效用 α_2sRI ,以确保“掏空”能够获得顺利通过。由此,可以假设单边收益 $T = \alpha_2sRI + \hbar sRI$,其中, \hbar 表示经过双方讨价还价后其他大股东所分享到的控制权收益部分。

此外, $c(s, \bullet)$ 为控制性股东实施“掏空”所面临的其它成本函数。为简化分析,与 La Porta *et al.* (2002)一致,令 $c(s, \bullet) = \frac{1}{2}ks^2$,其中, k ($k > 0$)是常数,代表一国法律制度等对大股东“掏空”行为的影响,且 $c_s > 0$, $c_{ss} > 0$ 。这意味着“掏空”行为一旦被发觉,控制性股东将面临着严厉的处罚成本,且随着“掏空”比例 s 的增大,控制性股东选择继续“掏空”的行为将变得更加困难,如更难以逃避监管等。

在这种假设下,控制性股东选择“掏空”水平 s 的最优化问题为:

$$\text{Max}U = \alpha_1(1-s)RI + sRI - \alpha_2sRI - \hbar sRI - \frac{1}{2}ks^2RI \quad (1)$$

式(1)右边的第一项表示控制性股东以其股权比例 α_1 获得“掏空”后的公司收益,第二项表示控制性股东实施“掏空”所取得的私人收益,第三、四项分别表示控制性股东提供给其他大股东的转移支付,最后一项表示控制性股东实施“掏空”行为所面临的惩处成本等。

由于掏空比例 s 与项目收益 RI 无关,因此,上述问题简化为:

$$\text{Max}U = \alpha_1(1-s) + s - \alpha_2s - \hbar s - \frac{1}{2}ks^2 \quad (2)$$

其最优条件为:

$$\partial U / \partial s = -\alpha_1 + 1 - \alpha_2 - \hbar - ks^* = 0 \quad (3)$$

令 $\alpha_n = \alpha_1 + \alpha_2$ ，并改写式 (3)，得到：

$$s^* = \frac{1 - \alpha_n - \hat{h}}{k} \quad (k > 0), \quad (4)$$

其中， $0 < \hat{h} < 1 - \alpha_n$ ，这意味着控制性股东支付给其他大股东的单边收益 $T (T = \alpha_2 s RI + \hat{h} s RI)$ 不能超过其实施“掏空”所带来的净收益 $(1 - \alpha_1) s RI$ ，否则其没有意愿实施“掏空”；若 $\hat{h} \geq 1 - \alpha_n$ ，意味着：由于其他大股东“要价”太高，双方无法通过讨价还价达成分享控制权收益的协议，这时“掏空”行为 s 等于 0。

实际上，在不考虑一国法律制度等因素的影响条件下（即 k 为常数），式 (4) 中控制性股东的最优“掏空”水平 s^* 取决于其所获得的净收益或控制权收益，且这种收益可以分为两部分，其中 $\frac{(1 - \alpha_n)}{k}$ 表示可供控制性股东与其他大股东分享的控制权收益，其含义相当于两者组成联盟后实施“掏空”后所获得的净收益，这也是众多小股东所遭受的损失； $\frac{\hat{h}}{k}$ 表示控制性股东为使“掏空”得以实施而支付给其他大股东的“收买成本”，或者说，其他大股东经讨价还价后所分享到的控制权收益部分。

因此，可以假设 $\frac{\hat{h}}{k} = p(\pi) \frac{(1 - \alpha_n)}{k}$ ，其中， $p(\pi)$ 表示其他大股东所分享到的控制权收益比例， $0 < p(\pi) < 1$ ；且 $p(\pi)$ 与其他大股东的讨价还价能力有关，而讨价还价的能力仅取决于其他大股东对控制性股东的制衡能力 π 的大小，³ 制衡能力 π 越高，控制权收益比例 $p(\pi)$ 越大，即 $p'(\pi) > 0$ 。

把上式代入式 (4)，整理可得：

$$s^* = \frac{1 - \alpha_n}{k} (1 - p(\pi)) \quad (\text{其中：} 0 < p(\pi) < 1, \quad k > 0) \quad (5)$$

式 (5) 对 α_n 求导，可得

$$\frac{ds^*}{d\alpha_n} = -\frac{1}{k} (1 - p(\pi)) < 0 \quad (6)$$

这意味着：当两者采取合谋或者组成联盟后，其他大股东持股比例 α_2 越大，其效果相当于提高控制性股东的持股比例 α_1 ，从而通过控制权收益的内部化，减少了控制性股东的最优“掏空”水平 s^* 。这与“协同效应”假说 (Alignment Effects) 是一致的 (Bennedsen and Wolfenzon, 2000)。因此，本文提出如下第一个命题：

命题 1： 公司的股权集中度越大，大股东对公司的侵占程度越小。

同理，通过式 (5) 对 π 求导，可得：

$$\frac{ds^*}{d\pi} = -\frac{(1 - \alpha_n)}{k} p'(\pi) < 0 \quad (\text{其中：} p'(\pi) > 0) \quad (7)$$

³ 本这里不考虑其它因素对控制权收益分配比例 $p(\pi)$ 的影响，即假设 $p(\pi)$ 仅与其他大股东对控制性股东的制衡能力 π 有关，且与控制权收益本身 $(1 - \alpha_n) / k$ 无关，即 $\partial p(\pi) / \partial \alpha_n = 0$ ；或者说， π 仅取决于双方谈判能力的相对大小，而与双方能力的加总数或者持股的加总数没有关系。实际上，其它因素可能对此有影响，且后两者也可能有关。为了简化分析，这里暂不讨论。

也就是说, π 越大, 控制性股东的最优“掏空”比例 s^* 越小。这意味着: 其他大股东对控制性股东的制衡能力越强, 其“要价”越大, 双方就越难以达成分享控制权收益的协议, 由此降低了控制性股东的最优“掏空”水平 s^* 。这与讨价还价引起的效率损失 (Gomes and Novaes, 2005) 是一致的。因此, 本文提出如下第二个命题:

命题 2: 其他大股东对控制性股东的制衡能力越强, 大股东对公司的侵占程度越小。

实际上, 上述模型可以视为 La Porta *et al.* (2002) 模型的扩展, 但与之不同的是, 本文不仅将其扩展到两个大股东的情形, 而且考虑了几个大股东就控制权收益分配的讨价还价问题, 并以此来构建模型, 这可能会更加符合中国的实际情形。接下来, 本文将我国上市公司的关联交易数据对上述命题进行实证检验。

三、研究设计

3.1 数据来源与样本处理

以 2000 至 2004 年共五年的 A 股上市公司作为初始研究样本, 共得到样本观测值 5745 个, 并剔除了如下的样本观测值: 同时发行 B 或 H 股等、金融类、部分数据缺失的样本以及某项关联交易金额超过当年末公司总资产以控制极端值对分析结果的影响, 最终得到样本观测值为 5109 个。⁴ 其中, 关联交易的数据来源于 CSMAR 的关联交易数据库, 剔除关联方与关联方之间以及未披露金额的交易数据, 外币结算均按照当年末汇率水平换算成人民币计算, 共得到 50779 笔交易数据, 并在此基础上对关联交易进行了分类统计; 股权结构数据来源于 CSMAR 数据库, 同时, 根据新浪财经网站 (finance.sina.com) 披露的公司信息, 逐家合并计算关联股东的持股比例, 据此共调整 819 年公司年观测值的股权数据 (占全体样本的 16.03%); 其他公司治理数据及财务数据则通过 Wind 数据库整理得到。

3.2 变量界定

(1) 关联交易变量: 以《企业会计准则——关联方关系及其交易的披露》中对关联交易类别的定义为基础, 将全部关联交易划分为 12 大类, 并从中选择了金额较大的 7 类关联交易作为研究对象, 分别是关联销售 (RP_Sale)、关联采购 ($RP_Purchase$)、资产交易 ($RP_Asset-tran$)、抵押担保 ($RP_Mortgage$)、资金占用 (RP_Occupy)、股权交易 ($RP_Equity-tran$)、以及提供或接受劳务 ($RP_Service$), 并分别选择上市公司总资产、净资产、销售收入作为规模因子, 来调整关联交易的规模。

(2) 股权结构变量: 首先, 基于本文研究目的, 本文选取了赫芬达尔指数 (Herfindahl) 描述公司的股权集中度,⁵ 定义为前三大股东持股比例的平方和。其次, 选取以下三个变量刻画其他大股东对控制性股东的制衡作用: a) 哑变量 MLS ,

⁴ 如果剔除某项关联交易金额超过公司净资产以及净资产为负的样本, 最终样本为 4739 个。

⁵ 与前文模型假设一致, 这里选取 Herfindahl 指数度量股权集中度以反映几个大股东组成的控股联盟或利益集团在公司中的利益大小。

反映公司是否存在其他大股东，如果第二大股东持股比例达到10%以上，⁶为1，否则为0；b)变量 *CONTESTABILITY*，反映其他大股东对控制性股东的股权制衡能力，定义为其他大股东累计持股数与控制性股东持股数的比值；c)变量 *BAL-SHAPLEY*，衡量其他大股东对控制性股东的相对制衡能力大小，界定为其他大股东对公司的控制力 ϕ_2 与控制性股东对公司的控制力 ϕ_1 两者之间的比值，其中，控制力 ϕ 采用Milnor and Shapley (1978)基于海洋博弈所推导出的Shapley权力指数度量。需要说明的是，Shapley权力指数考虑了大股东之间的交互作用，即大股东对上市公司的控制力不仅取决于其持股比例大小，而且还受到其他大股东持股比例的影响，因此采用Shapley权力指数计算的股权制衡度相对更优。

3.3 样本的描述性统计

表1报告了各类关联交易规模在各年度的分布状况。从中可见，我国上市公司关联交易在2000至2004年具有如下特征：1)关联销售与关联采购是我国上市公司的主要关联交易方式，两者发生金额合计数接近其总资产的8%（占所有关联交易金额的一半左右），且在各年中波动不大，出现这种现象的主要原因是我国上市公司特有的历史背景以及购销商品是企业集团日常经营的主要活动；2)抵押担保、资金占用是仅次于产品购销活动的关联交易方式，考虑到部分公司利用互保的方式逃避监管，即A公司替B公司的关联方担保，而反过来B公司替A公司的关联方担保，实际上，上述抵押担保的金额可能被低估；3)资产以及股权转让这两种非经常性交易所占的金额较小且每年波动较大，接受和提供劳务也是重要的关联交易方式，这与我国国有企业当初“剥离上市”时把核心资产剥离上市，而把较多的非核心部门等包袱留给母公司的做法有关。

表1：关联交易的描述性统计

关联交易规模	2000	2001	2002	2003	2004	2000-2004
<i>RP_Sale</i>	0.043	0.041	0.041	0.032	0.036	0.038
<i>RP_Purchase</i>	0.035	0.042	0.035	0.036	0.040	0.038
<i>RP_Asset-tran</i>	0.004	0.011	0.009	0.007	0.007	0.007
<i>RP_Mortgage</i>	0.020	0.040	0.043	0.048	0.078	0.047
<i>RP_Occupy</i>	0.006	0.010	0.008	0.012	0.015	0.011
<i>RP_Service</i>	0.004	0.006	0.008	0.006	0.011	0.007
<i>RP_Equity-tran</i>	0.004	0.003	0.002	0.002	0.006	0.004
<i>RP_Total</i>	0.117	0.153	0.144	0.143	0.194	0.152

注：上述金额以当年末总资产进行了标准化，且剔除了极端值（该项关联交易金额超过总资产的样本），以下同；抵押担保不包含上市公司之间互相提供抵押担保的情形，考虑到部分公司利用互保的方式逃避监管，实际上，上述抵押担保的金额可能被低估。

⁶ 根据公司法第104条，拥有10%股份的股东有权召开临时股东大会，故本文采取第二大股东持股比例是否达到10%作为判断其他大股东存在的依据；此判断标准与陈晓、王琨(2005)的研究一致；另外，文中也考虑了以5%作为判断依据，见敏感性测试部分。

表2对2000至2004年度上市公司的大股东持股情况逐年进行了统计。统计结果表明,尽管第一大股东的持股比例在这五年间有所下降,但无论是均值、还是中值都保持在40%以上,表明“一股独大”的现象对于我国上市公司而言始终相当严重。第二大股东的持股比例略有上升,但与第一大股东相比相差甚远;然而,从持股比例的分布状况来看,相当数量上市公司的第二大股东的持股已经达到10%-30%,第二大股东持股超过10%的上市公司约占样本总数的32.14%。另外,第三大股东持股比例均值、中值分别为0.032与0.017,然而超过10%的样本非常少,仅占样本总数的7.18%,因此,表2仅列出了第一、二大股东的持股比例分布。这些统计数字表明:一方面,我国特殊的上市制度致使第一大股东的持股比例居高不下,为其利用关联交易掏空上市公司资产和侵占小股东的利益创造了条件;另一方面,这些统计数字也反映出有相当一部分公司存在着两个以上的大股东,从而为本文研究大股东之间的制衡作用创造了条件。

表2:我国上市公司大股东持股比例分布

股东	年份	股东持股比例(%)分布				持股比例		
		0-10	10-30	30-50	50以上	样本 总数	均值	中值
第一大股东	2000	3	205	275	410	893	0.467	0.47
	2001	3	239	284	434	960	0.461	0.466
	2002	3	268	302	453	1026	0.456	0.46
	2003	4	312	320	454	1090	0.447	0.444
	2004	3	354	336	447	1140	0.438	0.427
	合计	16	1378	1517	2198	5109	0.453	0.451
第二大股东	2000	636	249	8	0	893	0.073	0.042
	2001	676	277	7	0	960	0.075	0.045
	2002	711	306	9	0	1026	0.078	0.047
	2003	723	358	9	0	1090	0.083	0.051
	2004	721	408	11	0	1140	0.088	0.057
	合计	3467	1598	44	0	5109	0.08	0.048

