2007年12月　第9卷　第4期
中　国　会　计　与　财　务　研　究
China Accounting and Finance Review
Volume 9, Number 4, December 2007

大股东的内部市场与上市公司价值：基于效率观点和掏空观点的实证检验[1]

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摘要

主要针对亚洲和拉美地区新兴市场经济国家的研究表明：尽管对于内部市场与成员企业价值的关系同时存在“效率促进”和“掏空”两种主流但相互竞争的观点，但一致肯定企业集团及其内部市场是推动经济发展的重要力量。受制于特定的制度环境，我国上市公司的内部市场主要表现为大股东的内部市场。本文透过对我国2000年至2004年5141家上市公司的实证研究检验了大股东内部市场的效率促进和掏空效应及其对上市公司价值的综合影响。我们发现：我国大股东的内部市场确实同时存在这两种效应，并且企业价值（尤其是会计业绩）的高低取决于不同交易范围内两种效应的相对大小。非线性模型的回归结果表明，在大部分区间（内部交易比例小于20%或大于50%时），效率促进效应占主导地位，企业价值上升，但在中间的较小区间（内部交易比例在20%和50%之间）则大股东掏空效应超过效率促进效应，企业价值下降。

关键词：内部市场、大股东、上市公司价值、效率促进、掏空

[1] 本文的研究得到了国家自然科学基金重点项目“产权保护导向的会计控制研究”（批准号：70532005）的资助。感谢两位审稿人认真、细致且颇具建设性的审稿工作，也感谢Carnegie Mellon大学Z.Y. Gu教授对本文研究的重要启发，以及蔡祥、徐丽萍副教授，杨德明、辛清泉、谭伟强和王彦超的有益建议，但文责自负。

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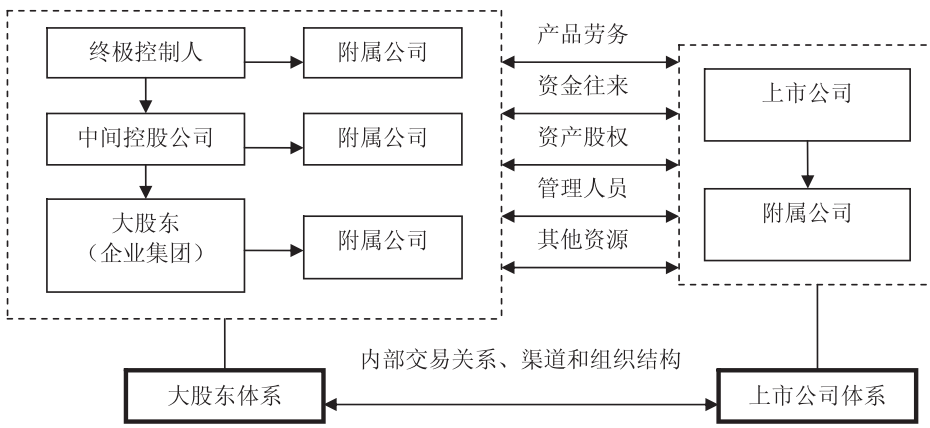
一、引言

改革开放以来，我国市场化进程取得了巨大的进步，市场环境得到明显的改善（樊纲、王小鲁，2004）。然而，我国的经济发展仍具有典型的新兴市场和转轨经济特征，在这一大环境下，企业集团及其内部市场仍然是推动经济发展的重要力量。据国家统计局的调查，[5]2003年我国中央管理企业中的企业集团、国家试点企业集团、国家重点企业中的企业集团、省部级单位审批的企业集团，以及年营业收入和年末资产总计均在5亿元及以上的其他各类大企业集团共计2692家，平均每家资产规模达到63.2亿元，平均每家企业集团拥有成员企业单位10.5家。受制于特殊的制度环境，在我国证券市场中，企业集团的内部市场主要体现为“**大股东的内部市场**”，如图1所示。我们定义“大股东的内部市场”为上市公司与其大股东[6]（主要是企业集团）及其控制的其他企业（统称“大股东”）之间在产品、资金、管理以及其他要素等方面形成的内部交易关系和交易渠道的统称。[7]根据本文的统计，我国上市公司的大股东中仍有81%为

图1 大股东内部市场的界定



5 数据来源：《人民日报海外版》2003年10月13日第1版的相关报道。

6 本文对“大股东”的定义均局限于第一大股东，但并不局限于上市公司的直接第一大股东，它还包括第一大股东的控股股东乃至其终极控制人，并且，第一大股东的控股股东及其终极控制人控制的其他企业也属于我们所理解的“大股东”的范畴。

7 表面上，内部市场与关联交易似乎是两个相同的概念，但本文认为：内部市场一方面代表了一种组织形式，即内部交易的渠道和网路，此时它是关联交易的载体；另一方面，内部市场代表了一种内部交易关系，其中绝大多数体现为关联交易关系。除此之外，内部市场还包括内容管理人员安排、劳动力分配以及某些利益的分配等内容，它在内涵上大于关联交易。基于本文的研究目的，采用了内部市场这个概念，但在很多时候（如文献回顾），我们仍然交替使用这两个概念，并且在实证研究中也把关联交易作为内部市场的替代变量。

集团公司，并且超过90%的公司涉足了大股东的内部市场交易。其中，平均的内部产品购销金额占主营业务收入的比例超过10%，资金往来占总资产的比例超过5%。

作为一种重要的经济组织形式，企业集团及其内部市场具有什么样的经济后果？这个话题一直是国外战略管理和公司财务领域研究的热点。目前存在两种主流并且相互竞争的理论可用来解释企业集团及其内部市场的经济后果：一种是Khanna and Palepu（1997, 2000）提出的“效率促进”观点（efficiency enhancing view）或者“价值提升”观点（value added view），即企业集团透过内部市场的运作可以降低交易成本从而提高成员企业价值；另一种则是Johnson *et al.*（2000）的“掏空”观点（tunnelling view）。他们认为，企业集团及其内部市场为大股东转移财富实现自身利益提供了可能。上述两种观点在针对亚洲和拉美新兴市场国家的研究中均得到不同程度的验证。Khanna（2000）在回顾国际研究成果的基础上试探性地总结：大部分情况下成员企业从集团控制中受益。因此，在新兴市场经济中，效率优势似乎稍占上风。同属新兴市场经济，我国的情况是否也是如此？我们认为，上述问题在我国企业中同样可能出现。一方面，由于我国法律和监管的缺陷以及上市公司当前脆弱的治理系统，大股东通过内部市场进行关联交易进而实现对中小股东利益的侵占现象普遍存在（Jian and Wong, 2005；陈晓、王琨，2005；郑国坚、魏明海，2006, 2007）。因此，上司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。但从另一方面看，根据经典的交易成本理论，在外部市场环境不完善、市场交易成本较高的条件下，透过企业集团的内部网络进行投资和经营是一种有助于交易进行并且降低交易成本的组织结构（Khanna and Palepu, 1997, 2000）。在我国经济转轨与新兴市场并存的环境下，内部市场更可能发挥其相对于外部市场的效率优势。因此，大股东的内部市场也可能提升上市公司的价值。

有鉴于此，一系列有意义的实证命题是：我国上市公司与大股东的内部市场是损害还是提升上市公司的价值？内部市场是否同时存在效率和掏空两种效应？如果存在，什么情况下效率优势占主导？什么情况下掏空效应超过效率优势？遗憾的是，正如Jian and Wong（2005）指出的，尽管关联交易问题受到广泛关注，但却鲜有这方面的学术研究成果，我国也不例外。目前，国内这方面的成果主要来自案例研究（如刘峰等，2004）。

如要真正回答上述问题，就需要进行大样本的实证研究。本文以我国2000年至2004年5113家上市公司为研究样本，以上市公司与大股东的产品和劳务方面的关联交易衡量内部市场的发达程度，对上述两种观点进行检验。我们首先实证检验了大股东内部市场的活跃程度与上市公司价值之间的关系，结果发现：内部市场的活跃程度与上市公司价值（尤其是会计业绩）之间不是简单的直线关系，而是向右倾斜的N型关系。即随着内部交易的增加，企业价值先

是上升，然后下降最后又上升。进一步分析发现，导致这种情况发生的原因是内部市场确实同时存在效率和掏空两种效应，在不同活跃程度的内部市场中，两种效应的相对力量不同从而导致了上市公司价值随着内部交易的提高而发生曲线变化。在20%左右的内部交易比例之前，随着内部交易的增多，大股东掏空行为逐渐增加，但同时交易成本的节约优势超过大股东掏空的不利影响，从而提高企业价值。在此之后，随着掏空效应的继续扩大并超过交易效率优势的发挥，导致企业价值下降。然而，当内部市场交易程度因企业集团发展战略的驱动或行业管制等变得非常高（内部交易比例超过50%）时，大股东掏空不再是内部市场运作的主要效应，效率优势再次占主导，企业价值又开始上升。总的来说，内部市场的存在虽然会带来更多的大股东掏空，但由于存在相对更大的交易成本节约优势而有利于上市公司价值。上述结论即使在控制了盈余管理行为以及其他敏感性分析之后依然成立。

本文的研究对现有关于企业集团及内部市场经济后果研究文献的贡献在于：首先，我们采用更为具体的内部交易指标去衡量内部市场的交易程度，从而解决了以往文献中解释变量过于简单（如以是否存在集团控制代表内部市场的存在性）或者不够准确（如以多元化经营程度代表内部市场的使用程度）带来的问题。我们的研究表明，即使同受集团控制，内部市场的交易程度也存在非常大的差异，因此，直接研究内部市场交易的程度有助于我们发现诱发内部市场经济后果的真正原因，提高了结论的可靠性。其次，由于研究设计的改善，我们第一次同时检验了内部市场的效率优势和掏空效应的存在性及其相互关系，进而研究上述效应的综合作用对企业价值的影响，丰富了有关企业集团和内部市场的研究成果；最后，我们的研究较早运用大样本检验了中国上市公司内部市场的经济后果，其结论对于有关转轨经济和新型市场经济国家的相关研究具有一定的参考价值。