需要说明的是,由于我国上市公司大股东之间往往存在错综复杂的关系,甚至可能归属于同一个最终控制人,即最终控制人可能通过多条控制链条来实现对上市公司的控制以逃避相关制度的监管。例如,松辽股份(证券代码600715)在2004年2月12日发布公告,称:上海中润汽车制动器有限公司(以下简称上海中润)于2003年10月30日在上海拍卖行竞拍购得的公司3800万股国有法人股股权办理了划转过户手续,此次过户手续完成后,沈阳松辽企业(集团)有限公司(以下简称沈阳松辽)仍持有公司8104万股股权,占公司股本总数的36.14%,为公司第一大股东;上海中润持有公司3800万股股权,占公司股本总数的16.94%,为公司第二大股东。表面上看,该公司存在二个大股东,从而形成了“股权制衡”的治理结构。实际上,该公司两个大股东均属于同一实际控制人,如沈阳松辽和上海中润的实际控制人同为周天

宝(见该公司2004年6月23日的公告内容)。类似的例子并不少见。因此,在具体分析过程中,本文合并计算关联股东的持股比例,以避免对股权集中度的低估和股权制衡度的高估,由此导致本文对大股东持股情况的统计数略高于其他同类文献。

四、实证结果

4.1 股权集中、股权制衡对关联交易规模的影响

首先,根据Herfindahl值从低到高的顺序,将全体样本划分为五等组,以分别比较股权集中度对关联交易的影响,同时分别选用了年末总资产、净资产作为关联交易规模的标准化因子以控制上市公司自身规模的影响,并采取单因素方差分析(ANOVA)检验了各类关联交易规模在不同的股权集中度之间是否存在显著差异,检验结果见表3。

从表3可见,整体上,股权集中度越大,关联交易总规模也随之变大,两者之间呈现较为稳定的正相关性;分类看,对于销售商品、购买商品、提供或接受劳务这三类关联交易而言,其关联交易的规模呈现出随股权集中度上升而增加的趋势,并且均在1%的水平上显著;此外,以净资产调整后的检验结果与之相同(结果未报告以节省篇幅)。这与陈晓、王琨(2005)的研究结论相类似,陈晓、王琨对1998至2002年间我国上市公司关联交易与股权结构之间的关系进行研究,结果发现,关联交易的发生金额与第一大股东持股比例正相关;而本文的研究表明关联交易的规模与股权集中度之间呈现出显著的正相关关系。

该检验结果不仅没有支持命题1、甚至结论相反,其原因可能在于:上述研究实际上假定大股东通过关联交易以实现其侵占小股东利益的目的,然而,关联交易就是大股东的侵占行为吗?目前的理论观点是相互矛盾的,即企业集团可能通过内部市场的关联交易减少交易成本、交易风险、以及实现资源共享等(Khanna and Palepu, 1997, 2000);也可能通过关联交易侵占小股东的利益(Johnson *et al.*, 2000)。这样,考察股权集中度与大股东侵占之间的关系还需要结合关联交易所引致的后果做进一步的分析,具体见后文分析。

表3： 股权集中度对关联交易规模的影响

Herfindahl 分组	1	2	3	4	5	ANOVA
<i>RP_Sale</i>	0.012	0.029	0.033	0.051	0.066	0.000 ***
<i>RP_Purchase</i>	0.011	0.025	0.031	0.046	0.074	0.000 ***
<i>RP_Asset-tran</i>	0.006	0.007	0.007	0.007	0.010	0.161
<i>RP_Mortgage</i>	0.047	0.045	0.047	0.050	0.048	0.900
<i>RP_Occupy</i>	0.013	0.012	0.011	0.008	0.010	0.266
<i>RP_Service</i>	0.002	0.003	0.006	0.010	0.015	0.000 ***
<i>RP_Equity-tran</i>	0.005	0.003	0.004	0.004	0.003	0.448
<i>RP_Total</i>	0.095	0.125	0.139	0.175	0.226	0.000 ***
样本量	1021	1022	1022	1022	1022	

其次，表4报告了股权制衡对关联交易规模的影响。表中显示，单一大股东控制与多个大股东共同控制（存在其他大股东）的公司，其关联交易的情况存在较大的差别。总体上，当公司仅由单一大股东控制时，其关联交易的总规模均值为0.16；而存在多个大股东的公司里，其关联交易总规模均值仅为0.135，两者相差0.025，并在0.01的水平上具有显著性。分类检验的结果表明：相比于多个大股东共同控制的公司，单一大股东控制下的上市公司关联销售、关联采购、提供或接受劳务的交易规模较大，且这种差距具有较强的显著性；然而，关联股权交易的结论却是相反的，这可能是由于多股同大的公司更加容易发生控制权的争夺，由此导致在多股同大的公司里股权交易更加频繁；另外，资产交易、担保抵押、资金占用的结果不明显。此外，以净资产调整的检验结果也与上述结果基本相同，因此，结果未报告以节省篇幅。

上述检验结果不仅初步验证了命题2，而且支持了陈晓、王琨（2005）等人的研究结果，即股权制衡度越大、关联交易的规模越小。然而，本文与陈一文有较大的区别，他们的结论其实是其他大股东的存在能够降低上市公司与第一大股东集团之间的关联交易，这样，他们并没有回答其他大股东的存在是否能够有效地抑制上市公司的关联交易问题，例如，其他大股东的存在可能仅仅是降低了上市公司与其第一大股东之间的交易规模，但同时却增加了与第二、三大股东之间的交易规模；而本文对此进行了初步的回答。

表4： 股权制衡对关联交易规模的影响（均值比较）

交易类型	<i>MLS</i> = 0	<i>MLS</i> = 1	(<i>p</i> 值)
样本量	3467	1642	
<i>RP_Sale</i>	0.041	0.033	(0.012)**
<i>RP_Purchase</i>	0.043	0.026	(0.000)***
<i>RP_Asset-tran</i>	0.007	0.009	(0.218)
<i>RP_Mortgage</i>	0.047	0.049	(0.505)
<i>RP_Occupy</i>	0.011	0.01	(0.568)
<i>RP_Service</i>	0.009	0.004	(0.000)***
<i>RP_Equity-tran</i>	0.003	0.005	(0.008)***
<i>RP_Total</i>	0.160	0.135	(0.000)***

4.2 股权集中、股权制衡对关联交易及其经济后果的影响研究

上文研究结果表明其他大股东的存在能够抑制关联交易的规模，而且股权制衡度越大，关联交易规模越小。然而，关联交易是否就是大股东的侵占行为？这一问题值得讨论。现有文献对关联交易的效率性存在两种截然相反的结论，即关联交易可能是一种减少交易成本的内部市场制度安排（效率观），也可能是大股东用来侵占小股东利益的一种隧道行为（侵占观）。然而，在国内的现有文献中，几乎所有关于关联交易的研究均倾向于从大股东侵占的视角出发，认为关联交易是控制性股东侵占小股东利益或掏空上市公司资源的一种手段，而忽略了关联交易积极性的一面。为此，本文进一步对上述两种观点进行验证。同时，相对于抵押担保、资金侵占等

交易方式，产品与劳务的关联交易是一种更为隐蔽和主要的方式，因此，下文以经常性关联交易为例，通过结合公司毛利率或行业调整后的相对毛利率来考察产品和劳务的关联交易与大股东侵占的关系。⁷

假如上市公司与关联方之间的购销活动是大股东侵占的具体形式，关联方将会通过产品或劳务定价的“高卖低买”方式侵蚀上市公司的利润，即关联方向上市公司采购商品或接受劳务时，将会降低其交易价格，而向上市公司销售商品或提供劳务时则相反。这种转移定价方式所导致的直接后果就是上市公司的毛利率下降，而且关联购销的规模越大，上市公司的毛利率越小。因此，把上市公司毛利率与关联购销活动联系起来，将有助于验证产品和劳务的关联交易是否是一种侵占的观点，也便于进一步验证股权集中与股权制衡是否有助于弱化大股东的侵占行为。

根据上文所述，可建立如下线性回归模型来进行检验：⁸

$$MARGIN (ADJ_MARGIN_{i,t}) = \alpha + \sum_{i=1}^3 \beta_i * RPT_i + \sum_{j=1}^2 \beta_j * SS_j + \sum_{k=1}^6 c_k * CONTROL_k + \varepsilon \quad (8)$$

其中，各变量的界定如下：(1) 因变量：公司毛利率 (*MARGIN*) 定义为主营业务收入与主营业务成本之间的差额与主营业务收入的比重，*ADJ_MARGIN_{t12}* 分别代表行业毛利率均值、中值调整后的公司相对毛利率，定义为公司毛利率与行业毛利率均值或中值的差值，以避免行业因素对公司毛利率的影响，行业选择按照 2001 年证监会颁布的行业分类标准划分，制造业按照行业编码前两位、其他行业按照行业编码前一位划分，这样排除金融业后，样本划分为 21 个子行业。(2) 测试变量：关联交易变量 *RPT* 选择了关联销售 *RP_Sale*、关联采购 *RP_Purchase*、提供或接受劳务 *RP_Service* 三个变量，而股权结构变量 *SS* 则包括了股权集中度变量 *Herfindahl* 以及三个股权制衡度变量 *MLS*、*CONTESTABILITY*、*BAL-SHAPLEY*，这些变量的界定与前文一致。(3) 控制变量包括：公司规模 (*SIZE*)，总资产账面值的自然对数值以反映公司规模的影响，一般而言，公司规模越大，其规模经济越大，且其治理机制相对更加完善，因此预期符号为正；负债率 (*LEV*) 反映债权治理的效率或公司的财务特征，虽然负债有助于减少代理问题，但是较高的负债率也与公司破产风险相关，因此预期符号为负；此外，年度虚拟变量 (*YEAR*)，以 2000 年为基准，共 4 个哑变量，以控制年度因素的影响。

表 5 报告了变量的 Pearson 相关系数。结果显示：首先，三种关联交易类型的变量 *RP_Sale*、*RP_Purchase*、*RP_Service* 均与毛利率、相对毛利率显著负相关，初步支持了侵占效应的观点，即大股东利用关联交易的方式实施其侵占行为。其次，股

⁷ 之所以仅选择产品和劳务类型的关联交易，其原因还在于：其他类型关联交易的经济后果难以被准确地测量，例如抵押担保、资金占用、股权与资产交易等关联交易并不直接影响公司当期的财务业绩或者被视为非经常性损益进行计量，而后者难以准确地分离出这些交易的影响。

⁸ 若用股权结构与关联交易的交叉项来构建检验模型，更能证明文中的观点，然而，若采取交叉项来构建检验模型，将导致回归方程存在较为严重的共线性问题，因此，相对而言，单独加入股权结构与关联交易变量的做法更有利于减少模型共线性问题的困扰。

权集中度Herfindahl与因变量(毛利率或相对毛利率)不显着正相关, 股权制衡度变量MLS、CONTESTABILITY、BAL-SHAPLEY与因变量显着正相关, 基本符合本文的预测结果, 即股权集中度、制衡度越大, 上市公司毛利率(相对毛利率)越高。再次, 股权集中度变量与股权制衡度变量之间存在较大的相关性, 如Herfindahl与MLS、CONTESTABILITY、BAL-SHAPLEY的相关系数分别为-0.42、-0.41、-0.56, 然而, 这是否会引起多重共线性的问题, 还需要进一步结合回归模型的膨胀因子VIF进行诊断。此外, 除了股权集中度变量与股权制衡度变量之间存在较大的相关性之外, 其他变量之间不存在严重的共线性问题, 虽然反映股权制衡度的三个变量MLS、CONTESTABILITY与BAL-SHAPLEY存在较强的相关性, 但由于这三个变量是依次代入检验方程的, 因此, 不会产生共线性问题。

表5: 变量的Pearson相关系数

	MARGIN	ADJ_MARI	ADJ_MAR2	RP_Sale	RP_Purchase	RP_Service	Herf.	MLS	CONTEST
ADJ_MARI	0.90 ^a								
ADJ_MAR2	0.90 ^a	0.99 ^a							
RP_Sale	-0.12 ^a	-0.10 ^a	-0.09 ^a						
RP_Purchase	-0.15 ^a	-0.11 ^a	-0.10 ^a	0.38 ^a					
RP_Service	-0.06 ^a	-0.04 ^a	-0.04 ^a	0.14 ^a	0.08 ^a				
Herfindahl	0.02	0.00	0.01	0.20 ^a	0.20 ^a	0.12 ^a			
MLS	0.04 ^a	0.03 ^b	0.03 ^b	-0.04 ^b	-0.07 ^a	-0.05 ^a	-0.42 ^a		
CONTESTABILITY	0.06 ^a	0.04 ^a	0.04 ^a	-0.05 ^a	-0.10 ^a	-0.05 ^a	-0.41 ^a	0.82 ^a	
BAL-SHAPLEY	0.05 ^a	0.05 ^a	0.05 ^a	-0.10 ^a	-0.13 ^a	-0.07 ^a	-0.56 ^a	0.66 ^a	0.83 ^a

注: 上标^a、^b分别表示在0.01、0.05的水平上显着, 其他控制变量的Pearson系数未报告。

结果如表6所示。表中A栏报告了以公司毛利率为因变量的回归结果: 首先, 关联交易变量RP_Sale、RP_Purchase、RP_Service的回归系数均显着小于0, 这与预期一致, 从而支持了关联交易的侵占观点。其次, 股权集中度变量Herfindahl以及三个股权制衡度变量MLS、CONTESTABILITY、BAL-SHAPLEY的回归系数均显着大于0, 也就是说, 在其他条件相同的情况下, 股权集中、股权制衡能够显着提高公司的毛利率, 从而验证了本文命题1、2, 即股权集中和股权制衡有助于抑制大股东侵占, 由此, 股权越集中、其他大股东的制衡能力越强, 上市公司的毛利率越大。最后, 控制变量中, 变量SIZE、LEV与预期一致, 表明规模越大的公司越能够发挥其规模经济, 从而提高了其毛利率, 而负债率越大的公司绩效越差。

表6中B栏报告了以行业均值调整后的相对毛利率为因变量的回归结果。结果显示: 除了股权集中度变量Herfindahl与相对毛利率之间的正相关关系有所弱化之外, 其他变量的检验结果与前文基本一致, 因此这里不再赘述。另外, 由于以行业毛利率均值、中值调整后的相对毛利率的检验结果基本一致, 本文仅报告了以行业均值调整后的回归结果。此外, 少量样本公司由于毛利率数据缺失而被剔除, 由此导致样本量减少为5101个观测值。

本文这一研究发现虽与以往研究有所相同, 但却存在本质上的不同。首先, 本文通过分析经常性关联交易所导致的后果直接检验股权集中、股权制衡的治理作用, 而以往研究多数采取间接的方式(如公司绩效); 其次, 本文采取合并关联股东

的持股比例以减少对股权集中度、股权制衡度的估算误差，而绝大多数以往研究均忽略了对大股东之间关联关系的深入分析；再次，本文更多地是从经常性关联交易的视角来考虑大股东的侵占行为，而以往研究主要从购并和资金侵占两个角度展开分析，相对而言，经常性关联交易的发生频率更频繁、且交易规模更大。因此，本文的研究不仅为现有大股东侵占行为后果研究提供了一个更加直接的经验证据，而且对股权集中、股权制衡的治理效果研究也提供了有益的补充。

表 6： 关联购销与公司毛利率、相对毛利率的关系研究

因变量	A: 毛利率			B: 相对毛利率		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>RP_Sale</i>	-0.17***	-0.169***	-0.165***	-0.136***	-0.136***	-0.135***
(-)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<i>RP_Purchase</i>	-0.238***	-0.235***	-0.236***	-0.149***	-0.147***	-0.147***
(-)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<i>RP_Service</i>	-0.189***	-0.189***	-0.19***	-0.123**	-0.123**	-0.124**
(-)	(0.002)	(0.002)	(0.002)	(0.026)	(0.027)	(0.026)
Herfindahl	0.064***	0.068***	0.094***	0.025	0.028	0.056***
(+)	(0.001)	(0.001)	(0.000)	(0.172)	(0.124)	(0.005)
<i>MLS</i>	0.03***			0.016**		
(+)	(0.000)			(0.004)		
<i>CONTESTABILITY</i>		0.038***			0.021***	
(+)		(0.000)			(0.001)	
<i>BAL-SHAPLEY</i>			0.073***			0.054***
(+)			(0.000)			(0.000)
<i>SIZE</i>	0.015***	0.015***	0.014***	0.01***	0.01***	0.01***
(+)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
<i>LEV</i>	-0.103***	-0.102***	-0.104***	-0.082***	-0.082***	-0.083***
(-)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
\sum YEAR	Included	Included	Included	Included	Included	Included
Intercept	-0.012	-0.012	-0.008	-0.172***	-0.173***	-0.183***
Adj_R ²	0.076	0.078	0.079	0.048	0.049	0.051
VIF	< 2	< 2	< 2	< 2	< 2	< 2
N of Obs.	5101	5101	5101	5101	5101	5101

注：括号内为 p 值，*、**、*** 分别表示在 10%、5%、1% 的水平上显著；为节省篇幅，这里不列出年份哑变量的具体检验结果；以下同。

五、对股权集中、股权制衡治理作用的进一步探讨

5.1 对股权集中机制的进一步讨论

前文研究结果表明股权集中中具有积极的治理作用。然而，当我们把对股权集中度的考察约束在第一大股东的持股比例时，即将Herfindal指数替换成 $TOP1$ 、 $TOP1^2$ （ $TOP1$ 、 $TOP1^2$ 分别代表第一大股东的持股比例及其持股比例的平方值），并加入前文的检验方程，结果发现： $TOP1^2$ 的系数显著为正，而 $TOP1$ 的系数显著为负。⁹这表明：在相同的关联交易规模中，第一大股东的持股比例对公司毛利率的影响是U型关系；随着第一大股东的持股比例增加，第一大股东侵占能力上升，公司毛利率下降，表现为侵占效应(Entrenchment Effect)；而当第一大股东的持股比例超过某一点后，随着其持股能力的增加，其与公司利益更加一致，公司毛利率上升，表现为激励效应或利益协同效应(Alignment Effects)；这与前人研究结果是一致的(白重恩等，2005)。然而，在上述检验方程中同时纳入变量 $TOP1$ 、 $TOP1^2$ ，会使得上述检验方程变量VIF超过30，这意味着同时纳入上述两个变量的方式将会引入较为严重的共线性问题，从而导致检验结果出现偏差。另外，就本文的研究意图而言，我们认为考察股权集中度的影响，采取Herfindal指数作为衡量指标更佳，因为该指标不局限于对第一大股东的考察。

如上所述，虽然前文关于股权集中治理作用的检验结果符合利益协同效应或激励效应假说，但是股权集中也可能引致侵占效应，而上文对此未加以区分，结果可能有偏差。同时，根据前面所述，股权集中所引致的这两种效应在不同的大股东持股水平下是有所差别的。因此，下文利用第一大股东的持股比例是否超过30%作为识别是否存在控制性股东的标准，并以此区分样本，重新进行检验。之所以选择30%作为界定标准，其主要原因在于：第一，《上市公司章程指引》第41条中关于控制性股东的规定指出，“控股股东是指具备下列条件之一：此人单独或者与他人一致行动时，持有公司30%以上的股份……”，由此可见，按照此规定，判断公司是否存在大股东控制的标准之一就是其持股比例是否超过30%；第二，取决于我国上市公司股权结构高度集中的特征，就本文的研究样本而言，第一大股东持股比例均值、中值均超过40%，而第二大股东的持股比例均值、中值仅为8%与4.8%，与第一大股东相比相差甚远，从而对于持股30%以上的大股东而言，其具有足够的能力控制公司。除了样本选择与前文不同之外，研究变量的设计以及检验方程的构建等与前文一致。根据重新选择的样本，进一步检验的结果如表7所示。

表7 Panel A的回归结果显示：首先，关联交易变量 RP_Sale 、 $RP_Purchase$ 、 $RP_Service$ 的回归系数均显著小于0，这与前文研究结果一致，即大股东通过经常性关联交易实施侵占，由此导致关联交易规模越大，公司毛利率越低。其次，除了变量

⁹ 结果未报告以节省篇幅。

表7：关于股权集中治理作用的进一步探讨

因变量：	Panel A: TOP1 ≥ 30%的样本			Panel B: TOP1 < 30%的样本		
	(1)	(2)	(3)	(4)	(5)	(6)
毛利率						
<i>RP_Sale</i>	-0.178***	-0.181***	-0.177***	-0.174	-0.158	-0.145
(-)	(0.000)	(0.000)	(0.000)	(0.11)	(0.147)	(0.181)
<i>RP_Purchase</i>	-0.233***	-0.232***	-0.233***	-0.372***	-0.355**	-0.359**
(-)	(0.000)	(0.000)	(0.000)	(0.008)	(0.012)	(0.011)
<i>RP_Service</i>	-0.204***	-0.203***	-0.203***	-0.226	-0.252	-0.215
(-)	(0.000)	(0.000)	(0.000)	(0.53)	(0.485)	(0.552)
Herfindahl	0.071***	0.077***	0.067***	-0.365*	-0.219	-0.084
(+)	(0.000)	(0.000)	(0.001)	(0.093)	(0.294)	(0.662)
<i>MLS</i>	0.012**			0.074***		
(+)	(0.049)			(0.000)		
<i>CONTESTABILITY</i>		0.032***			0.048***	
(+)		(0.002)			(0.001)	
<i>BAL-SHAPLEY</i>			0.028			0.099***
(+)			(0.208)			(0.000)
<i>SIZE</i>	0.016***	0.016***	0.016***	0.031***	0.029***	0.027***
(+)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)	(0.004)
<i>LEV</i>	-0.232***	-0.231***	-0.233***	-0.057***	-0.057***	-0.059***
(-)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
\sum YEAR	Included	Included	Included	Included	Included	Included
Intercept	0.026	0.022	0.033	-0.364*	-0.306	-0.3
Adj_R ²	0.156	0.158	0.156	0.043	0.039	0.041
VIF	<2	<2	<2	<2.5	<2.5	<2.5
N of Obs.	3711	3711	3711	1390	1390	1390

*BAL-SHAPLEY*在模型3的回归系数显著性有所弱化之外，与前文一致，股权集中度变量Herfindahl以及股权制衡度变量*MLS*、*CONTESTABILITY*、*BAL-SHAPLEY*的回归系数均显著大于0，即在其他条件相同的情况下，即股权集中和股权制衡有助于抑制大股东侵占，由此，股权越集中、其他大股东的制衡能力越强，公司毛利率越大。最后，控制变量的回归结果以及方程特征值与前文基本相同，这里不再赘述。

为比较股权集中在不同持股区间的差异情况，表7的Panel B报告了不存在控制性股东的样本回归结果(即*TOP1* < 30%)。结果发现：首先，与存在控制性股东的情况相反，股权集中度变量Herfindahl与公司毛利率不存在显著的正相关关系。这表明，当在较低的持股水平时，虽然大股东持股比例的增加促使其与公司利益更加一致，但大股东侵占小股东利益的能力也随着其持股比例的提高而增大，由此更多地

体现为壁垒效应。或者说，在大股东持股比例较小时，侵占效应与激励效应同时存在，然而，侵占效应相对占优。因此，在这两种效应的共同作用下，股权集中与公司毛利率呈现出负相关关系，且在模型4中显著。其次，虽然关联交易变量回归系数的显著性有所下降，但整体上关联交易变量仍与公司毛利率呈现负相关关系。最后，股权制衡变量、控制变量等与前文基本一致。此外，以行业均值、中值调整后的相对毛利率作为因变量等检验结果与此基本一致，这里不再报告其结果以避免赘述。

5.2 对股权制衡机制的进一步讨论

上述检验结果支持了大股东之间的监督作用，然而几个大股东也可能形成合谋以分享控制权收益，而这受到包括大股东性质在内的诸多因素影响。因此，下文通过考察不同股东性质对股权制衡效果的影响，来验证大股东对监督或合谋的选择行为。

假设控制性股东与其他大股东就控制权收益的分配进行讨价还价，即双方需要为此额外支付一个协调成本（此协调成本的大小取决于双方达成合谋的难易程度）。当其他大股东与控制性股东分属于不同性质时，双方面临的约束机制不同，如国有股东（代理人）与非国有股东合谋时，代理人不仅需要考虑“掏空”行为所面临的监管成本，还要权衡其个人的“政治成本”（例如涉及国有资产流失的嫌疑），从而导致双方达成合谋的协调成本更高；相反地，如果双方均为国有股东或者非国有股东，则不存在这些“政治成本”的问题。也就是说，当其他大股东与控制性股东属于同一性质时，双方将更加容易达成分享控制权收益的协议，即形成合谋的协调成本更低。¹⁰这样，可以假设：当其他大股东与控制性股东分属于不同性质时，双方达成合谋的协调成本相对较高，由此导致其他大股东更倾向于选择监督控制性股东的行动；相反，当双方同属于同一性质时，双方达成合谋的协调成本相对较低，由此导致其他大股东更倾向于选择与控制性股东达成合谋。如果该假设成立，那么可以观察到：当其他大股东与控制性股东分属于不同性质时，其股权制衡作用将优于双方同属于同一性质的情形。

根据本文研究目的，样本数据要求包括第一、二大股东的性质（国有、非国有）。¹¹首先，针对部分上市公司未在其年报中列明其股东性质（如仅列明为法人股等）的情形，本文采取了以下措施进行调整：1）如果该股东属于发起人，我们追溯到公司招股说明书中对该发起人的说明资料；2）通过浏览该股东的公司网站以判断其是否为国有企业；3）经过上述措施仍然无法获知其股东性质的样本，给予剔除。这样，考虑股东性质之后的样本量减少到3242个公司年观测值。其次，根据以往的研究成果，在配股动机和扭亏动机下，控制性股东的侵占行为弱化，为此，本文进一步剔除了配股动机和扭亏动机的样本，具体标准见本文的敏感性测试部分所述。

¹⁰ 一些事件报道表明，地方政府出于解决就业、促进地方经济发展等政治业绩考量，对其所控制的上市公司经营进行了干涉，如通过“拉郎配”的方式要求上市公司合并一些处于破产边缘的企业。如果几个大股东均为国有性质的企业，那么，这类上市公司将更加容易受到政府的干涉，其“政治导向”的可能性将更大，或者说，几个大股东可能更加容易达成共谋。这与本文的猜测一致。

¹¹ 虽然在我国资本市场上，基金公司绝大多数为国有证券公司发起设立，但是考虑到基金管理、制度等方面与国有企业有本质上的不同，因此对于基金公司，本文把它们归类于非国有性质，也就是说，如果大股东为基金公司或证券公司，本文认定其性质为非国有。