本文余下的内容安排如下：第二节进行简要的文献述评，第三节对内部市场与上市公司价值的关系进行了实证检验，接着在第四节中对第三节的实证发现进行理论解释，然后通过第五节的实证研究进一步为这种理论解释提供证据支持；第六节做了一些敏感性分析，在第七节中我们对一些局限性做了讨论，最后是本文的研究结论。

二、企业集团、内部市场与成员企业价值：文献述评

国外绝大部分关于企业集团及其内部市场的研究都是针对新兴市场经济国家进行的，其中尤以亚洲和拉美居多。在这些国家，企业集团及其内部市场[8]是

[8] 在国外的研究中企业集团与内部市场是两个联系紧密的概念。首先，企业集团作为众多法人组织的联合体，通常在其边界内形成内部市场的交易关系，导致集团资源分配的内部化，后者是企业集团区别于其他经济组织的显著特征。（姚俊

一种在经济活动中占主导地位的组织形式和结构（Khanna, 2000; Khanna and Yafeh, 2007）。纵观国内外最近20年的研究，大部分提出集团控制和内部市场有利于提升成员企业价值，但也有不少文献得出相反的结果。它们分别支持了“效率促进”观点和大股东“掏空”理论。[9]

（一）内部市场的“效率促进”效应

内部市场的效率促进作用主要体现在两个方面：一方面，内部市场可以替代缺失的外部市场和机制，企业集团本身可以代替某些缺失的制度（Khanna, 2000）。研究表明，外部市场不发达是许多发展中国家新兴市场经济的典型特征，它集中体现为在有组织的经济活动中缺少必要的基础服务（Khanna and Palepu, 2000）。在发达市场经济中，这些基础服务通过产品、资金、技术和人力资源等各种成熟的市场及其定价机制来完成。处于新兴市场中的企业，外部市场的不完善增加了其获取必要生产要素的成本。在这种背景下，促进经济发展的重要途径之一就是透过企业集团的内部网络进行投资和经营（Khanna and Palepu, 1997）。以产品市场为例，如果企业生产经营所需要素的正常获取由于市场不健全或根本没有而存在困难，则企业集团凭借自身的规模和多元化经营，自行生产投入品或者通过其遍布各地的内部网络从其他地方获取低成本的投入品，交易费用将大大降低。再以资本市场为例，当从外部市场获取资本的难度较大时，内部资本市场能够更有效的配置资本（Stein, 1997）。企业集团通过与上市公司在供、产、销等环节上形成密切的往来，本身就可以借助调整往来款项的支付期限实现日常经营资金的融通。某些情况下，在发生业务往来的成员企业之间通过担保或直接拆借也可以满足资金的需求。此外，通过集团的

等，2005；Chang and Hong， 2000； Khanna and Rivkin， 2001）。其次，控制关系和交易关系是企业集团内部的两种基本关系，而内部市场描述了集团内部各成员之间基于一定控制关系下的交易关系，从而构成了集团内部结构的核心内容。因此，国外学者通常都是在企业集团的范畴下研究内部市场。在这些研究中，企业集团或者集团内部的多元化几乎成了内部市场的代名词或是替代变量（Khanna, 2000; Claessens and Fan, 2003; Claessens *et al.*, 2003）因此，在本文对国外文献的回顾中，如没有特别说明，则企业集团和内部市场代表了相同或高度相似的含义。除此之外，我们将区别使用这两个概念。

[9] 有关企业集团、内部市场和成员企业价值的关系，Khanna（2000）、Khanna and Yafeh（2007）是两篇有关企业集团比较优秀和全面的综述文献。它们均指出，还有另外两种观点可以解释企业集团与成员企业价值的关系，即寻租（rent seeking）和市场势力（market power）。但这两种观点关注的单纯是企业集团这种组织形式与其政治关系和市场垄断能力的关系，与集团的内部市场不存在必然联系，不属于本文的研究范畴。此外，寻租观点的落脚点与效率观点和掏空观点均有关联，而市场势力观点则由于缺乏足够的理论支持和经验研究，目前还不被学者所普遍接受。

内部调度可以把高素质的经理人安排到严重缺乏经理人的落后地区或者实行内部经理人轮换，从而避免落后地区高级管理人才的空缺。另一方面，交易在企业集团的内部市场中进行有助于降低交易过程中的信息不对称和障碍（如搜寻价格和交易者），克服执行产权和契约等对生产必不可少之过程中的各种困难（如违约风险和机会主义行为）。同时，与关联方进行交易，还可以在外部市场环境发生不利变化时确保日常交易的稳定性。此外，内部市场增强了企业避开法规限制及避税等方面的能力，提高企业的适应性。因此，企业集团和内部市场是一种有助于交易进行和降低交易成本的制度安排（Claessens and Fan, 2003; Khanna and Palepu, 1997; Williamson, 1975）。

实证研究文献也验证了上述理论和预测。Keister（1998）是较早专门研究中国企业集团的文献之一，通过对1988年至1990年间我国最大的40家企业集团及535家子公司的研究，作者发现，在集团内部各成员企业之间派驻连锁董事（interlocking directors）和成立财务公司，有助于提升成员企业的财务业绩和生产效率。Chang and Hong（2000）对韩国企业集团的研究则发现，集团内部的产品交易和管理人员分配有助于提升成员企业价值。Khanna and Palepu（1999）分别对智利和印度9个企业集团的研究发现，他们所构建的集团内部产品、劳动力和资本的指数均与成员企业的价值正相关。而Perotti and Gelfer（2001）则发现，俄罗斯的金融企业集团能够以比外部资本市场更有效的方式在附属企业之间配置资本。

（二）内部市场的“掏空”效应

企业集团及其内部市场也可能成为大股东侵占中小股东利益的一种装置（Khanna, 2000）。在理论研究方面，Almeida and Wolfenzon（2006）认为，在对投资者利益保护较差的国家，集团公司的金字塔结构通常导致大股东与上市公司的所有权偏离其控制权，因此可能被用来侵占外部投资者的利益。Johnson *et al.*（2000）则形象地把大股东侵占中小股东利益的行为描述为“掏空”（tunnelling）并指出其各种表现形式。他们还指出，在投资者保护较弱的国家，如果大股东以集团公司的形式出现，则由于内部市场渠道的存在，“掏空”更可能“名正言顺”地发生。因为这种情况下法律很难追究大股东的责任，特别是在大陆法系国家。主要针对亚洲国家的实证研究也表明，由于缺少外部市场对资源分配的监督和内部复杂的产权关系，集团公司可能与更严重的利益侵占行为相联系。通过内部市场，现金和利润可以从集团成员企业转移到母公司的口袋或经营困难的其他成员（Claessens and Fan, 2003）。

上述理论推断已经得到了许多经验研究的支持。Bae *et al.*（2002）检验了韩国企业集团内部的并购行为后发现，当受集团控制的上市公司与集团内部其他成员发生并购时，通常导致前者股票价格的下跌。虽然在这一过程中外部股东利益受损，但由于并购通常有利于集团内部大股东拥有更多股权的其他成员，

因此平均来说大股东从并购中受益。Baek *et al.*（2006）同样研究了韩国企业集团的掏空问题，但他们从企业集团内部的私人证券发行（private securities offerings）这一视角发现了集团大股东侵占小股东利益更为直接的证据。Bertrand *et al.*(2002)对印度企业集团的研究则发现，集团成员对其所在行业的利润率波动的敏感度远小于对集团内其他成员利润率水平的敏感度，这意味着集团内部可能存在利润转移的现象。Claessens *et al.*（2003）研究东亚国家上市公司在不同市场环境下内部市场和多元化经营的不同作用。他们发现，在亚洲金融危机之前，内部市场的使用在不发达国家表现得更好；但在金融危机时期，在不发达的国家，多元化经营的公司却表现得更差。他们认为，内部市场的使用和多元化经营可能与更大的风险相联系。Claessens *et al.*（2006）进一步对1994年至1996年东亚9国的上市公司进行研究后发现，当上市公司被集团控制同时大股东的现金流量权与投票权分离较严重时市场价值较低，但如果没有现金流量权与投票权的分离，则集团控制下上市公司的价值还要稍高于独立企业。他们认为，只要投资者预期集团控制将导致掏空行为，则任何内部市场的潜在优势将不足以弥补由此导致的价值损失。

在研究中国的企业集团及其内部市场的文献中，Jian and Wong（2005）发现，有企业集团控制的公司倾向于从事更多的关联交易。通过对关联交易市场反应的研究，他们发现至少部分关联交易被市场认为是机会主义的，投资者认为关联交易比正常交易缺乏可信度，并且，企业与控制股东之间的关联借贷与企业用*TOBIN Q*值表示的价值成负相关关系。李增泉等（2004）提供证据表明，企业集团更可能通过日常交易占用上市公司的资金。最近的一些文献运用更具体的内部市场交易数据和更大的研究样本之后同样发现了上述现象。其中，郑国坚、魏明海（2007）对我国2000年至2005年6911家上市公司样本的实证研究发现，大股东的集团公司形式、一股独大、政府控制、地方重点国企身份以及设立时间长短等，均与其内部市场的发达程度显著正相关，这说明，实现大股东及其背后地方政府对上市公司的掏空可能是内部市场的重要功能。郑国坚、魏明海（2006）则提供了证据验证了这一功能。他们发现，与大股东的内部采购和销售分别显著地提高了上市公司的主营业务成本率和销售毛利率，显示大股东很可能通过内部市场交易直接从上市公司转移利润。也有一些文献从透明度的角度间接研究了企业集团及内部市场的掏空效应。如Bai and Jeong（2002）对韩国企业的研究发现，附属于某一企业集团降低了上市公司会计盈余的价值相关性，这个发现与大股东掏空不利于会计信息质量的观点是一致的。洪剑峭和方军雄（2005）通过对2001年上市公司关联销售的研究后则发现，盈余的价值相关性随着关联销售比重增加而显著表现为一种倒U型的非线性关系，即较低比例的关联交易不影响盈余的价值相关性，但当关联交易达到较大比重时却损害了上市公司盈余信息的价值相关性。这个结果分别支持了关联交易的“效率促进”和“掏空”观点。

（三）现有研究的不足

上述研究为我们理解新兴市场经济中企业集团及其内部市场的重要角色提供了有益的帮助，但大部分文献由于研究方法的不足而具有较大的局限性。首先，尽管企业集团通常都有内部市场，但并不一定存在活跃的内部市场，另外其他经济组织也可能存在类似的内部市场。郑国坚和魏明海（2007）对我国2000年至2005年全体上市公司的研究就发现，上市公司与其大股东的内部市场在活跃程度上存在着较大的方差。相对于企业集团这一外在形式，内部市场反映了集团内部结构的实质内容，是诱发企业集团经济后果的重要根源。因此，至少在我国，不能单纯以是否集团控制作为存在内部市场的替代指标进行研究。其次，正如Khanna（2000）所指出的，现实世界中集团内部市场对成员企业价值的影响，不可能总是存在一种效应（效率促进或是掏空），在横截面上各种效应都可能同时存在并随着时间的推移发生转化，某一区间内某种效应占主导而另一区间内则可能主要体现为另一种效应。因此，内部市场与成员企业价值的关系不应该是一成不变的线性关系。但由于许多文献往往以集团控制的虚拟变量进行研究，只能采用线性关系去拟合模型，从而得出了非此即彼甚至前后矛盾的研究结论。因此在我国考察企业集团的经济后果，从内部市场的角度出发应该更为合理。

三、大股东内部市场与上市公司价值：我国的证据

（一）研究设计

1、研究模型

由于内部市场可能存在多种效应，从而导致其与上市公司价值的关系可能不是简单的线性关系。为了更准确地描述我国大股东内部市场与上市公司价值之间的经验关系，借鉴Gugler *et al.*（2004）对所有权比例与投资者效率的研究模型，在模型(1)中，我们逐一引入内部市场连续变量的一次项IPM、平方项IPM^2和三次项IPM^3以考察不同程度的内部交易是否企业价值具有不同的影响。

模型(1)：

$$\begin{aligned} VALUE_i = {} & \beta_0 + \beta_1 IPM + \beta_2 IPM^2 + \beta_3 IPM^3 + \beta_4 INDEX\_MAR + \beta_5 GROUP + \beta_6 GOV \\ & + \beta_7 TOP1 + \beta_8 TOP1^2 + \beta_9 TOP2\_5 + \beta_{10} TRADEABLE + \beta_{11} LOSS + \\ & \beta_{12} GROWTH + \beta_{13} LEV + \beta_{14} LISTYEAR + \beta_{15} LNSIZE \\ & + FIXEDEFFECTS + \varepsilon_{it} \end{aligned} \quad (1)$$

2、变量说明

模型(1)主要变量的定义如表1所示。

表1 变量定义表

变量符号	变量定义
	A栏：内部市场变量*IPM*
IPM_TOTAL	等于上市公司向大股东购销商品或劳务的年度发生额占年末总资产的比重
IPM_BUY	等于上市公司向大股东购买商品或接受劳务的年度发生额占年末总资产的比重
IPM_SALE	等于上市公司大股东销售商品或提供劳务的年度发生额占年末总资产的比重
	B栏：企业价值变量*VALUE*
ROA	总资产收益率，计算公式为：*ROA*=净利润/总资产
CASHPS	每股现金流量
TOBIN Q1 / *TOBIN Q2*	非流通股采用账面价值计算的上市公司价值，计算公司为：*TOBIN Q*=(每股价格×流通股股数+每股净资产×非流通股股份数+负债账面价值)/总资产账面价值，其中，*TOBIN Q1*全部采用所属会计年度的年末数，而在*TOBIN Q2*中，每股价格和流通股股数采用年报公布当年4月30日的数据
TOBIN Q3 / *TOBIN Q4*	非流通股采用市场价值计算的上市公司价值，计算公司为：*TOBIN Q*=(每股价格×总股本)/总资产账面价值，其中，*TOBIN Q3*全部采用所属会计年度的年末数，而在*TOBIN Q4*中，每股价格和总股数采用年报公布当年4月30日的数据
	C栏：大股东掏空变量*TUNNELLING*
销售毛利率	销售毛利/主营业务收入
大股东绝对资金净占用率	大股东对上市公司的资金净占用余额(应收大股东款项–应付大股东款项)/总资产
大股东相对资金净占用率	经过正常资金净占用率调整后的大股东资金净占用率，其中，正常资金净占用率=(非大股东应收款项–非大股东应付款项)/总资产
	D栏：交易成本变量*TRANSCOST*
期间费用率	期间费用代表公司主营业务成本之外的各种经营成本，在会计利润表中包括营业费用、管理费用和财务费用三大类之和，计算公式为：(营业费用+管理费用+财务费用)/主营业务收入

表1 续

变量符号	变量定义
营业费用率	营业费用/主营业务收入
管理费用率	管理费用/主营业务收入
财务费用率	财务费用/主营业务收入
	E栏：控制变量
INDEX_MAR	地区市场化总指数。来自樊纲、王小鲁(2001，2003，2004)编制的《中国市场化指数——各地区市场化相对进程报告》，代表各省市的市场化程度总体评分
GROUP	=1，如果第一大股东或其终极控制人为集团公司或者实际上充当集团公司职能的公司；=0，其他情况。其中，非集团控制公司指的是不从事实业经营活动的各种控股公司担任第一大股东的公司，包括各级国资委、国有资产管理局、国有资产经营公司、政府部门、学校和科研机构，以及其他各种投资型控股公司等
GOV	=1，如果上市公司终极控制人为各级政府部门或机构；=0，其他情况。其中，非政府控制公司包括第一大股东为民营、外资、乡镇集体所有制的上市公司
TOP1	考虑了关联关系之后的第1大股东持股比例，$TOP1^2$是*TOP1*的平方形式
TOP2_5	考虑了关联关系之后的第2至第5大股东持股比例之和
TRADEABLE	流通股比例，以*TOBIN Q*为因变量时使用
LOSS	=1，当年发生亏损，否则为0，以*TOBIN Q*为因变量时使用
GROWTH	主营业务收入增长率
LEV	年末资产负债率
LISTYEAR	上市年限
LNSIZE	年末总资产的自然对数
IND	按证监会的分类标准(除制造业继续划分为小类外，其他行业以大类为准)并以农业类为基准，共有20个行业虚拟量
YEAR	年度变量以2000年为基准，设置了4个年度虚拟变量

对于内部市场的衡量，尽管内部市场可能同时涉及产品、资金和其他经营要素的往来，但是，从交易的频率和重要性来看，内部产品（中间产品和最终产品）和劳务的关联交易应该是内部市场的主要交易关系。事实上，分拆上市的制度安排主要就是在母公司和上市公司之间针对主营业务资产的重组和包装。不仅如此，资金往来、资产买卖等内部交易都可能与内部产品交易的渠道设置密切相关。因此，我们采用内部产品和劳务的购销作为内部市场发达程度的衡量指标。

对于企业价值的衡量，我们采用了传统的*ROA*、*CASHPS*等会计业绩指标和*TOBIN Q*等市场价值指标。其中，对于*TOBIN Q*值的计算，根据两种常用的定义方式进行计算：一种是以流通股市场价值加上非流通股和债务的账面价值之和代表上市公司的市场价值，如夏立军和方轶强（2005）；另一种则是直接以流通股价格乘以总股本作为上市公司市场价值的替代指标，如田利辉（2005）。在上述两种定义中，我们进一步根据流通股价格选取的时间，分为12月31日和全部年报披露结束的4月30日两种情况。

在控制变量方面，夏立军和方轶强（2005）发现以地区市场化指数为衡量指标的地区治理环境与上市公司价值显著正相关。因此我们也在模型中控制这一变量的影响。另外，田利辉（2005）发现国有股权比例与上市公司价值存在U型关系，我们也同时使用国有股权变量*SOE*、第一大股东持股比例的一次项*TOP1*和平方项$TOP1^2$以及其他股东的持股比例*TOP2_5*，以控制股权结构的影响。此外，上述模型中我们均加入了集团控制变量*GROUP*以区别集团的外在组织形式和内部市场这一内在结构对上市公司的不同作用。最后，我们还控制了流通股比例*TRADEABLE*、是否亏损*LOSS*、主营业务增长率*GROWTH*、资产负债率*LEV*、上市年限*LISTYEAR*、资产规模*LNSIZE*以及行业和年度等固定效应*FIXEDEFFECTS*。

3、样本和数据

考虑到2005年开始的股权分置改革可能对上市公司的市场价值和会计行为产生重大的影响，我们的研究样本仅涵盖2000年至2004年5年6006家上市公司的混合数据。在剔除了金融业、境外发行股票、内部市场变量数据缺失之后，得到研究样本为5141个（其中，2004年1155家、2003年1054家、2002年1003家、2001年962家以及2000年867家）。在回归分析中，剔除了被解释变量和内部市场变量1%和99%之外的极端值之后，样本数减少到4995个。