此外，部分公司由于缺失毛利率数据而被剔除。最后，研究样本进一步减少到3035个公司观测值。

鉴于上面所述，本文在前文检验方程中引入了一个表征第一、二大股东的性质是否相同的哑变量*DUMMY*，如果第一、二大股东不同属，具体来说，第一、二大股东分属于国有股东与非国有股东或者相反，*DUMMY*为1；如果第一、二大股东同属于国有股东或者同属于非国有股东，*DUMMY*为0，然而分别以三个股权制衡变量*MLS*、*CONTESTABILITY*、*BAL-SHAPLEY*与*DUMMY*构建交叉变量，并分别代入上述回归方程，以验证三个交叉变量的回归系数是否显著大于0。若交叉变量的回归系数显著大于0，即验证了上述的假设。具体检验方程如下：

$$\begin{aligned} MARGIN (ADJ_MARGIN_{1,2}) = & \alpha + \sum_{i=1}^3 \beta_i RPT_i + \beta_j HERF + \beta_l MLS (CONTEST/BAL- \\ & SHAPLEY) + \beta_k MLS (CONTEST/BAL-SHAPLEY)* \\ & DUMMY + \sum_{i=1}^6 \beta_i CONTROL_i + \varepsilon \end{aligned} \quad (9)$$

上述检验方程的变量界定与前文一致。预期回归系数 β_k 显著为正，即在关联交易规模、股权集中度以及其它控制变量均相同的条件下，第一、二大股东分属于不同性质的情形下，股权制衡对公司毛利率(相对毛利率)的促进作用将会相对更高；而第一、二大股东同属于同一性质的情形下，股权制衡对公司毛利率(相对毛利率)的促进作用将会相对更低。

检验结果如表8所示。首先，除了在模型1、2中交叉变量与毛利率不显著正相关之外，反映股权制衡与股东性质的交叉变量*MLS*DUMMY*、*CONTESTABILITY*DUMMY*、*BAL-SHAPLEY*DUMMY*均与公司毛利率或相对毛利率显著正相关。这与预期一致，表明股权制衡的效果与股东性质有关，且如同所预期的一样，在相同条件下，第一、二大股东分属不同性质的样本里，股权制衡对公司毛利率(相对毛利率)的促进作用相对更高；相反，在相同条件下，第一、二大股东均属于同一性质的样本里，股权制衡对公司毛利率(相对毛利率)的积极作用相对较低。

其次，股权集中度变量*Herfindahl*、股权制衡度变量*MLS*、*CONTESTABILITY*、*BAL-SHAPLEY*与毛利率(相对毛利率)均显著正相关(除了模型4)；表明股权集中、股权制衡有利于提高公司毛利率(相对毛利率)，这与前文的分析一致。再次，*RP_Sale*、*RP_Purchase*与公司毛利率(相对毛利率)显著为负；然而，*RP_Service*与公司毛利率显著为负，与公司相对毛利率不显著为负。考虑到接受或提供劳务的关联交易规模较小，因此变量*RP_Service*的显著性降低对本文结论不造成较大影响。其他控制变量与模型特征值见表8。此外，采用行业中值调整的相对毛利率(*ADJ_MARGIN2*)为因变量的测试结果，也不影响上述结论。

某种程度上，本文这一研究发现有助于解释现有文献对股权制衡治理作用所存在的争议。例如，一些国内学者从公司业绩的视角探讨了股权制衡的治理效果，然而这方面所累积起来的证据却相互混淆、甚至相悖。例如，陈信元和汪辉(2004)、宋力和韩亮亮(2005)的研究表明股权制衡能够提高公司绩效，朱红军和汪辉(2004)、赵景文和于增彪(2005)、徐莉萍等(2006)却得出相反的结论。本文研究

5.3. 敏感性测试

本文进行了如下三个方面的敏感性测试。第一，Pearson检验反映股权集中度与股权制衡度变量之间存在较大的相关性，如Herfindahl与MLS、CONTESTABILITY、BAL-SHAPLEY的相关系数分别为-0.42、-0.41、-0.56，虽然上述方程所有变量的膨胀因子VIF均小于3，表明方程不存在严重的共线性问题，本文还是分别把股权集中度、股权制衡度变量代入方程，以避免两者之间的相关性对方程共线性的影响，结果发现这并不影响上述结论。第二，以销售净利率替代毛利率，以销售收入、净资产作为规模因子调整关联购销与劳务的交易规模，以第一大股东持股比例替代赫芬达尔指数描述股权集中度，以5%作为判别其他大股东存在的标准并重新测量股权制衡度变量，重新纳入上述检验方程进行检验，结果与上述结论基本相同；此外，以公司毛利率除以行业毛利率的商作为因变量或设置行业哑变量以控制行业影响，结果发现，除了变量Herfindahl的显著性水平有所弱化之外，其他变量的回归结果与之前基本一致。第三，在特定的动机下，控制性股东也可能利用关联交易对上市公司进行利益输送或“支持”（Friedman *et al.*, 2003），为此，本文通过选择具有配股与扭亏动机的样本公司，重新检验关联交易与公司毛利率（相对毛利率）之间的关系。具体而言，若2000年样本公司的平均ROE为10%-11%或2001年及其之后样本公司未扣除与扣除非经常性损益后的ROE低者为6%-7%且随后三年内公告配股方案，则被视为具有配股动机的样本（样本量为38个）；若公司前一年亏损而当年ROE在（0，1%）之间，视为具有扭亏动机的样本（样本量为65个）。结果发现，在扭亏与配股动机的样本里，三个经常性关联交易变量与公司毛利率（相对毛利率）的负相关关系并不显著。这说明：虽然控制性股东通过关联购销活动实施了掏空的行为，但是在配股或扭亏动机下，这种掏空行为将会弱化。上述稳定性检验结果未报告以避免赘述。

六、研究结论与局限

本文通过一个简单的理论模型，描述了股权集中以及股权制衡机制对抑制大股东侵占的作用，并在此基础上，利用2000至2004年我国上市公司样本数据进行实证检验，结果发现：其他大股东的存在能够显著减少关联交易的规模，而且股权制衡度越大，关联交易规模越小，由此初步验证了“股权制衡有助于抑制大股东侵占行为”的命题；然而，与预期相反的是，股权集中不仅没有减少关联交易规模，反而与关联交易规模增加相联系，导致该结果的原因可能在于以关联交易规模度量大股东侵占的方法存在不足。鉴于此，本文以经常性关联交易为例，通过结合公司毛利率或相对毛利率来考察产品和劳务的关联购销与大股东侵占行为之间的关系，以便进一步验证股权集中、股权制衡是否有助于弱化大股东的侵占行为；结果发现：产品和劳务的关联购销与公司毛利率（相对毛利率）呈现出稳定的负相关关系，即支持了关联交易的侵占观点；而股权集中度以及股权制衡度对公司毛利率均有显著地提升作用。因此，该检验结果表明：股权集中以及股权制衡有助于弱化大股东侵占的程度，从而进一步验证了原先命题。此外，进一步的研究还发现：股权集中在大股东持股水平较低的情况下可能会引起侵占效应，且股东性质影响了股权制衡的效果，暗示着股东性质可能是影响大股东选择监督或合谋的重要因素之一。

综上所述,本文的研究结论为解决我国上市公司非公允性关联交易盛行的问题提供了一种思路,即在中国目前的制度背景下,改“一股独大”为“多股同大”以形成股权相互制衡的治理机制,有助于从根本上解决上述问题。此外,文中的研究结果表明,股权集中有助于弱化大股东的侵占程度,也就是说,股权集中可能不是问题所在,股权缺乏制约才是关键。同时,在提倡构建多股同大的公司治理模式时,也需要对大股东之间达成合谋的情形进行重点监控并加以惩处,以促使其形成真正的权力制衡机制。

本文的研究局限在于:第一,本文假设大股东可能利用“高卖低买”的转移定价方式来实施其侵占行为,由此利用公司毛利率指标来考察关联购销与大股东侵占的关系,然而,关联购销也可能是一种源于专用性资产以降低市场交易风险的内部机制安排,此时,毛利率不一定是一个合适的度量指标。因此,如何更加精确地区分我国上市公司关联交易的具体交易动机并以此选择相应的测试指标将是我们今后努力的方向之一。第二,本文仅提供了大股东存在合谋的间接证据,即利用股权制衡效果在不同股东性质的组别中存在显著差异的结果反推或验证大股东对监督或合谋的选择过程,这是本文的研究局限,也是我们今后进一步努力的方向,如进一步探究大股东选择监督与合谋的权衡因素,以及寻找能够较好地刻画大股东监督与合谋的代理变量以提供更直接的证据等。

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Ownership Concentration, the Balance of Power within the Shareholder Structure, and the Entrenchment of Large Shareholders¹

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Abstract

This paper seeks to demonstrate the inhibiting effects of ownership concentration and a balance of power within the shareholder structure on the entrenchment of large shareholders by establishing a simple theoretical model. Empirical evidence of related-party transactions (RPTs) among Chinese listed companies between 2000 and 2004 shows that both ownership concentration and a balance of power among shareholders have a positive impact on corporate governance. The results also indicate that ownership concentration might lead to the entrenchment of large shareholders at low levels of ownership. Moreover, the nature of large shareholders affects the outcome of a balance of power among shareholders, implying that it might be a key factor influencing a large shareholder's choice to either supervise or collude.

Keywords: Entrenchment of Large Shareholders, Ownership Concentration, Balance of Power within the Shareholder Structure, Related-Party Transactions

CLC codes: F276.6, F275.5, F279.21

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I. Introduction

Over the past two decades, a growing number of studies worldwide have found that the ownership structure in most companies is concentrated rather than dispersed. As a result, severe conflicts of interest exist between large and minority shareholders in that the former can use their control rights to enjoy private benefits, whereas they need only bear the resulting loss in their holding proportion. A great deal of research has found that large shareholders in listed companies might realise the expropriation of minority shareholders through a variety of approaches, such as excessive executive compensation (these positions usually being held by the large shareholders themselves or their relatives), loan guarantees, related-party transactions (RPTs), and expropriation of corporate opportunities (e.g. Shleifer and Vishny, 1997; La Porta *et al.*, 1999; Claessens *et al.*, 2002; Bena and Hanousek, 2006). Johnson *et al.* (2000) vividly describe such entrenchment behaviour as the “tunnel effect” or “tunnelling”. Tunnelling is particularly severe in emerging economies such as East Asian countries owing to less legal protection for minority shareholders in these markets (Bertrand *et al.*, 2002; Bae *et al.*, 2002; Chang, 2003; Joh, 2003).

As an emerging economy, China is no exception in suffering from large shareholder tunnelling. Indeed, owing to historical reasons, inherent flaws in the Chinese regulatory and supervisory system, and problematic corporate governance among Chinese listed companies, the expropriation of minority shareholders is prevalent (Jian and Wong, 2003; Chen and Wang, 2005). Accordingly, government departments for market regulation and supervision have kept a close watch on RPTs in listed companies and have formulated a series of policies and regulations that concern them. But as Jian and Wong (2003) point out, although both the public and governments around the world have given RPTs much attention, academic breakthroughs in this area of research have been rare.

Likewise, most Chinese studies on the entrenchment of large shareholders focus either on the relationship between ownership structure and firm performance (Chen and Wang, 2004; Xu *et al.*, 2006; Liu and Liu, 2007), or on the appropriation of listed companies' funds as well as mergers and acquisitions (Li *et al.*, 2004; He and Liu, 2005). Among the few studies that focus on evidence for RPTs (e.g. Chen and Wang, 2005; Tang *et al.*, 2005), most regard them as an embodiment of the entrenchment of large shareholders, rather than concentrating on specific entrenchment behaviours. But such a stance might lead to neglect of the positive side of RPTs; for example, some studies focusing on Asian corporate groups find that under certain circumstances, RPTs and the efficient operation of a corporate internal capital market help to lower transaction costs, thereby improving the corporate value of member firms (Khanna and Palepu, 1997, 2000). All things considered, we argue that the existing literature neither offers comprehensive and direct empirical evidence for the entrenchment of large shareholders, nor distinguishes opportunistic RPTs from “beneficial” ones; thus it is unable to provide the necessary guidance and support to corporate governance reform among Chinese listed companies.

As a result, this paper uses RPTs among Chinese listed companies as a basis to explore the relationship among ownership concentration, the balance of power within the shareholder structure, and the entrenchment of large shareholders, and discusses better institutional arrangements for the corporate governance of Chinese listed companies. Its main contributions are threefold. First, existing literature on multiple large shareholders in corporate governance tends to stress in theory the monitoring mechanism among large shareholders, but neglects the possibility that these shareholders might collude to expropriate minority shareholders. In fact, whether the balance of power among shareholders works or not depends on the gaming outcome among large shareholders. Our results show a positive relationship between the nature of large shareholders and the outcome of this balance of power, implying that their nature might be an important factor behind their choice of supervision or collusion. This finding thus has the potential to lay an expanded theoretical foundation for current Chinese studies on the balance of power within the shareholder structure. Second, contrary to the indirect methods adopted in most existing studies, this paper conducts a direct and comprehensive empirical test on the impact of ownership concentration and a balance of power among shareholders on corporate governance. The results demonstrate that the two variables could efficiently inhibit the entrenchment of large shareholders, providing empirical evidence for further understanding the governance problems of companies controlled by large shareholders. And third, methodologically, we put the shares held by related shareholders together and adopt the Shapley Power Index to reduce the estimation error of the level of ownership concentration and the balance of power among shareholders. We believe that such a modification in calculation has a certain referential value for further studies on governance of companies controlled by large shareholders.