内部市场变量中的产品和劳务交易数据由中国经济研究中心（CCER）的色诺芬数据库提供，上市公司终极控制人的产权性质、组织形式以及大股东资金占用等数据均来自对金融界（www.jrj.com.cn）所提供年度报告的手工收集整理，其他变量的数据全部来自万得资讯数据库（Wind.NET）。此外，由于样本公司期间较长，为了更准确衡量地区治理环境，对2002年至2004年、2001年和

2000年的公司，我们分别使用了《中国市场化指数—各地区市场化相对进程报告》中2002年、2001年和2000年的数据。

（二）实证研究

1、描述性统计分析

表2是各主要变量的描述性统计结果。首先，内部市场中购销、购买和销售的交易金额占总资产的分别比重为6.28%、3.20%和3.08%。但从25分位、中位数、75分位数以及最大值的比较来看，大股东内部市场的运作在公司间的差异是非常大的，其中，内部市场运作最活跃的样本仅占上市公司全体样本极小的一部分。在会计业绩方面，上市公司的*ROA*和*CASHPS*的均值（中位数）分别为3.07（3.36）和0.17（0.05）。在市场价值指标方面，第一种计算方法下，年末股价和4月底股价计算的*TOBIN Q*平均（中位数）分别为1.50（1.34）和1.50（1.35）；第二种计算方法下，年末股价和4月底股价计算的*TOBIN Q*平均（中位数）分别为2.05（1.60）和2.03（1.60）。由此可见，两种方法下*TOBIN Q*存在一定的差异，但不同时点计算的*TOBIN Q*却没有明显差异。在控制变量方面，地区市场化指数平均为6.68， 约81%和74%的公司分别被企业集团和各级政府控制，第一大股东和第2至第5大股东持股比例平均分别为43.32%和15.20%，流通股比例平均为38.30%。此外，样本公司发生亏损的比例、主营业务增长率、资产负债率、上市年限和资产规模分别为11%、49.92%、45.56%、5.56年和202799万元。

2、单变量分析

图2至图5是根据内部市场的不同活跃程度进行的趋势分析。[10]在图2和图3中，随着内部市场活跃程度的提高，会计业绩指标*ROA*和*CASHPS*并不是一直表现出直线上升或下降的趋势，而是在中间有一个曲折的变化。因此，内部市场对上市公司财务业绩的影响可能不是简单的直线关系。图4中，4个市场价值指标*TOBIN Q*的变化趋势与*ROA*有所不同。随着内部交易的增加，*TOBIN Q*几乎呈直线下滑的趋势。但正如图5所显示的，内部市场的活跃程度与上市公司的资产规模基本上也是直线的正相关关系，同时*TOBIN Q*与资产规模则是一种明显

[10] 考虑到内部市场交易程度很不均匀，绝大部分样本集中于20%以内的交易范围。所以，我们在20%的交易比例内每隔5%划分一个区间，在20%至50%之间则区间的间隔为10%。由于在50%以上的公司非常少，总共只有174家，为了避免样本太小容易导致的极端值影响，在50%之后，我们只设置了50%至80%以及大于80%两个区间。因此，各图中横座标中的数字分别代表0、（0–5%]、（5%–10%]、（10%–15%]、（15%–20%]、（20%–30%]、（30%–40%]、（40%–50%]、（50%–80%]以及大于80%不同活跃程度的内部市场交易区间。

表2 模型(1)主要变量的描述性统计

指标	样本	均值	标准差	最小值	最大值	25 分位	中位数	75 分位
IPM_BUY(%)	5141	3.20	13.78	0.00	379.70	0.00	0.00	1.21
IPM_SALE(%)	5141	3.08	33.79	0.00	2268.32	0.00	0.00	0.97
IPM_TOTAL(%)	5141	6.28	39.47	0.00	2424.57	0.00	0.16	3.22
ROA(%)	5141	3.07	5.57	–45.60	40.98	1.17	3.36	5.64
CASHPS	5141	0.17	0.76	–3.81	4.13	–0.16	0.05	0.36
TOBIN Q1	5141	1.50	0.54	0.37	4.81	1.15	1.34	1.68
TOBIN Q2	5141	1.50	0.53	0.37	6.68	1.15	1.35	1.69
TOBIN Q3	5141	2.05	1.70	0.00	43.52	0.99	1.60	2.59
TOBIN Q4	5141	2.03	1.68	0.00	36.12	0.98	1.60	2.60
INDEX_MAR	5141	6.68	1.71	1.57	9.74	5.53	6.39	8.13
GROUP	5141	0.81	0.39	0.00	1.00	1.00	1.00	1.00
GOV	5141	0.74	0.44	0.00	1.00	0.00	1.00	1.00
TOP1(%)	5141	43.32	17.72	0.00	91.982	29	42.86	58.26
TOP2_5(%)	5141	15.20	12.74	0.00	58.84	3.85	12.45	24.63
TRADEABLE(%)	5141	38.30	11.40	3.60	100.00	30.23	36.71	44.54
LOSS	5141	0.11	0.31	0.00	1.00	0.00	0.00	0.00
GROWTH(%)	5141	49.92	693.76	–441.10	40067.71	–0.65	15.66	36.85
LEV(%)	5141	46.33	19.97	0.81	199.81	32.44	45.65	59.05
LISTYEAR	5141	5.56	39.69	–1.00	15.00	2.00	5.00	7.00
LNSIZE(万元)	5141	202799	456000	6046	15005456	77339	123565	219966

图2 内部市场活跃程度与*ROA*

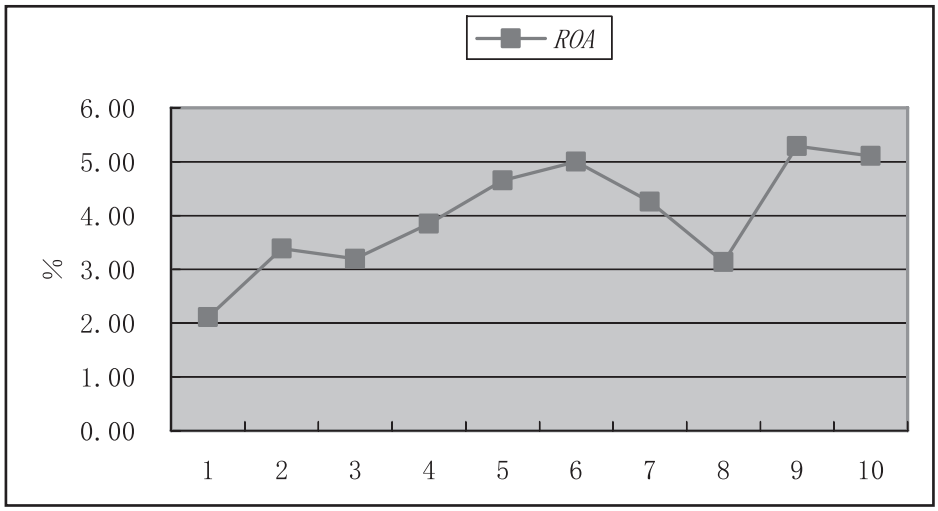
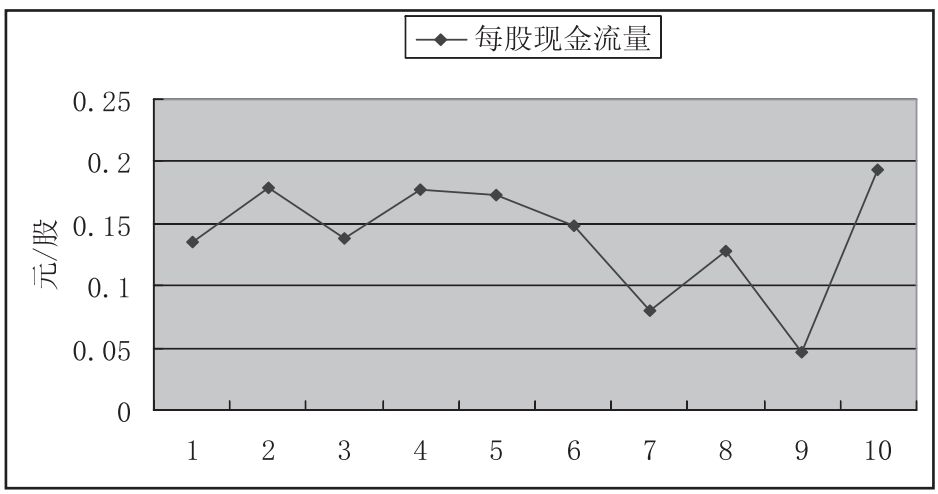


图3 内部市场活跃程度与现金流量



的负相关关系，因此，*TOBIN Q*与内部市场交易的关系可能并不是图4所展示的负相关关系，其内在的联系需要进一步的回归分析加以证实。

3、回归分析

表3是对模型(1)的回归结果。首先，在只放入*IPM*一次项的情况下，除了对*CASHPS*不显著之外，其他各价值指标均显著正相关。从上市公司的角度来看，

图4 内部市场活跃程度与市场价值

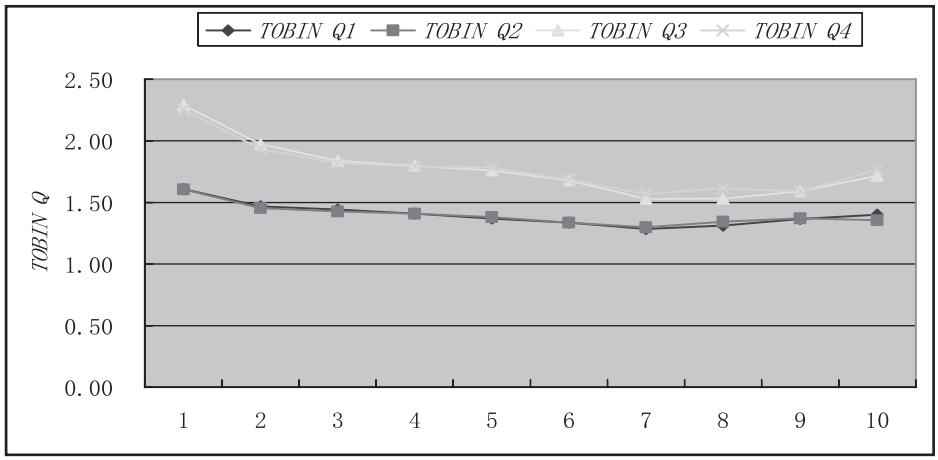
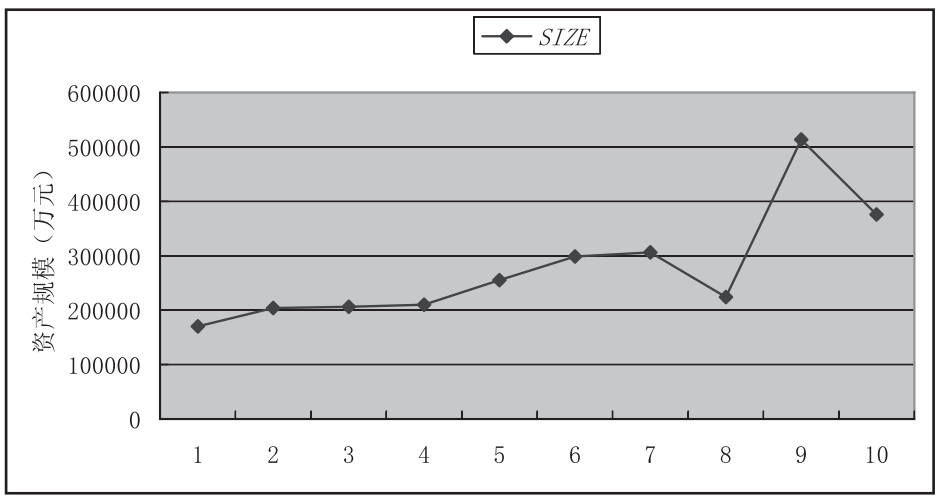


图5 内部市场活跃程度与资产规模



大股东的内部市场总的来说表现为一种有效率的组织形式，这与Khanna（2000）的结论是一致的。接着，如果逐步在模型中放入*IPM*的平方项和三次项之后，会计业绩指标*ROA*和*CASHPS*与*IPM*的三种形式分别表现出正相关、负相关和正相关的关系，并且均在不同程度上达到显著性水平。根据*IPM*三个系数组成的一元三次方程，可以求出其一阶导数为0的一元二次方程的两个解。对于以*ROA*为因变量的回归方程来说，求出的两个极值解分别为19.19%和53.41%，对

表3 内部市场的活跃程度与上市公司价值的关系(*IPM = IPM_TOTAL*)

变量	*ROA*			*CASHPS*		
	1	2	3	4	5	6
常数项	−8.406***	−8.350***	−8.254***	0.076	0.078	0.078
	(−5.409)	(−5.371)	(−5.324)	(0.426)	(0.437)	(0.441)
IPM	1.949***	5.080***	13.149***	0.037	0.145	0.773*
	(2.694)	(2.919)	(4.164)	(0.372)	(0.574)	(1.738)
IPM^2		−5.805**	−46.572***		−0.199	−3.136*
		(−2.058)	(−3.509)		(−0.468)	(−1.775)
IPM^3			42.769***			2.829*
			(3.284)			(1.646)
INDEX_MAR	0.292***	0.294***	0.298***	0.031***	0.031***	0.031***
	(5.727)	(5.771)	(5.857)	(4.677)	(4.682)	(4.743)
GROUP	−0.126	−0.155	−0.195	−0.037	−0.038	−0.042
	(−0.518)	(−0.639)	(−0.799)	(−1.359)	(−1.392)	(−1.517)
GOV	−0.643***	−0.661***	−0.686***	−0.082***	−0.082***	−0.085***
	(−3.109)	(−3.190)	(−3.302)	(−2.866)	(−2.880)	(−2.971)
TOP1	−0.017	−0.018	−0.018	0.004	0.004	0.004
	(−0.878)	(−0.915)	(−0.934)	(1.621)	(1.611)	(1.555)
$TOP1^2$	0.001**	0.001**	0.001**	0.00007**	0.00007**	0.00007**
	(2.487)	(2.483)	(2.469)	(−2.488)	(−2.489)	(−2.440)
TOP2_5	0.032***	0.032***	0.031***	−0.001	−0.001	−0.001
	(3.639)	(3.633)	(3.615)	(−0.622)	(−0.624)	(−0.592)
TRADEABLE						
LOSS						
GROWTH	0.044**	0.044**	0.043**	0.003**	0.003**	0.003**
	(2.207)	(2.207)	(2.208)	(2.010)	(2.010)	(2.010)
LEV	−0.129***	−0.129***	−0.128***	−0.001*	−0.001*	−0.001*
	(−17.662)	(−17.616)	(−17.557)	(−1.821)	(−1.808)	(−1.803)
LISTYEAR	−0.228***	−0.228***	−0.225***	−0.054***	−0.054***	−0.053***
	(−7.521)	(−7.517)	(−7.444)	(−10.486)	(−10.484)	(−10.414)
LNSIZE	1.453***	1.451***	1.439***	0.037***	0.037***	0.037***
	(10.926)	(10.909)	(10.859)	(2.881)	(2.875)	(2.877)
FIXEDEFFECTS	Yes	Yes	Yes	Yes	Yes	Yes
样本数	4995	4995	4995	4995	4995	4995
Adj_R^2(%)	24.68	24.71	24.77	5.75	5.74	5.76
模型F值	55.66	53.98	5251	11.16	10.81	10.54
拐点	—	—	19.19% 53.41%	—	—	15.63% 58.27%

注：括号中是经White异方差修正的回归系数T统计量；***、**、*分别表示显著性水平0.01、0.05、0.10。

TOBIN Q1			*TOBIN Q3*		
7	8	9	10	11	12
6.215***	6.213***	6.214***	15.238***	15.235***	15.237***
(32.773)	(32.764)	(32.737)	(23.084)	(23.085)	(23.080)
0.297***	0.241**	0.503**	0.541***	0.409	1.049**
(5.596)	(2.151)	(2.559)	(4.316)	(1.413)	(1.998)
	0.105	−1.192		0.244	−2.921
	(0.491)	(−1.481)		(0.489)	(−1.392)
		1.331			3.247
		(1.625)			(1.590)
0.002	0.002	0.002	0.040***	0.040***	0.040***
(0.510)	(0.496)	(0.544)	(3.667)	(3.660)	(3.691)
−0.043***	−0.042***	−0.044***	−0.082	−0.081	−0.084
(−2.760)	(−2.707)	(−2.792)	(−1.586)	(−1.554)	(−1.615)
−0.012	−0.011	−0.012	−0.107**	−0.106**	−0.109**
(−0.891)	(−0.863)	(−0.928)	(−2.513)	(−2.492)	(−2.539)
−0.003**	−0.003**	−0.003**	−0.014***	−0.014***	−0.014***
(−2.274)	(−2.266)	(−2.278)	(−3.589)	(−3.582)	(−3.594)
0.00001	0.00001	0.00001	0.0004***	0.0004***	0.0004***
(0.910)	(0.914)	(0.917)	(7.915)	(7.916)	(7.922)
−0.002***	−0.002***	−0.002***	0.023***	0.023***	0.023***
(−3.369)	(−3.368)	(−3.342)	(10.407)	(10.407)	(10.420)
0.00006***	0.00006***	0.00006***	0.0001***	0.0002***	0.0001***
(3.358)	(3.355)	(3.356)	(3.450)	(3.448)	(3.449)
−0.061***	−0.061***	−0.060***	−0.032	−0.032	−0.031
(−3.060)	(−3.068)	(−3.043)	(−0.368)	(−0.373)	(−0.360)
0.0001	0.0002	0.0002	0.001	0.001	0.001
(0.525)	(0.526)	(0.525)	(0.989)	(0.990)	(0.989)
0.0004	0.0004	0.0004	−0.012***	−0.012***	−0.012***
(−1.016)	(−1.022)	(−1.012)	(−7.645)	(−7.646)	(−7.637)
0.015***	0.015***	0.015***	0.040***	0.040***	0.041***
(6.305)	(6.306)	(6.335)	(5.715)	(5.715)	(5.740)
−0.355***	−0.355***	−0.356***	−1.049***	−1.048***	−1.049***
(−18.824)	(−18.821)	(−18.806)	(−15.670)	(−15.671)	(−15.669)
Yes	Yes	Yes	Yes	Yes	Yes
4995	4995	4995	4995	4995	4995
55.53	55.52	55.53	53.73	53.72	53.72
189.89	184.28	179.11	176.94	171.71	166.84
—	—	—	—	—	—

于*CASHPS*，则分别为15.63%和58.27%。换句话说，在内部购销总额占总资产的比例达到19.19%（或15.63%）和53.41%（或58.27%）时，上市公司的*ROA*（或*CASHPS*）分别达到高点和低点。第一个极值点之前，随着内部交易的增加，*ROA*（或*CASHPS*）逐渐提高，过了这个点并在第二个极值点之前则逐渐降低，当内部交易超过第二个极值点时，*ROA*（或*CASHPS*）再次提高。与会计业绩不同的是，内部市场对上市公司市场价值的影响并不存在显著的曲线关系，尽管在系数的符号上与财务指标相同，但均没有达到显著性水平。[11]

整体上，我国大股东的内部市场对上市公司价值（尤其是会计业绩）具有一定的区间效应：在活跃程度不同的内部市场中，对企业价值的影响截然相反。因此，在内部交易与上市公司价值之间不存在一成不变的线性关系。