The rest of the paper is organised as follows. In Section II we establish a simple theoretical model to depict the inhibiting effect of ownership concentration and a balance of power among shareholders on the entrenchment of large shareholders. Sections III and IV develop and test the propositions proposed based on the theoretical model. Section V further discusses the possible impacts of entrenchment induced by ownership concentration and the nature of large shareholders on our results. The last section includes conclusions and limitations.

II. A Simple Model

Suppose a listed company has one controlling shareholder holding equity ownership α_1 , other large shareholders holding equity ownership α_2 , and numerous minority shareholders holding the rest. We also assume that the ratio of the controlling shareholder choosing to “tunnel” the listed company under his/her control is s ($0 < s < 1$) to maximise his/her private benefits of control. Meanwhile, other large shareholders choose to collude with the controlling shareholder and bargain over the distribution of their private benefits of control.

After the tunnelling, the company suffers a loss of sRI , in which I and R represent the investment scale and the rate of return, respectively. Accordingly, the loss that other large shareholders suffer is α_2sRI . To realise the collusion, the controlling shareholder has to pay T out of his “unilateral benefits” to other large shareholders. T is no smaller than α_2sRI , which we call the reservation utility of other large shareholders. We therefore assume $T = \alpha_2sRI + \hbar sRI$, in which \hbar represents the private benefits of control distributed to other large shareholders through bargaining.

In addition, $c(s, \bullet)$ stands for cost functions faced by the controlling shareholder when tunnelling is conducted. Consistent with La Porta *et al.* (2002), we assume $c(s, \bullet) = \frac{1}{2}ks^2$, where k ($k > 0$) is a constant, representing the effect of the legal system of one country on the tunnelling behaviour of the controlling shareholder. Formally, we assume $c_s > 0$ and $c_{ss} > 0$, indicating that the marginal cost of tunnelling is positive and that it rises as more is diverted.

Under these assumptions, the optimal degree of tunnelling (s) for the controlling shareholder is:

$$MaxU = \alpha_1(1-s)RI + sRI - \alpha_2sRI - \hbar sRI - \frac{1}{2}ks^2RI \quad (1)$$

The first item on the right side of Equation (1) is the controlling shareholder's proportion of company benefits after tunnelling, the second item represents his/her private benefits from tunnelling, the third and fourth items are the benefits transferred to other large shareholders, and the last item is the possible punishment that the controlling shareholder faces after tunnelling.

Since the solution for optimal s is independent of RI , we can simplify Equation (1) as:

$$MaxU = \alpha_1(1-s) + s - \alpha_2s - \hbar s - \frac{1}{2}ks^2 \quad (2)$$

The optimal condition is:

$$\partial U / \partial s = -\alpha_1 + 1 - \alpha_2 - \hbar - ks^* = 0 \quad (3)$$

Let $\alpha_n = \alpha_1 + \alpha_2$, Equation (3) can be rewritten as:

$$s^* = \frac{1 - \alpha_n - \hbar}{k} \quad (k > 0), \quad (4)$$

where $0 < \hbar < 1 - \alpha_n$ shows that T ($T = \alpha_2sRI + \hbar sRI$) is no bigger than the net benefits $(1 - \alpha_1)sRI$ obtained from tunnelling. If $\hbar \geq 1 - \alpha_n$ occurs, it means that the controlling shareholder has failed to reach a collusion with other large shareholders owing to the overcharge of the latter. In such a case, the optimal degree of tunnelling (s^*) equals 0.

Without considering a country's specific legal system (i.e. k is a constant), the optimal degree of tunnelling (s^*) for the controlling shareholder in Equation (4) depends on his/her net benefits from tunnelling. These benefits consist of two parts: $\frac{(1-\alpha_n)}{k}$ is the distributable private benefit for large shareholders at the expense of minority shareholders, and $\frac{\hbar}{k}$ is the consideration that the controlling shareholder pays to other large shareholders to realise tunnelling; in other words, it represents the private benefits that other large shareholders obtain through bargaining with the controlling shareholder.

Therefore, we can assume that $\frac{\hbar}{k} = p(\pi) \frac{(1-\alpha_n)}{k}$, where $p(\pi)$ indicates the percentage of private benefits obtained by other large shareholders; it is also within the limits $0 < p(\pi) < 1$, which is related to the bargaining power of other large shareholders. Such bargaining power is determined by π , the capability of other large shareholders to balance the controlling shareholder.³ The higher the π , the higher the ratio of private benefits $p(\pi)$, that is, $p'(\pi) > 0$.

Equation (4) can now be rewritten as:

$$s^* = \frac{1-\alpha_n}{k} (1 - p(\pi)) \quad (0 < p(\pi) < 1, \quad k > 0) \quad (5)$$

Next, we differentiate α_n in Equation (5) to obtain:

$$\frac{ds^*}{d\alpha_n} = -\frac{1}{k} (1 - p(\pi)) < 0 \quad (6)$$

As the above shows, when other large shareholders choose to collude with the controlling shareholder, the higher holding proportion of other large shareholders (α_2) actually improves the holding proportion of the controlling shareholder (α_1). Internalising the private benefits of control lowers the optimal degree of tunnelling s^* . This is consistent with the alignment effect hypothesis proposed by Bennedsen and Wolfenzon (2000). Thus, we raise the first hypothesis as follows:

H1: The higher the degree of ownership concentration, the smaller the degree of entrenchment by large shareholders.

Differentiating Equation (5) with respect to π , we obtain:

$$\frac{ds^*}{d\pi} = -\frac{(1-\alpha_n)}{k} p'(\pi) < 0 \quad (p'(\pi) > 0) \quad (7)$$

³ To simplify analysis, we do not consider other factors influencing $p(\pi)$. We assume that $p(\pi)$ is related only to the balance of power of other large shareholders over the controlling shareholder and is independent of the private benefits $(1 - \alpha_n) / k$, that is, $\partial p(\pi) / \partial \alpha_n = 0$. Thus, π depends on the balance of the bargaining power between two parties rather than the total shares held by them.

In this case, the larger the π , the smaller the s^* . When other large shareholders have greater bargaining power, it would be more difficult for multiple large shareholders to enter into collusion, leading to a lower optimal degree of tunnelling. This is consistent with Gomes and Novaes' (2005) finding that the bargaining of large shareholders leads to efficiency loss. We thus assume that the following:

H2: The greater the balance of power of other large shareholders vis-à-vis a controlling shareholder, the smaller the entrenchment by large shareholders.

In fact, the model above could be deemed an extension of the model proposed by La Porta *et al.* (2002): we consider not only the situation of multiple large shareholders rather than a single controlling shareholder, but also the bargaining over private benefits among these large shareholders. We believe that such a model fits China's practical situation. In the following sections, we use RPT data on China's listed companies to test the hypotheses.

III. Research Design

3.1 Data and Samples

We collect data from China's A-share companies between 2000 and 2004 and obtain 5,745 annual company observation points. We eliminate companies issuing concurrently B or H shares, financial companies, companies with incomplete data, and companies whose RPT sums exceed their total assets, resulting in a final sample of 5,109 observation values.⁴ Specifically, we obtain data on RPTs from the corresponding databank in the China Stock Market and Accounting Research (CSMAR) database. After eliminating trading data between related parties and data with undisclosed amounts, we obtain 50,779 trading cases. We also collect data on ownership structure from the CSMAR databank. Meanwhile, we use relevant data in the finance section at the website www.sina.com to calculate the ratio of shares held by related shareholders to the total number of shares in their companies. We then adjust the ownership structure data of 819 annual company observation values (accounting for 16.03 per cent of the final samples). We obtain other data on the sample companies' corporate governance and finances from the Wind databank.

3.2 Variable Definitions

With respect to variables for RPTs, we follow the definition of RPTs in *China Accounting Standard 36: Related-Party Disclosures* and divide the RPTs into 12 categories, concentrating on seven that are likely to involve large sums of money, namely

⁴ The final sample is 4,739 after eliminating companies with sums of RPTs exceeding their net assets and companies with negative net assets.

related-party sales (*RP_Sale*), related-party purchases (*RP_Purchase*), related-party asset transactions (*RP_Asset-tran*), related-party mortgages (*RP_Mortgage*), related-party fund occupations (*RP_Occupy*), related-party equity transactions (*RP_Equity-tran*), and the rendering or receiving of services between related parties (*RP_Service*). We also choose the total assets, net assets, and sales revenues of sample companies as proxies for company size to adjust the scale of RPTs.

With respect to variables for ownership structure, we first choose, according to the aims of this paper, the Herfindahl Index to describe the degree of a company's ownership concentration.⁵ We define ownership concentration as the sum of squares of the shares held by the three largest shareholders. Next, we choose three variables to measure the checks and balances of other large shareholders on the controlling shareholder. We first use the dummy variable *MLS* to reflect whether a company has multiple large shareholders; *MLS* equals 1 if the second largest shareholder holds 10 per cent or more of his/her company's total shares, and 0 otherwise.⁶ We then choose the variable *CONTESTABILITY* to reflect the checks and balances of other large shareholders on the controlling shareholder. We define the variable as the ratio of the total number of shares held by other large shareholders to the number of shares held by the controlling shareholder. Finally, we use the variable *BAL-SHAPLEY* to measure the comparative checks and balances by other large shareholders' on the controlling shareholder. The variable is defined as the ratio between φ_2 (other large shareholders' control over a listed company) and φ_1 (the controlling shareholder's control over the company). The control power φ is measured based on Milnor and Shapley's (1978) Shapley Power Index in their study on the "oceanic game". The index, however, considers the interactive influence among multiple large shareholders. In other words, a large shareholder's control over a listed company depends not only on his/her holding proportion, but also on the holding proportion of other large shareholders. Therefore, we believe that the Shapley Power Index is a better measurement for the balance of power within the shareholder structure.

3.3 Descriptive Statistics of the Sample Companies

Table 1 gives the distribution of the scale of RPTs by year. As shown, the RPTs among Chinese listed companies between 2000 and 2004 have the following characteristics. (1) *RP_Sale* and *RP_Purchase* are the most commonly adopted approaches for RPTs (accounting for about 50 per cent of the total sum). The total sum of the two categories amounts to about 8 per cent of the total assets of the companies

⁵ Consistent with the above rationale, we choose the Herfindahl Index to measure ownership concentration and to reflect the interests of the alliance or interest groups of multiple large shareholders.

⁶ According to Article 104 in the *Company Law of the People's Republic of China*, shareholders holding 10 per cent or more of the total shares are entitled to summon a temporary shareholder assembly. We therefore regard such shareholders as large shareholders. Such a criterion is consistent with Chen and Wang's (2005) conclusion in their relevant study. In addition, we also use 5 per cent as a criterion in the section detailing the sensitivity tests in this paper.

involved. We also find that the sum of the two means remains more or less the same during the period, which owes to the special historical background of Chinese listed companies as well as the fact that sales and purchases constitute the main daily operation in many listed companies. (2) *RP_Mortgage* and *RP_Occupy* are the RPT approaches following *RP_Sale* and *RP_Purchase*. Considering that some listed companies might use mutual guarantees as a means to escape government supervision, the actual sum of *RP_Mortgage* is likely to be underestimated. (3) By comparison, assets and equity transactions in RPTs involve fewer funds and have greater annual fluctuations. In addition, we also find rendering or receiving services to be an important approach for RPTs, which we believe is relevant in that many state-owned enterprises spin off bad assets to their parent companies when going public.

Table 1 Descriptive Statistics of the Scale of RPTs

Scale of RPTs	2000	2001	2002	2003	2004	2000-2004
<i>RP_Sale</i>	0.043	0.041	0.041	0.032	0.036	0.038
<i>RP_Purchase</i>	0.035	0.042	0.035	0.036	0.040	0.038
<i>RP_Asset-tran</i>	0.004	0.011	0.009	0.007	0.007	0.007
<i>RP_Mortgage</i>	0.020	0.040	0.043	0.048	0.078	0.047
<i>RP_Occupy</i>	0.006	0.010	0.008	0.012	0.015	0.011
<i>RP_Service</i>	0.004	0.006	0.008	0.006	0.011	0.007
<i>RP_Equity-tran</i>	0.004	0.003	0.002	0.002	0.006	0.004
<i>RP_Total</i>	0.117	0.153	0.144	0.143	0.194	0.152

Notes:

1. The above scale of RPTs is standardised with the total assets at the end of a year; companies with RPT sums exceeding their total assets are eliminated. The same notes apply to the following tables.
2. The sum of *RP_Mortgage* mentioned in Table 1 excludes that of a mutual guarantee in listed companies. Considering that some listed companies might use a mutual guarantee as a way to escape government supervision, the actual sum of *RP_Mortgage* is quite likely to be underestimated.

Table 2 gives the holding proportion of the large shareholders of China's listed companies between 2000 and 2004. As shown, the mean and the median of the holding percentage of the largest shareholder remain over 40 per cent, despite the decrease in the past five years; this indicates that the phenomenon of "one absolute controlling shareholder" prevails in China's listed companies. Table 2 also shows that although large gaps remain between the largest and second largest shareholders, the holding percentage of the latter increases to 10 to 30 per cent in a number of companies: in 32.14 per cent of the sample companies, the second largest shareholder holds 10 per cent or more of the total shares issued. Moreover, the mean and the median for the holding percentage of the third largest shareholder is 3.2 per cent and 1.7 per cent, respectively. In only

7.18 per cent of the sample companies does the third largest shareholder hold more than 10 per cent of the total shares issued. We therefore present only the holding percentage of the first two largest shareholders in Table 2. The implications of the above statistics are twofold: first, the practical situation in the Chinese capital market has led to the emergence of powerful controlling shareholders, making it easier for them to carry out tunnelling and expropriate minority shareholders; and second, these statistics confirm that a few Chinese listed companies have multiple large shareholders, laying a foundation for the study of checks and balances among large shareholders.