四、动机复杂、多功能的大股东内部市场：一种理论解释

（一）动机复杂、多功能的大股东内部市场：一个分析框架

为了解释大股东内部市场对上市公司价值的上述复杂关系，本文尝试提出一个分析框架，即“**动机复杂、多功能的大股东内部市场**”。该框架认为：在我国特殊的制度环境下，由于环境的复杂性和利益主体的多样性，上市公司与大股东之间的内部市场，具有复杂的形成动因：内部市场是在外部市场机制、大股东激励乃至政府利益等各种内外因素的共同驱动下形成的；由于这种动机的复杂性，大股东的内部市场在实际运作过程中表现出了复杂的经济后果：内部市场既可能促进经营效率的提高，又可能成为大股东“掏空”的手段，甚至有助于政府公共治理责任的实现，从而表现出内部市场功能的多样性。上述理论框架具体可以从以下三个层次进行理解：

第一，分析大股东内部市场的前因后果，必须在其赖以生存的制度环境下展开。首先，我国目前仍然是典型的转型经济和新兴市场特征，在这一大环境下，脱胎于计划经济体制的各种外部市场机制仍然存在诸多不完善的地方，运用市场机制的交易成本依然很高。因此，企业运用非市场机制替代或补充外部市场的激励较高。与此同时，作为经济体制改革的重要一步，我国的企业集团在政府行政干预和市场机制的双重作用下应运而生，为内部市场的形成奠定了组织基础。其次，我国转型经济的另一个重要特征是：分权化改革后政府特别是各级地方政府在微观经济的运行过程中具有明确和强烈的激励来源，政府干预普遍存在。最后，国企股份制改革的需要赋予了证券市场为国企改革和脱困服务的基本宗旨，上市公司普遍存在以“一股独大”为控制基础、以集团控制

[11] 在敏感性分析中，如果把内部交易变量改为用主营业务收入而不是总资产进行调整，则内部市场与市场价值也存在上述显著的曲线关系。

为表现形式以及政府作为终极控制人的大股东控制，从而产生一系列以大股东利益侵占为核心的上市公司治理问题。

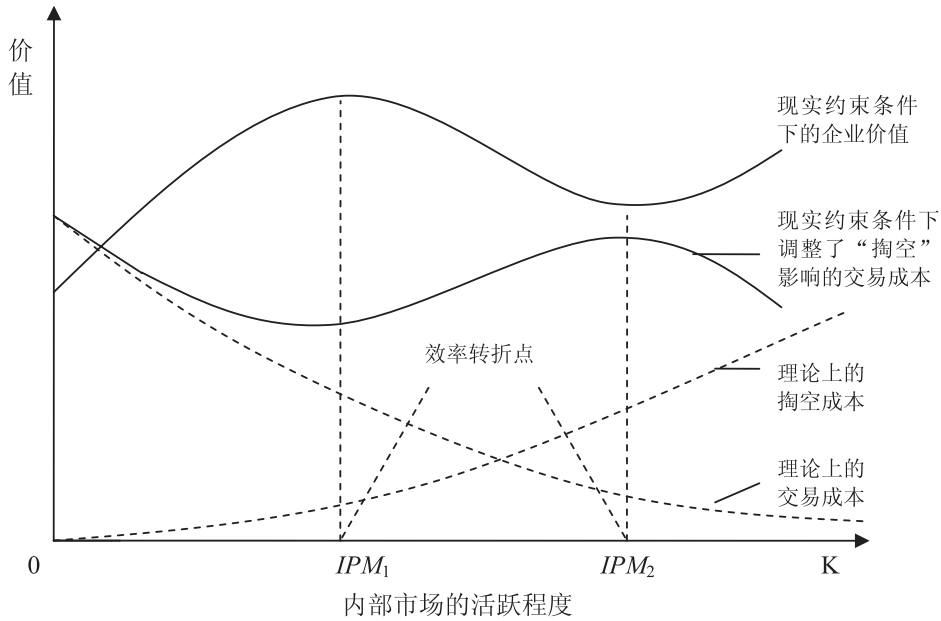
第二，由于内部市场的诸多“天然”优势，大股东与上市公司建立活跃的内部市场便具有足够并且复杂的激励来源，这其中，有基于降低外部市场运作的交易成本产生的市场激励，也有在相对脆弱的法制环境和治理系统下大股东控制必然产生的“掏空”激励，还有地方政府期望通过地方企业实现政府目标的公共治理激励。我国的大股东内部市场正是在上述复杂动机的共同驱动下形成和发展起来的。

第三，由于上述动机的复杂性及其潜在的冲突，在大股东内部市场的实际运作过程中，必然体现出复杂的经济后果，表现出内部市场功能的多样性。对于同一经济后果（如上市公司的会计业绩、市场价值和透明度等）而言，活跃程度不同的内部市场背后可能代表了不同的激励，从而具有不同程度甚至不同性质的表现。即使是同一个内部市场中，其运作也可能在降低市场交易成本的同时，也伴随着大股东基于自利动机通过内部市场渠道的利益输送行为，从而，内部市场经济后果的净效应，取决于其背后各种激励和约束力量的对比。

发展中国家的实践表明，企业集团这种组织结构总是与一国经济的早期发展阶段相联系，它们被认为是用来代替不发达的市场和制度的一种组织结构（Khanna and Palepu, 1997, 2000）。中国的转轨经济和新兴市场双重特征同样是我国企业集团形成的一个重要原因。但我国特殊的经济和政治体制决定了企业集团的形成更多是政府行政干预的结果，因为我国企业集团绝大部分是由原来的行业主管部门和国有企业演变、改组而成，其组建方式和途径都有特殊性。具体来说，根据中国集团公司促进会（2004）的归纳，我国企业集团主要有以下五种组建方式和发展途径：（1）对大型企业进行集团改革，并对企业集团的核心企业实行国有资产授权经营；（2）改革国家行业性公司；（3）对行政行业主管部门进行机构改革；（4）通过集中国有股权管理，组建国有控股公司；（5）通过投资体制改革，组建和发展企业集团。由此可见，我国企业集团主要是国有企业和经济体制改革的结果（Jian and Wong, 2005）。尽管如此，在企业集团的实际运作过程中，其内部市场的形成却可能不仅受到行政干预的影响，还与外部市场环境密切相关。郑国坚和魏明海（2007）检验过大股东内部市场形成的复杂动机，上市公司与大股东内部市场的活跃程度，与所在地区的市场化程度、大股东的控制特征以及政企关系密切相关。地区市场化程度越低、大股东控制权越大、与地方政府的关系越密切，内部市场越活跃。这说明，在促使大股东建立活跃内部市场的因素中，既有降低交易成本的效率促进考虑，也有大股东的掏空动机和地方政府的公共治理需要。内部市场的经济后果也就可能是这些功能共同作用的结果。

进一步看，尽管同时存在不同的功能，但某种功能却可能主要与某一活跃程度的内部市场相联系。在某些内部市场中，交易成本节约所体现出来的效率

图6 大股东内部市场的活跃程度与上市公司价值



优势可能是主要的，而在其他情况下，内部市场可能主要体现为大股东“掏空”的手段，从而使得内部市场因为其不同的活跃程度而存在区间效应。

在我国的大股东内部市场中，这种“区间效应”有何特征？换言之，在什么情况下内部市场可能主要体现为大股东“掏空”，在什么情况下又主要表现为经营效率的提高？

图6提供了一个简化的分析框架。图中横坐标代表内部市场的活跃程度，越往右表示内部交易越多，纵坐标表示上市公司价值。最上面的曲线是根据前面实证研究结果描绘的上市公司价值随着内部交易增加的变化曲线。出于方便分析的考虑，我们假定内部市场的主要效应只有“效率促进”和“掏空”两种。根据经典的交易成本经济学和有关企业集团的主流理论，内部市场交易是一种有助于降低交易成本的制度安排。理论上，内部市场越活跃，这种“效率促进”优势越明显，因此，在不考虑其他因素干扰的情况下，随着内部市场交易的增加，交易成本应该会一直降低，直到现实约束条件下内部市场可以容纳的最大交易程度（如图中的K点），图6中最下面的虚线描绘了这种变化趋势。与此同时，内部市场还可能存在大股东“掏空”的问题。根据“掏空”理论，在没有内部交易的情况下，与此有关的掏空成本为零，而之后内部市场越活跃，意味着大股东通过内部市场渠道为自身输送利益的能力和可能性增加，掏空成本也逐渐增加。因此，理论上“掏空”曲线应该与理想状态的交易成本曲线相反。图6中的另一条虚线描绘了这种理论上的掏空成本曲线。

根据图6中两条虚线的描绘，理论上，随着内部市场活跃程度的提高，一方面交易成本下降，另一方面掏空成本增加，那么，在现实的约束条件下，内部市场主要体现效率优势还是掏空效应？我们认为，由于存在一些制度性或垄断方面的原因，在内部市场活跃程度的前后两个较大的区间，效率优势更可能占主导地位，而在内部市场处于中等活跃程度的较小区间，掏空更可能是主要效率。具体分析如下：

首先，在我国，由于经济体制转型、国有企业改革以及大型企业集团的组建等特殊原因，分拆上市成为早期绝大多数企业集团的唯一模式，即上市公司通常由集团公司股东采取剥离主要或部分经营性资产的方式设立。在这种情况下，上市公司即使获得母公司的主要或部分经营性资产，也往往不能完全独立经营，在经营的某些环节上（如上游或下游环节）仍需依赖母公司，某些情况下甚至母公司的正常运作也需要上市公司的配合。在这个区间内，大股东可能纯粹为了配合上市公司或者自身经营的完整性和稳定性使用内部市场。因此，当内部市场开始形成并初具规模时（如图6中内部交易从0到IPM_1的部分），内部市场降低交易成本的优势在边际上是递增的，而此时掏空效应却不存在或者很小，因此此时内部市场主要体现为效率优势。

其次，在内部市场活跃程度非常高的情况下（如图6中IPM_2到K的内部交易区间），效率优势也可能超过掏空效应成为主要效应。理由是，我国在80年代开始模仿日本和韩国组建大型企业集团，这些企业往往分布在钢铁、汽车、重型机械等重工业以及石油化工和电力等重要的垄断性基础能源行业，目前我国证券市场中相当一部分上市公司从属于这些企业集团。除了受上市前资产重组等制度安排的影响之外，两方面的原因可能导致这些集团的内部市场特别活跃：第一，由于这些企业集团规模往往特别庞大，使得集团内部资源的整合显得特别重要，集团内部的产业安排和组织结构设计成为决定集团成败的战略性决策。由于上市公司的特殊资源优势和地位，对上市公司的产业安排就成为集团的重要战略选择。大型企业集团经常选择内部垂直一体化的策略。即上市公司成为企业集团某一核心产业的制造和加工基地，而上下游或其他重要环节则交由集团其他成员承担。这种情况下，上市公司与集团要么不发生内部交易，要么大部分甚至全部交易都通过企业集团内部进行，这时候是否一体化整合纯粹属于企业集团的整体战略选择。[12]我们把这种内部交易关系描述为**“战略性内**

[12] 如上市公司“青岛海尔”（600690）从上市一开始就以海尔集团的一个优质资产的形态出现，它是海尔集团对其核心优质资产（海尔电冰箱总厂）进行剥离上市的产物。与集团的其他资产，如海尔空调器总厂、海尔电冰柜总厂一样，上市公司并没有自己独立的经营系统。最初是各种主要产品分属不同事业部，在每个事业部下分开采购、生产和销售等职能，这时的上市公司只是作为冰箱事业部的一部分存在。2000年海尔集团开始进行内部市场链改革和流程再造，集团原来各事业部（包括上市公司）的财务、采购、销售业务全部分离出来，同时建立海外推

部市场”；第二，对处于某些垄断性行业的上市公司来说，其经营所需的关键投入品（或生产的产品）由于垄断或受政府管制而无法直接从外部市场获取（如石化业上市公司对原油的需求）或直接销往外部市场，在这种情况下，通常的做法是由企业集团设立专门的具有垄断性质的子公司，专门为集团内部成员企业提供原材料（或销售产品），在集团与上市公司之间形成了非常活跃的内部市场。我们将其称为“**垄断性内部市场**”。因此，无论是“战略性内部市场”或是“垄断性内部市场”，降低交易成本，促进集团整体经营效率或者规避管制应该是大股东的首要考虑，此时掏空应该不是内部交易发生的主要原因，更不是内部市场的主效应。

最后我们分析处于中间活跃程度的内部市场。一方面，此时的内部市场不太可能由于上述战略性或垄断性的原因而形成高度活跃的内部市场，但又足够活跃，背后的动机值得怀疑；另一方面，相对于满足上市公司（或大股东）正常的交易需要来说，此时的内部市场交易可能是过量的，存在较大的自由操纵空间。结合两者，此时的内部市场交易可能主要体现为大股东从上市公司转移利润和资源的机会主义动机。尽管客观上来看，此时的内部市场交易依然具有降低某些交易成本的优势，但后者可能不再是主要力量，从而处于这个区间的内部市场可能最终表现出大股东对上市公司的掏空。

基于上述分析，如果我们以交易成本作为分析的基础，把调整了包括掏空效应在内的其他因素之后的**现实交易成本**作为决定企业价值的唯一因素，则在内部交易前后两个较大的区间内，由于“效率促进”可能大于“掏空”效应，使得调整了“掏空”等因素之后，内部市场主要表现出有效率的一面，体现为现实交易成本的下降，企业价值的提高；而在内部市场交易的中间状态，“掏空”问题可能比较严重并压倒内部市场内在的效率优势，内部市场表现出无效的一面，体现为现实交易成本的上升，企业价值的下降。这样，在内部市场的整个交易区间中，现实约束条件下的交易成本曲线和企业价值曲线就分别表现出“**先下降后上升再下降**”和“**先上升后下降再上升**”的变化过程。

进本部、商流推进本部、物流推进本部、资金流推进本部，再将企业内部原先分散、各自对外的各种资源整合为全集团统一创品牌服务的营销（商流）、采购（物流）、结算（资金流）体系，使整个企业变成一个环环相扣的链条。在上述组织设计下，企业与集团的关联交易比例自然非常高。从2000年至2004年，上市公司与集团各企业的关联采购和销售平均都在95%以上，2002年，上述比例分别达到了最高的98.99%和99.80%。显然，这种异常发达的内部市场交易关系更多的可能是出于集团整体战略选择的考虑，而不是大股东掏空上市公司的需要。

五、大股东内部市场的“掏空”和“效率促进”效应：进一步的经验证据

下面，本文将对内部市场的“掏空”和“效率促进”效应进行实证检验，从而为前面的理论解释提供进一步的经验证据支持。

（一）研究设计

为了检验内部市场中的“掏空”效应和“效率促进”效应，采用模型(2)进行回归，其中，我们同样逐一引入内部市场连续变量的一次项*IPM*、平方项IPM^2和三次项IPM^3以考察不同程度的内部交易是否上述两种效应具有不同的影响。

模型(2)：

$$\begin{aligned} TUNNELLING_i/TRANSCOST_i = {} & \beta_0 + \beta_1 IPM + \beta_2 IPM^2 + \beta_3 IPM^3 + \beta_4 INDEX\_MAR \\ & + \beta_5 GROUP + \beta_6 GOV + \beta_7 TOP1 + \beta_8 TOP1^2 \\ & + \beta_9 TOP2\_5 + \beta_{10} GROWTH + \beta_{11} LEV + \beta_{12} LISTYEAR \\ & + \beta_{13} LNSIZE + FIXEDEFFECTS + \varepsilon_{it} \end{aligned} \quad (2)$$

上述模型中，因变量$TUNNELLING_i$是衡量大股东“掏空”效应的指标，包括销售毛利率和资金净占用率。$TRANSCOST_i$则是交易成本的替代变量，包括期间费用率的三个子项目，即营业费用率、管理费用率和财务费用率。

如表1所示，对于大股东掏空行为的衡量，以往文献或者以关联交易行为发生一定时间窗口内的市场反应作为衡量大股东掏空的替代变量（如Bae *et al.*, 2002; Jian and Wong, 2005），或者直接以企业价值的高低反映掏空的结果（如Claessens *et al.*, 2003）。但上述衡量方法通常由于噪音较大等问题而存在局限性。有鉴于此，如表1中C栏所示，本文采用了一种更为直接的方法衡量关联交易导致的大股东“掏空”行为。在内部市场交易中，如果大股东提高向上市公司提供原材料的价格，则关联采购额会提高上市公司的采购成本，从而间接降低销售毛利率，而压低向上市公司购买产品的价格，则直接降低上市公司的销售毛利。这样，关联采购和销售越多，越可能降低上市公司的销售毛利率。因此，把销售毛利率与上市公司向大股东的产品购销联系起来，有助于我们分析大股东是否存在直接通过产品关联交易进行“高卖低买”的转移定价行为，从而达到转移利润的目的。[13]其次，大股东对上市公司资金占用行为被认为是大股

[13] 值得关注的是，无论是主营业务成本率还是销售毛利率，这些指标本身与大股东“掏空”是没有直接联系的，只有它们与关联产品购销相联系时才可以观察大股东的“掏空”行为。因此，模型中其他变量的回归结果可能代表了其他的含义。

东掏空上市公司的一种常见手段，并且，它与内部市场的运作密切相关，因此我们也把资金净占用作为大股东掏空的替代指标。本文考虑了两种资金占用情况：绝对资金占用比例和相对资金占用比例。前者是上市公司应收大股东的所有款项减去应付大股东的所有款项之后的净额，并经过总资产调整；后者则是由大股东绝对资金占用比例减去非大股东的绝对资金占用比例，反映了大股东的相对“掏空”程度。最后，采用期间费用率的总和及其子项目衡量交易成本。根据现行的会计准则，期间费用代表公司主营业务成本之外发生的各种期间耗费，在利润表中包括营业费用、管理费用和财务费用三大类，每一类又包括众多明细项目。我们认为，在不考虑其他因素影响的情况下，期间费用项目的增减首先反映了经营期间许多直接交易成本的变化，代表内部市场的交易成本节约优势。比如，内部市场中交易双方的信息优势和渠道共享可能降低公司的营业费用（如广告支出）；但现实情况是，期间费用同时也反映了大股东掏空行为对上市公司造成的间接或直接的成本负担，如大股东通过关联交易拖欠上市公司往来款项，增加后者坏账的可能性，导致管理费用和财务费用的增加。因此，我们最终观察到的期间费用率较好地反映了在调整了大股东掏空成本之外的期间交易成本，即图6分析中的“现实交易成本”。[14]

（二）实证结果

1、描述性统计分析

表4是各主要变量的描述性统计结果。上市公司的销售毛利率平均（中位数）为73.82%（77.18%），平均有2%的资金被大股东占用，相比之下，非大股东并没有拖欠上市公司资金，而是让后者占用了0.41%的资金，大股东的相对资金净占用率为2.41%。从净交易成本看，上市公司的期间费用率、营业费用率、管理费用率和财务费用率的均值（中位数）分别为20.08%（15.25%）、5.93%（3.88%）、11.15%（8.07%）和3.00%（1.79%）。

2、单变量分析

图7至图9是根据内部市场的活跃程度进行的分区间描述。首先，如图7和图8所示，在没有任何内部交易的情况下，大股东资金占用率均处于最低点，而销售毛利率处于最高点，这说明内部市场的存在可能带来了更多的大股东掏空行