Table 2 Distribution of the Holding Proportions of Large Shareholders in Chinese Listed Companies

Shareholders	Year	Distribution of Holding Proportions				Holding Proportions		
		(0-10%)	(10-30%)	(30-50%)	(50-100%)	Total	Mean	Median
Largest Shareholder	2000	3	205	275	410	893	0.467	0.47
	2001	3	239	284	434	960	0.461	0.466
	2002	3	268	302	453	1026	0.456	0.46
	2003	4	312	320	454	1090	0.447	0.444
	2004	3	354	336	447	1140	0.438	0.427
	Sum	16	1378	1517	2198	5109	0.453	0.451
Second Largest Shareholder	2000	636	249	8	0	893	0.073	0.042
	2001	676	277	7	0	960	0.075	0.045
	2002	711	306	9	0	1026	0.078	0.047
	2003	723	358	9	0	1090	0.083	0.051
	2004	721	408	11	0	1140	0.088	0.057
	Sum	3467	1598	44	0	5109	0.08	0.048

Furthermore, owing to a complicated history as well as politics, relationships among large shareholders of China's listed companies are intricate. Under some extreme cases, multiple large shareholders might report to the same ultimate controller, as a result of which the ultimate controller realises his/her control over the listed company and escapes the supervision of government regulatory bodies. For example, on 12 February 2004, Songliao Automobile Co. Ltd. (Stock Code: 600715) announced that Shanghai Johnrun Auto-Arrester Co. Ltd. successfully purchased 38 million legal person shares of Songliao Automobile via Shanghai Auction Company. After the transfer, Shenyang Songliao Industrial Group Co. Ltd. remained the largest shareholder by holding 81.04 million shares (accounting for 36.14 per cent of total shares) of Songliao Automobile, while Shanghai Johnrun became the second largest shareholder by holding 38 million shares (accounting for 16.94 per cent of total shares). Apparently, Songliao Automobile has two counterbalancing large shareholders and has achieved a balance of power in its corporate governance. However, the ultimate controller behind both Shanghai

Johnrun and Shenyang Songliao is the same person, Zhou Tianbao (see the disclosure of Songliao Automobile on 23 June 2004). There are many similar cases in China's capital market. We therefore calculate together in this paper the total holding percentage of related shareholders to avoid underestimating ownership concentration or overestimating the balance of power among shareholders. Consequently, the estimate of the holding percentage of large shareholders is slightly higher than that in similar papers.

IV. Empirical Testing

4.1 The effect of ownership concentration and balance of power within the shareholder structure on the scale of RPTs

First, we rank all sample companies into five groups by the order of Herfindahl Index value from lowest to highest to study the effect of ownership concentration on RPTs. Meanwhile, we choose the total assets and net assets at the end of a year to standardise the scale of RPTs in order to eliminate the influence of the sample companies' own size. We then adopt *ANOVA* to test any significant differences in the scale of RPTs among groups with different degrees of ownership concentration, as shown in Table 3.

As a whole, the greater the degree of ownership concentration, the larger the scale of RPTs, the correlation between the two being positive and stable. Specifically, the scale of *RP_Sale*, *RP_Purchase*, and *RP_Service* increases as the degree of ownership concentration grows (significant at the 1 per cent level). The testing results after adjustment with net assets also support these findings (the results are not reported for reasons of simplicity). Our conclusions are consistent with the findings of Chen and Wang (2005), who, after studying the relationship between RPTs in Chinese listed companies and ownership structure between 1998 and 2002, reveal a positive correlation between the sum of RPTs and the percentage of shares held by the largest shareholders. Our findings also confirm a positive relationship between the scale of RPTs and ownership concentration.

These findings, however, are contrary to Hypothesis 1. One possible explanation is our assumption that large shareholders complete their expropriation of minority shareholders through RPTs. But are RPTs the same as the entrenchment of large shareholders? As mentioned earlier, no consistent theoretical conclusions have been reached in the existing literature concerning the effect of RPTs. Some studies find that corporate groups can lower transaction costs and risks and share resources among member companies via RPTs in the internal market (Khanna and Palepu, 1997, 2000); others reveal that RPTs are harmful to the interests of minority shareholders (Johnson *et al.*, 2000). Under such circumstances, we need to consider the consequences of RPTs when studying the relationship between ownership concentration and the entrenchment of large shareholders, as discussed in greater detail in the following sections.

Table 3 The Effect of Ownership Concentration on the Scale of RPTs

Groups by Herfindahl	1	2	3	4	5	ANOVA
<i>RP_Sale</i>	0.012	0.029	0.033	0.051	0.066	0.000 ***
<i>RP_Purchase</i>	0.011	0.025	0.031	0.046	0.074	0.000 ***
<i>RP_Asset-tran</i>	0.006	0.007	0.007	0.007	0.010	0.161
<i>RP_Mortgage</i>	0.047	0.045	0.047	0.050	0.048	0.900
<i>RP_Occupy</i>	0.013	0.012	0.011	0.008	0.010	0.266
<i>RP_Service</i>	0.002	0.003	0.006	0.010	0.015	0.000 ***
<i>RP_Equity-tran</i>	0.005	0.003	0.004	0.004	0.003	0.448
<i>RP_Total</i>	0.095	0.125	0.139	0.175	0.226	0.000 ***
N of Obs.	1021	1022	1022	1022	1022	

Notes:

1. The numbers in parentheses are P values. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively (two-tailed test). The same notes apply to the following tables.
2. All sample companies are ranked into five groups by the order of Herfindahl Index values from lowest to highest.

Table 4 presents the impact of the balance of power among shareholders on the scale of RPTs. As shown, the RPTs in companies controlled by either a single controlling shareholder or by multiple large shareholders vary significantly. Specifically, when listed companies are controlled by a single controlling shareholder, the mean for their total RPT scale is 0.16, whereas the mean for the total RPT scale of companies co-controlled by multiple large shareholders is only 0.135; the difference between these two means is significant at the 0.01 per cent level. The results of group testing show that compared with companies co-controlled by multiple large shareholders, listed companies controlled by a single controlling shareholder tend to have a significantly greater scale in terms of *RP_Sale*, *RP_Purchase*, and *RP_Service*. In contrast, companies controlled by multiple large shareholders are significantly more active in *RP_Equity-tran*. A possible reason behind this is that fighting over control rights among multiple large shareholders is more likely to lead to frequent equity transactions. As for *RP_Asset-tran*, *RP_Mortgage*, and *RP_Occupy*, no significant differences are found between any two types of these companies. In addition, test results after adjustment with net assets are also consistent with the above findings (the results are not reported for reasons of simplicity).

The above results lend preliminary support to Hypothesis 2. They are also consistent with the conclusion of Chen and Wang (2005) that the greater the balance of power among shareholders, the smaller the scale of RPTs. But aside from proving that the existence of other large shareholders does lower the possibility of RPTs between listed companies and the largest shareholder, Chen and Wang did not answer whether their existence effectively inhibits RPTs in listed companies. For instance, their existence might reduce the RPTs between the controlled listed company and the largest shareholder,

but increase those between the controlled listed company and the second or third largest shareholder. We provide an answer for this question in this paper.

Table 4 The Effect of Multiple Large Shareholders on the Scale of RPTs

Types of RPTs	<i>MLS</i> = 0	<i>MLS</i> = 1	(p value)
N of Observations	3467	1642	
<i>RP_Sale</i>	0.041	0.033	(0.012)**
<i>RP_Purchase</i>	0.043	0.026	(0.000)***
<i>RP_Asset-tran</i>	0.007	0.009	(0.218)
<i>RP_Mortgage</i>	0.047	0.049	(0.505)
<i>RP_Occupy</i>	0.011	0.01	(0.568)
<i>RP_Service</i>	0.009	0.004	(0.000)***
<i>RP_Equity-tran</i>	0.003	0.005	(0.008)***
<i>RP_Total</i>	0.160	0.135	(0.000)***

Notes:

1. The numbers in parentheses correspond with the T-test of two means. *, **, and *** denote significance of the two-sided t test at 10%, 5%, and 1%, respectively.
2. The dummy variable *MLS* reflects whether a company has multiple large shareholders. *MLS* equals 1 if the second largest shareholder holds more than 10% of the company's total shares issued, and otherwise 0.

4.2 The effect of ownership concentration and a balance of power within the shareholder structure on RPTs and economic outcomes

So far, we have confirmed that the existence of multiple large shareholders is negatively related to the scale of RPTs. But are RPTs the same as the entrenchment of large shareholders? As above, RPTs might be used either as a useful arrangement in the internal market to reduce transaction costs (the efficiency view), or as a way to expropriate minority shareholders (the expropriation view). Most existing domestic literature on RPTs has, with few exceptions, studied RPTs from the expropriation view, neglecting the positive side of RPTs. To achieve a better understanding of RPTs, we test both views of them. Meanwhile, we argue that compared with non-recurring RPT items such as mortgages and fund occupations, recurring RPT items such as sales, purchases, and rendering or receiving services are more favoured covert ways of carrying out RPTs. Below, using recurrent RPTs as an example, we explore the relationship between them and the entrenchment of large shareholders on the basis of gross margins and of gross margins after industrial adjustments.⁷

⁷ Another reason we choose recurrent RPTs as the study focus is their measurability. By comparison, the economic outcomes of other types of RPTs (e.g. mortgages, fund occupations, asset transfers, and equity transfers) are less likely to be measured accurately because either they do not directly influence the sample companies' current financial performance, or they are usually regarded as non-recurring profits and losses, making it more difficult to separate their individual influence on the sample companies' financial performance.

First, we assume that large shareholders expropriate the interests of listed companies under their control by transfer pricing. In other words, when purchasing products or receiving services from listed companies, large shareholders will lower the purchasing price; in contrast, they will increase the selling price when they sell products or services to the listed companies. One direct consequence of transfer pricing is to reduce gross margins for listed companies: the greater the scale of RPTs of products and services, the smaller the gross margin. Therefore, by exploring the relationship between gross margins and the RPTs of products and services, we can test whether large shareholders use RPTs to expropriate the interests of listed companies, which in turn can be tested from another aspect, whether ownership concentration and a balance of power among shareholders help discourage the entrenchment of large shareholders.

We set up the following linear regression model to test the above rationale:⁸

$$MARGIN (ADJ_MARGIN_{i12}) = \alpha + \sum_{i=1}^3 \beta_i * RPT_i + \sum_{j=1}^2 \beta_j * SS_j + \sum_{k=1}^6 c_k * CONTROL_k + \varepsilon, \quad (8)$$

where, for dependent variables, *MARGIN* is presented as the gross margin of listed companies, and *ADJ_MARGIN_{i12}* is the industrial-adjusted margin, which is defined as a company's gross margin minus the mean or median of the gross margin for the whole industry, respectively, to avoid the impact of different industrial characteristics on the sample companies' gross margins. Specifically, the classification in this paper is conducted in accordance with the Standard Industrial Classification issued by the China Securities Regulatory Commission in 2001. Sample companies from the manufacturing industry are classified according to the first two digits of the industrial code, while those from other industries are classified according to the first digit. After eliminating the financial industry, we classify all sample companies into 21 sub-industries.

For independent variables, we choose *RP_Sale*, *RP_Purchase*, and *RP_Service* as proxies for RPTs. Variables for ownership structure (SS) include the Herfindahl Index for ownership concentration and the three variables for the balance of power within the shareholder structure (i.e. *MLS*, *CONTESTABILITY*, and *BAL-SHAPLEY*).

The first control variable is company size (*SIZE*, defined as the natural logarithm of a sample company's book value of its total assets). Generally, big companies tend to have economies of scale, which require more developed corporate governance mechanisms; therefore, the expected sign of *SIZE* is positive. The second control variable is leverage (*LEV*) or debt-asset ratio. Although a high debt-asset ratio can reduce the prolonged

⁸ Theoretically, it would be better to apply a model based on the intersection of ownership structure and RPTs to test the propositions proposed in this paper. But doing so might also lead to serious multi-linear problems. We therefore add variables for ownership structure and RPTs separately into the equation to eliminate such problems.

principal-agent problem to a certain degree, it also considerably increases a company's risk of going bankrupt; therefore, the expected sign of the debt-asset ratio is negative. Moreover, we set up four yearly dummy variables (*YEAR*) starting from 2000 to control for any possible impact of annual factors on our conclusions.

Table 5 reports the Pearson coefficient for all variables. As shown, first, all three RPT types, namely *RP_Sale*, *RP_Purchase*, and *RP_Service*, are significantly and negatively related to the adjusted/gross margin of the sample companies, providing preliminary support to the expropriation view that large shareholders are likely to use RPTs to tunnel listed companies under their control. Second, the relationship between the Herfindahl Index and the adjusted/gross margin is positive yet insignificant. We also find that all variables for a balance of power within the shareholder structure, namely *MLS*, *CONTESTABILITY*, and *BAL-SHAPLEY*, are significantly and positively related to the adjusted/gross margin. These results are mostly consistent with the view that the higher the degree of ownership concentration and balance of power among shareholders, the higher is the adjusted/gross margin. But the results also show a certain correlation between the Herfindahl Index and the three variables for a balance of power among shareholders; namely, the correlation coefficient between the Herfindahl Index and *MLS*, *CONTESTABILITY*, and *BAL-SHAPLEY* is -0.42, -0.41, and -0.56, respectively. Below, we use the variance inflation factor (VIF) to further study these correlations. Finally, although there is also a strong correlation among *MLS*, *CONTESTABILITY*, and *BAL-SHAPLEY*, they are entered into the testing equation in turns, thus avoiding possible multi-linear problems.

Table 5 Pearson Coefficients of Variables

	<i>MARGIN</i>	<i>ADJ_MAR1</i>	<i>ADJ_MAR2</i>	<i>RP_Sale</i>	<i>RP_Purchase</i>	<i>RP_Service</i>	Herf.	<i>MLS</i>	<i>CONTEST</i>
<i>ADJ_MAR1</i>	0.90 ^a								
<i>ADJ_MAR2</i>	0.90 ^a	0.99 ^a							
<i>RP_Sale</i>	-0.12 ^a	-0.10 ^a	-0.09 ^a						
<i>RP_Purchase</i>	-0.15 ^a	-0.11 ^a	-0.10 ^a	0.38 ^a					
<i>RP_Service</i>	-0.06 ^a	-0.04 ^a	-0.04 ^a	0.14 ^a	0.08 ^a				
Herfindahl	0.02	0.00	0.01	0.20 ^a	0.20 ^a	0.12 ^a			
<i>MLS</i>	0.04 ^a	0.03 ^b	0.03 ^b	-0.04 ^b	-0.07 ^a	-0.05 ^a	-0.42 ^a		
<i>CONTESTABILITY</i>	0.06 ^a	0.04 ^a	0.04 ^a	-0.05 ^a	-0.10 ^a	-0.05 ^a	-0.41 ^a	0.82 ^a	
<i>BAL-SHAPLEY</i>	0.05 ^a	0.05 ^a	0.05 ^a	-0.10 ^a	-0.13 ^a	-0.07 ^a	-0.56 ^a	0.66 ^a	0.83 ^a

Notes: ^a and ^b denote significance at the 0.01 and 0.05 levels, respectively. Pearson coefficients of control variables are omitted for reasons of simplicity.

Panel A in Table 6 gives the regression results with the sample companies' gross margin as the dependent variable. First, all regression coefficients for RPT variables (i.e. *RP_Sale*, *RP_Purchase*, and *RP_Service*) are significantly smaller than 0 – a result consistent with our expectation and supporting the expropriation view. Second, the regression coefficients for the Herfindahl Index, *MLS*, *CONTESTABILITY*, and *BAL-SHAPLEY* are all significantly larger than 0, implying that, other conditions being

equal, a higher degree of ownership concentration and a balance of power among shareholders can both significantly improve the sample companies' gross margins, hence supporting Hypotheses 1 and 2. Finally, among the control variables, the actual sign of variables for *SIZE* and *LEV* are consistent with our expectation, showing that company size is positively related to economies of scale and gross margins, while the debt-asset ratio is negatively related to company performance.

Panel B in Table 6 presents the regression results of the gross margin after the industrial mean adjustment. As shown, except for some weakening of the positive relationship between the Herfindahl Index and the industrial mean-adjusted margins, the test results for the other variables remain unchanged. Similarly, our conclusions remain robust when the gross margins after the industrial median adjustment are applied. For simplicity, we give only the regression results of the industrial mean-adjusted margins. Some sample companies are eliminated owing to the lack of data on gross margins, reducing the number of final observations to 5,101.

Our findings differ from conclusions in the existing literature in the following respects. First, contrary to the indirect way (e.g. via company performance) of studying the impact of ownership concentration and the balance of power among shareholders on corporate governance, we focus on the direct consequences of recurrent RPTs. Second, in contrast to the neglect of deep analysis on the interactive relationship among large shareholders, we calculate collectively the percentage of shares held by related shareholders to minimise the estimate error of ownership concentration and the balance of power among shareholders. Third, contrary to existing study approaches of mergers and acquisitions and fund occupations, we explore the entrenchment of large shareholders from the perspective of recurrent RPTs. By comparison, recurrent RPTs tend to have higher frequencies and are larger in scale. Taken together, our research provides not only more direct empirical evidence for the consequences of the entrenchment of large shareholders, but also a valuable supplement to existing studies on the impact of ownership concentration and the balance of power among shareholders on corporate governance.

V. Further Analyses

5.1 Further analysis of the mechanism of ownership concentration

We find that ownership concentration is positively related to corporate governance. But when we focus only on the holding proportion of the largest shareholder, that is, replacing the Herfindahl Index with TOP_1 and TOP_1^2 (representing respectively the holding proportion of the largest shareholder and the sum of the square of the proportion) and adding them into the above Equation (8), we find that the coefficients for TOP_1^2 are significantly positive, while those for TOP_1 are significantly negative, as shown.⁹ These results indicate that if the RPT scales are the same, the relationship between the holding proportion of the largest shareholder and a company's gross margin is U-shaped. Specifically, as the proportion increases, the entrenchment capability of the largest shareholder grows, and a company's gross margin decreases – the typical effects of entrenchment. But when the proportion surpasses a certain critical level, the largest

⁹ Results not reported here for reasons of simplicity.

Table 6 Relationship between RPTs of Products and Services and Companies' Adjusted/Gross Margins

Dependent Variables	Gross Margin			Industrial Mean-adjusted Margin		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>RP_Sale</i>	-0.17***	-0.169***	-0.165***	-0.136***	-0.136***	-0.135***
(-)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<i>RP_Purchase</i>	-0.238***	-0.235***	-0.236***	-0.149***	-0.147***	-0.147***
(-)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<i>RP_Service</i>	-0.189***	-0.189***	-0.19***	-0.123**	-0.123**	-0.124**
(-)	(0.002)	(0.002)	(0.002)	(0.026)	(0.027)	(0.026)
Herfindahl	0.064***	0.068***	0.094***	0.025	0.028	0.056***
(+)	(0.001)	(0.001)	(0.000)	(0.172)	(0.124)	(0.005)
<i>MLS</i>	0.03***			0.016**		
(+)	(0.000)			(0.004)		
<i>CONTESTABILITY</i>		0.038***			0.021***	
(+)		(0.000)			(0.001)	
<i>BAL-SHAPLEY</i>			0.073***			0.054***
(+)			(0.000)			(0.000)
<i>SIZE</i>	0.015***	0.015***	0.014***	0.01***	0.01***	0.01***
(+)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
<i>LEV</i>	-0.103***	-0.102***	-0.104***	-0.082***	-0.082***	-0.083***
(-)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
\sum YEAR	Included	Included	Included	Included	Included	Included
Intercept	-0.012	-0.012	-0.008	-0.172***	-0.173***	-0.183***
Adj_R ²	0.076	0.078	0.079	0.048	0.049	0.051
VIF	< 2	< 2	< 2	< 2	< 2	< 2
N of Obs.	5101	5101	5101	5101	5101	5101

Notes:

1. We eliminate some sample companies owing to lack of data on gross margins, reducing the number of final observations to 5,101.
2. The four yearly dummy variables are included in the above regressions, but their results are not reported to save space. Similarly, the regression results are also not reported for the consistent conclusions when the gross margin after the industrial median adjustment is applied. The same applies below.

shareholder's interests become aligned with those of the listed company under control. As the proportion continues to grow, the company's gross margin starts to increase rather than decrease – the typical motivation effect or alignment effect. These findings are consistent with existing literature (e.g. Bai *et al.*, 2005). But when TOP_1 and TOP_1^2 are added into testing Equation (8) simultaneously, the VIF value becomes higher than 30, indicating that serious multi-linear problems have occurred and caused deviation in the final test results. In addition, considering the purpose of this research, we believe that the Herfindal Index is a better measurement for the impact of ownership concentration on corporate governance, because it does not confine itself to the largest shareholder.

As mentioned earlier, ownership concentration might lead either to the alignment effect/motivation effect or to the entrenchment effect. But the above analysis does not distinguish the two contradictory results, which might lead to biased conclusions. Below, we consider the largest shareholder holding more than 30 per cent of the company's total shares to be the controlling shareholder and reclassify our samples based on this criterion. We choose the proportion of 30 per cent as the benchmark for the following reasons. First, Article 41 in the *Guidelines on the Articles of Association of Listed Companies in China* defines the controlling shareholder as "holding more than 30 per cent of a company's total shares issued". Second, Chinese listed companies are characterised by highly concentrated ownership. As shown in our sample companies, the mean and median of the holding proportion of the largest shareholder are all well above 40 per cent, while the mean and median of that of the second largest shareholder are only 8 per cent and 4.8 per cent, respectively. Therefore, large shareholders holding more than 30 per cent of the total shares are capable of controlling the companies. After reclassifying our samples with 30 per cent as the critical level, we redo the above test. The corresponding results are listed in Table 7.

In Panel A in Table 7, the regression coefficients for the RPT variables, namely *RP_Sale*, *RP_Purchase*, and *RP_Service*, are significantly smaller than 0, indicating that large shareholders tunnel listed companies through RPTs. In other words, the bigger the scale of RPT, the lower the listed companies' gross margin. This result is consistent with the above results prior to sample reclassification. Second, except for some weakening of the significance of the regression coefficient of *BAL-SHAPLEY*, other results are aligned with our previous findings – the coefficients for the Herfindahl Index, *MLS*, *CONTESTABILITY*, and *BAL-SHAPLEY* are all significantly larger than 0, indicating that, other conditions being equal, the greater the ownership concentration, the greater the checks and balances of other large shareholders on the controlling shareholder, and the higher the gross margin. Finally, the regression results for all control variables and the characteristic values of the equations are more or less the same as the above results.

Panel B in Table 7 presents the regression results of sample companies without controlling shareholders (i.e. $TOP_1 < 30$ per cent). First, in contrast to companies with controlling shareholders, the Herfindahl Index in companies without controlling shareholders is not significantly and positively related to gross margins. This result implies that at low levels of ownership, although an increase in the proportion of shares held by large shareholders aligns their interests with those of the company, their capability of expropriating minority shareholders also grows accordingly, leading to entrenchment. In other words, when the proportion of shares held by large shareholders remains small, entrenchment effects should co-exist with motivation effects, with the former overweighting the latter. Therefore, under the co-function of both effects,

ownership concentration becomes significantly and negatively related to gross margins (as shown in Equation (4) in Table 7). Second, although the significance of their regression coefficient is somewhat weakened, the RPT variables as a whole are negatively related to gross margins. Moreover, the test results for gross margins after industrial mean/median adjustment are consistent with those of the above findings.

Table 7 Further Analyses of the Impact of Ownership Concentration on Corporate Governance

Dependent Variables:	Panel A: Samples with $TOP_i \geq 30\%$			Panel B: Samples with $TOP_i < 30\%$		
Gross Margin	(1)	(2)	(3)	(4)	(5)	(6)
<i>RP_Sale</i>	-0.178***	-0.181***	-0.177***	-0.174	-0.158	-0.145
(-)	(0.000)	(0.000)	(0.000)	(0.11)	(0.147)	(0.181)
<i>RP_Purchase</i>	-0.233***	-0.232***	-0.233***	-0.372***	-0.355**	-0.359**
(-)	(0.000)	(0.000)	(0.000)	(0.008)	(0.012)	(0.011)
<i>RP_Service</i>	-0.204***	-0.203***	-0.203***	-0.226	-0.252	-0.215
(-)	(0.000)	(0.000)	(0.000)	(0.53)	(0.485)	(0.552)
Herfindahl	0.071***	0.077***	0.067***	-0.365*	-0.219	-0.084
(+)	(0.000)	(0.000)	(0.001)	(0.093)	(0.294)	(0.662)
<i>MLS</i>	0.012**			0.074***		
(+)	(0.049)			(0.000)		
<i>CONTESTABILITY</i>		0.032***			0.048***	
(+)		(0.002)			(0.001)	
<i>BAL-SHAPLEY</i>			0.028			0.099***
(+)			(0.208)			(0.000)
<i>SIZE</i>	0.016***	0.016***	0.016***	0.031***	0.029***	0.027***
(+)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)	(0.004)
<i>LEV</i>	-0.232***	-0.231***	-0.233***	-0.057***	-0.057***	-0.059***
(-)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$\sum YEAR$	Included	Included	Included	Included	Included	Included
Intercept	0.026	0.022	0.033	-0.364*	-0.306	-0.3
Adj_R ²	0.156	0.158	0.156	0.043	0.039	0.041
VIF	< 2	< 2	< 2	< 2.5	< 2.5	< 2.5
N of Obs.	3711	3711	3711	1390	1390	1390

Table 8 Effects of the Nature of Large Shareholders on the Outcome of the Balance of Power within the Shareholder Structure

Dependent Variable	Gross Margin			Industrial Mean-adjusted Margin		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>RP_Sale</i>	-0.178***	-0.175***	-0.167***	-0.14***	-0.138***	-0.135***
(-)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<i>RP_Purchase</i>	-0.238***	-0.235***	-0.236***	-0.126***	-0.125***	-0.124***
(-)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<i>RP_Service</i>	-0.13**	-0.134**	-0.134**	-0.053	-0.054	-0.054
(-)	(0.036)	(0.031)	(0.031)	(0.327)	(0.317)	(0.321)
Herfindahl	0.081***	0.091***	0.098***	0.026	0.033*	0.053***
(+)	(0.000)	(0.000)	(0.000)	(0.18)	(0.082)	(0.009)
<i>MLS</i>	0.036***			0.01		
(+)	(0.000)			(0.147)		
<i>MLS*DUMMY</i>	0.013			0.024**		
(+)	(0.243)			(0.017)		
<i>CONTEST</i>		0.049***			0.017**	
(+)		(0.000)			(0.019)	
<i>CONTEST*DUMMY</i>		0.015			0.03**	
(+)		(0.26)			(0.01)	
<i>BAL-SHAPLEY</i>			0.062***			0.039***
(+)			(0.000)			(0.003)
<i>BAL-SHAPLEY*DUMMY</i>			0.042**			0.05***
(+)			(0.045)			(0.006)
<i>SIZE</i>	0.017***	0.017***	0.016***	0.007**	0.007**	0.007**
(+)	(0.000)	(0.000)	(0.000)	(0.026)	(0.024)	(0.034)
<i>LEV</i>	-0.084***	-0.082***	-0.084***	-0.06***	-0.06***	-0.06***
(-)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$\sum YEAR_i$	Included	Included	Included	Included	Included	Included
Intercept	-0.058	-0.064	-0.041	-0.121*	-0.127*	-0.125*
Adj_R ²	0.097	0.103	0.098	0.053	0.056	0.058
VIF	< 2	< 2	< 2	< 2	< 2	< 2
N of Obs.	3035	3035	3035	3035	3035	3035

Notes:

1. We eliminate sample companies with large shareholders of an unknown nature and with motives for making seasoned equity offerings and turning losses into profits. The final number of observations is further reduced to 3,035.
2. The dummy variable (*DUMMY*) equals 1 if the two largest shareholders are identical in nature (state-owned or not), and otherwise 0. Although a vast majority of fund companies in China are state-owned, we still classify them into the non-state-owned group owing to differences in internal management and institutional arrangements when compared with traditional state-owned enterprises.

5.2 Further analysis of the mechanism of the balance of power within the shareholder structure

Although multiple large shareholders might create a check and balance on one another, as confirmed in the above analyses, they might also collude to share the private benefits of control. Below, we explore the choice of large shareholders between supervision and collusion based on the effects of different types of shareholding on the results of a check and balance.

Naturally, the bargain between the controlling shareholder and other large shareholders over the distribution of the private benefits of control incurs certain coordination costs, the amount of which is positively related to the level of difficulty of entering into collusion. As a result, facing different regulatory and supervisory mechanisms, other large shareholders of a different nature will find it more difficult to collude with the controlling shareholder. For instance, when large shareholders of state-owned enterprises consider colluding with those from non-state-owned enterprises to conduct tunnelling operations, the former need to consider not only the possible supervision costs incurred by tunnelling, but also the “political costs” for personal development (e.g. the possibility of being accused of losing state assets). In contrast, shareholders of a similar nature are more likely to collude owing to lower coordination costs.¹⁰ We can therefore assume the following: when the controlling shareholder and other large shareholders are of the same nature, it is easier for them to collude owing to lower coordination costs, and vice versa. To verify this assumption, we need to find evidence supporting the notion that the effects of checks and balances among shareholders of a different nature are superior to those among shareholders of the same nature.

To verify the above assumption, we need data on the nature of the sample companies’ largest and second largest shareholders (i.e. state-owned or non-state-owned).¹¹ To begin, since some sample companies do not disclose in their annual reports the nature of their large shareholders, we adopt the following measures: (1) if a large shareholder is also the initiator of a sample company, we obtain relevant information on the shareholder’s nature from the prospectus of the listed company; (2) we decide whether a large shareholder is state-owned or not by visiting the company’s official website; and (3) we eliminate sample companies with large shareholders of an unknown nature. After considering the nature of large shareholders and eliminating those whose nature is unknown, we further reduce the number of annual observations to 3,242. In

¹⁰ Existing evidence shows that listed companies are vulnerable to local government interference. For example, to solve unemployment or promote the local economy, some governments might require local listed companies to merge with or acquire profit-losing local enterprises. Listed companies that have exclusively state-owned large shareholders are more likely to suffer such “politics-oriented” interference; in other words, it is easier for these state-owned shareholders to enter into collusion, consistent with our assumption.

¹¹ Although a vast majority of fund companies in China are state-owned, we still classify them into the non-state-owned group owing to differences in internal management and institutional arrangements when compared with traditional state-owned enterprises.

addition, owing to considerations of seasoned equity offerings and the turning of losses into gains, large shareholders might constrain their entrenchment behaviour. We therefore eliminate sample companies with motives of pursuing seasoned equity offerings and of turning losses into gains (for specific standards see the section on sensitivity tests below). Finally, we eliminate some sample companies because data on gross margins are lacking. After these eliminations, we further reduce the final number of annual observations to 3,035.

We introduce into Equation (8) a dummy variable (*DUMMY*) for the nature of the largest and second largest shareholders in the sample companies. Specifically, *DUMMY* equals 1 if the two largest shareholders are identical in nature, and 0 otherwise. The three variables for the balance of power within the shareholder structure (i.e. *MLS*, *CONTESTABILITY*, and *BAL-SHAPLEY*) are then integrated with *DUMMY* and added into Equation (8). Apparently, if the regression coefficients for the integrated variables are significantly larger than 0, the above assumption will be supported. The test equation is as follows:

$$\begin{aligned}
 MARGIN (ADJ_MARGIN_{1/2}) = & \alpha + \sum_{i=1}^3 \beta_i RPT_i + \beta_j HERF + \beta_k MLS (CONTEST/BAL- \\
 & SHAPLEY) + \beta_k MLS (CONTEST/BAL-SHAPLEY)* \\
 & DUMMY + \sum_{i=1}^6 \beta_i CONTROL_i + \varepsilon \quad (9)
 \end{aligned}$$

The definitions for all variables in Equation (9) are the same as above. The expected sign of the regression coefficient for β_k is significantly positive. That is to say, when the RPT scale, ownership concentration, and other control variables are equal, the balance of power among shareholders is likely to better promote the adjusted/gross margin of listed companies when the largest and second largest shareholders differ in nature than when they are identical.

Table 8 lists the test results. First, except for the lack of a significant correlation between the gross margins in Equations (1) and (2), all intersection variables for the balance of power among shareholders and the nature of large shareholders (i.e. *MLS*DUMMY*, *CONTESTABILITY*DUMMY*, and *BAL-SHAPLEY*DUMMY*) are significantly and positively related to the adjusted/gross margins. Such a result is consistent with our expectation, showing that the balance of power among shareholders is more likely to have a greater positive impact on the adjusted/gross margins when the largest and second largest shareholders differ in nature. Second, the Herfindahl Index, *MLS*, *CONTESTABILITY*, and *BAL-SHAPLEY* are all found to be significantly and positively related to the adjusted/gross margins (except in Equation 4), showing that a concentrated and balanced ownership structure helps to boost listed companies' adjusted/gross margins. This result is consistent with our previous findings. We also find *RP_Sale* and *RP_Purchase* to be significantly and negatively related to adjusted/gross margins, but whereas *RP_Service* is also significantly and negatively related to gross

margins, its negative correlation with the adjusted gross margins ceases to be significant. Considering the comparatively small scale of rendering or receiving services in RPTs, the weakened significance of *RP_Service* does not greatly influence the applicability of our conclusions. Moreover, the test with industrial median-adjusted margins (*ADJ_MARGIN₂*) as the dependent variable does not change the above conclusions.

Our findings solve, to a certain degree, the existing controversy over the impact of the balance of power among shareholders on corporate governance. For example, when exploring this impact from the perspective of firm performance, Chinese researchers have provided contradictory evidence. Chen and Wang (2004) and Song and Han (2005) find that checks and balances on large shareholders improve firm performance, whereas Zhu and Wang (2004), Zhao and Yu (2005), and Xu *et al.* (2006) draw opposite conclusions. This paper finds that the nature of large shareholders is an important determinant: large shareholders of the same nature are more likely to collude with than to supervise others. The existing domestic literature on the balance of power among shareholders tends to emphasise the supervision among multiple large shareholders and neglect the possibility that large shareholders might collude to expropriate minority shareholders, resulting in contradictory evidence. It should be noted that because of the difficulty in observing supervision/collusion among large shareholders, this paper relies on indirect evidence (i.e. the relationship between shareholders of a different nature and the outcome of checks and balances) to deduce or test the choice of large shareholders between supervision and collusion. Apart from the nature of shareholders, other factors might also influence this choice. We provide only preliminary support for such a choice.

5.3 Sensitivity Tests

We conduct three sensitivity tests. First, the Pearson test shows that the correlation coefficients between the Herfindahl Index and *MLS*, *CONTESTABILITY*, and *BAL-SHAPLEY* are -0.42, -0.41, and -0.56, respectively, indicating a strong correlation between these variables. The VIFs for all variables are smaller than 3, implying no serious multi-linear problems in our equations. To avoid possible influence of the correlation between variables for ownership concentration and the balance of power among shareholders on our equations, we add the variables of the Herfindahl Index, *MLS*, *CONTESTABILITY*, and *BAL-SHAPLEY* into the prior equations, respectively. The results show that the above conclusions remain unchanged. Second, we make the following changes to prior equations: (1) we replace gross margins with the profit margin on sales, (2) we replace the Herfindahl Index with the holding proportion of the largest shareholder, (3) we use sales revenue and net assets as scale factors to adjust the scale of RPTs, and (4) we use the level of 5 per cent as the new criterion for the existence of other large shareholders. The test results with new variables are consistent with previous conclusions. In addition, except for some weakening of the significance level for the Herfindahl Index, test results either using the quotient between the gross margins of the sample companies and industrial gross margins as a new dependent variable, or setting up an industrial dummy variable to eliminate the impact of different industries, are also

consistent with previous findings. Third, the existing literature points out that, under special circumstances, large shareholders might also use RPTs to transfer benefits to or to support listed companies under their control (Friedman *et al.*, 2003). We therefore re-test the relationship between RPTs and the adjusted/gross margin of the sample companies by choosing only those companies with motives for seasoned equity offerings and turning losses into profits. Specifically, we regard the sample companies in year 2000 with an average return on equity (ROE) of 10-11 per cent, or companies in 2001 and thereafter with an ROE (the lower of including/excluding non-recurring items) of 6-7 per cent and disclosing plans for seasoned equity offerings in the following three years, as samples with motives for seasoned equity offerings (totalling 38). Meanwhile, we regard sample companies suffering a loss in the previous year but with an ROE in the current year between 0 and 1 per cent as having a motive for turning losses into profits (totalling 65). The results show that for sample companies pursuing the goals of turning losses into profits or making seasoned equity offerings, the negative relationship between *RP_Sale*, *RP_Purchase*, and *RP_Service* and adjusted/gross profit margins ceases to be significant. This finding shows that the tunnelling behaviour of large shareholders might be somewhat constrained by their pursuit of these particular activities. For simplicity, detailed results of the sensitivity test are not provided here.

VI. Conclusions and Limitations

This paper sets up a simplified theoretical model to depict the impact of ownership concentration and the balance of power among shareholders on the entrenchment of large shareholders. Our empirical study using data on Chinese listed companies between 2000 and 2004 shows that the existence of multiple large shareholders is significantly and negatively related to the scale of RPTs, supporting our proposition that a balance of power within the shareholder structure helps constrain the entrenchment of large shareholders. But contrary to our expectation, we find ownership concentration to be positively, rather than negatively, related to the RPT scale, possibly caused by defects in measuring the entrenchment of large shareholders from the perspective of RPT scales.

To overcome this shortcoming in measurement, we explore the relationship between recurrent RPTs (i.e. *RP_Sale*, *RP_Purchase*, and *RP_Service*) and the entrenchment of large shareholders from a new perspective of adjusted/gross margins to verify whether ownership concentration and the balance of power among shareholders help to constrain the entrenchment behaviour of large shareholders. Our results show that (1) the relationship between recurrent RPTs and adjusted/gross margins is stable and negative, supporting our proposition that RPTs facilitate the tunnelling behaviour of large shareholders; (2) there is a significant and positive relationship between ownership concentration/the balance of power among shareholders and a company's adjusted/gross margins, supporting our proposition that the former does help constrain the entrenchment behaviour of large shareholders; (3) at low levels of ownership, concentrated ownership is more likely to induce an entrenchment than an alignment effect; and (4) the nature of large shareholders significantly influences the outcome of the balance of power among shareholders, implying that it might be an important factor influencing the choice of large shareholders between supervision and collusion.

This paper provides a solution to the prevalence of unfair RPTs in Chinese listed companies: under China's present institutional background, establishing an effective ownership structure characterised by checks and balances among multiple large shareholders can effectively reduce the occurrence of unfair RPTs. Our results also show that concentrated ownership helps lower the level of entrenchment by large shareholders. Together, our findings imply that it is not concentrated ownership *per se* but unconstrained concentrated ownership that leads to such entrenchment. Meanwhile, when establishing a corporate governance mechanism characterised by a concentrated but balanced ownership structure, government regulatory bodies need to watch closely and punish severely possible collusion among large shareholders in order to promote the formation of a balance of power among shareholders in China's listed companies.

This paper has several limitations. First, we assume that large shareholders might tunnel listed companies by means of transfer pricing (i.e. buy at a lower price and sell at a higher price), and therefore we explore the relationship between recurrent RPTs (i.e. *RP_Sale*, *RP_Purchase*, and *RP_Service*) and the entrenchment of large shareholders from the perspective of gross margins. But as mentioned earlier, the recurrent RPT might sometimes be used as an institutional arrangement in the internal market to reduce the risks of external market transactions. Under the latter circumstances, gross margins might not be a suitable measurement index. Further studies need to distinguish more explicitly the motives behind the RPTs of Chinese listed companies and choose suitable measurement indices accordingly. Second, we provide only indirect evidence for collusion among multiple large shareholders by showing that the effects of checks and balances on the entrenchment of large shareholders vary significantly among groups consisting of large shareholders of the same or a different nature. To provide direct empirical evidence, further studies need to explore the influencing factors and better proxy variables for the choice of large shareholders between supervision and collusion.

References

Please refer to pp. 105-106.