[14] 根据前面的分析，检验内部市场的交易成本节约优势最理想的做法是采用直接反映交易成本的变量。但在实证研究中，我们似乎无法找到不受其他因素（如大股东掏空）影响的纯粹的交易成本变量。期间费用率应该是比较接近这一概念的理想变量，尽管如此，它仍然可能包含了大股东掏空的成本在内，因此我们放弃直接考察交易成本节约优势的做法，转而分析考虑了大股东掏空成本之后的期间费用率，进而推断内部市场效率优势的存在。

表4 模型(2)因变量的描述性统计

变量(%)	样本	均值	标准差	最小值	最大值	25分位	50分位	75分位
销售毛利率	5141	26.18	15.15	−0.01	96.26	15.44	22.82	33.65
大股东绝对资金净占用率	5141	2.00	6.96	−40.90	99.01	−0.03	0.00	1.32
非大股东绝对资金净占用率	5141	−0.41	21.47	−947.00	63.92	−7.18	0.25	8.04
大股东相对资金净占有率	5141	2.41	23.46	−81.86	947.00	−7.43	0.73	9.03
期间费用率	5141	20.08	18.90	0.11	198.12	9.78	15.25	23.40
营业费用率	5141	5.93	7.08	0.00	107.23	1.85	3.88	7.35
管理费用率	5141	11.15	13.14	−31.01	165.62	4.87	8.07	12.67
财务费用率	5141	3.00	5.07	−18.05	124.06	0.55	1.79	4.00

图7 内部市场的活跃程度与大股东转移定价

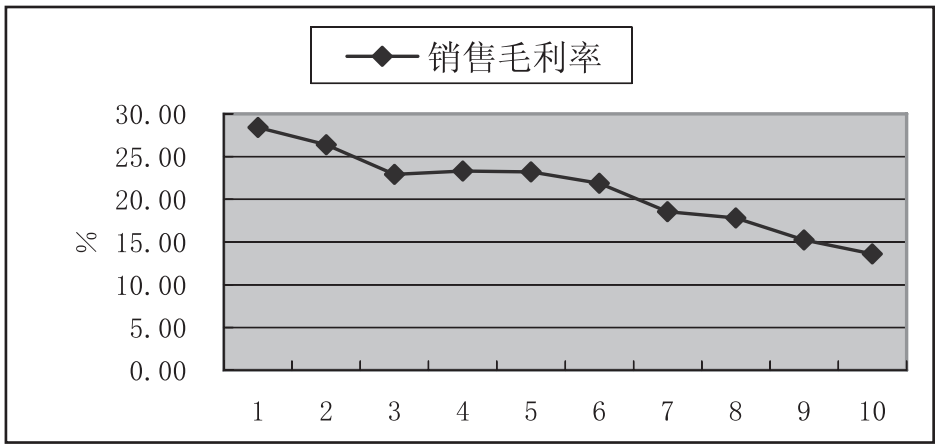
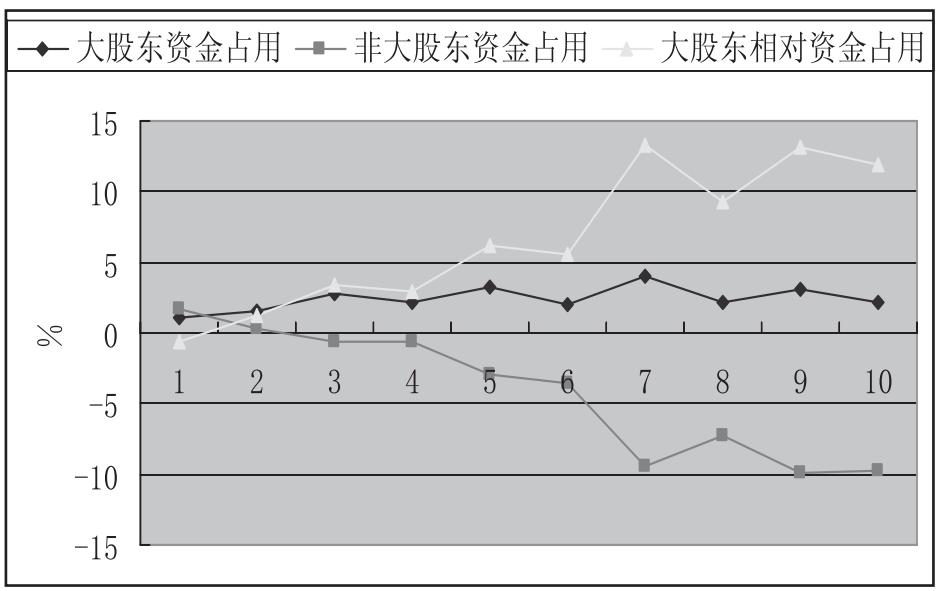
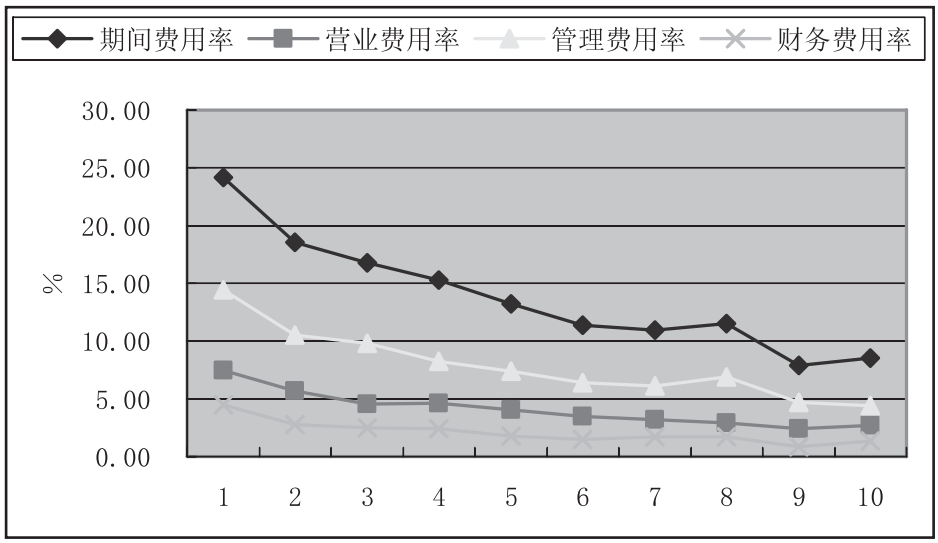


图8 内部市场活跃程度与大股东资金占用



为。随着内部交易比例的增加，销售毛利率逐渐下降，说明大股东的利润转移行为可能随着内部交易的增加而单调递增。而大股东资金净占用，无论是绝对指标还是相对指标，整体上均表现出了先升后降的倒U型变化趋势，即在区间7之前，资金占用逐渐增加，但在区间7之后，资金占用有下降的趋势。其次，如图9所示，从现实交易成本看，各种期间费用率在不存在任何内部交易关系时

图9 内部市场活跃程度与净交易成本



处于最高点，这表明，尽管存在内部市场时大股东的掏空成本更高，但同时却可以获得更大的交易成本节约，在调整了掏空成本之后，内部市场的净交易成本仍然是较低的。随着内部交易的增加，各种期间费用率在区间6之前呈直线下滑的趋势，但在此之后则轻微的上升，并在区间8达到转折点，之后期间费用率又开始下降。这又说明内部市场的活跃程度与现实交易成本之间并不是简单的直线关系，而可能是“先下降后上升再下降”的倒N型关系。此外，把图8和图9进行比较后发现，在区间7，大股东“掏空”最严重，而在区间6至区间8，调整了“掏空”成本之后的现实交易成本也处于上升的阶段，表明此时的“效率促进”优势受到了“掏空”效应的制约。

3、回归分析

表5是对模型(2)的回归结果，因变量为各“掏空”变量。根据前面的分析，我们预测内部市场的活跃程度与大股东掏空之间存在先升后降的倒U型关系，因此，变量*IPM*和IPM^2 的回归系数应该分别与大股东掏空行为显著为正和显著为负，表5的结果证实了上述预测。在以销售毛利率为因变量的回归模型中，*IPM*显著为负（$P < 0.0001$），IPM^2则显著为正（$P < 0.0001$）。无论是大股东绝对资金占用还是相对资金占用，*IPM*和IPM^2分别显著为正和负（$P < 0.0001$）。这说明，随着内部市场活跃程度的提高，大股东的利润转移和资金占用行为确实表现出先上升后下降的倒U型关系。进一步，根据模型的回归系数，我们计算得到曲线的拐点分别是：销售毛利率53.82%、绝对资金占用率58.38％、相对资

表5　内部市场与大股东“掏空”

	关联销售与销售毛利率 (*IPM*=*IPM_SALE*)			绝对资金占有率 (*IPM*=*IPM_TOTAL*)			相对资金占有率 (*IPM*=*IPM_TOTAL*)		
	4	5	6	7	8	9	10	11	12
常数项	38.207***	37.947***	37.945***	2.931*	3.066*	3.067*	−27.800***	−27.522***	−27.523***
	(9.499)	(9.416)	(9.415)	(1.727)	(1.803)	(1.804)	(−7.668)	(−7.595)	(−7.595)
IPM	−23.072***	−35.080***	−40.716***	3.763***	10.995***	11.722**	19.401***	34.225***	32.738***
	(−8.046)	(−6.171)	(−4.259)	(3.220)	(4.091)	(2.599)	(9.160)	(6.881)	(3.749)
IPM^2		32.588***	65.327		−9.417***	−17.019		−27.503***	−20.146
		(3.014)	(1.263)		(−3.153)	(−0.857)		(−3.446)	(−0.568)
IPM^3			−44.478			3.693			−7.545
			(−0.754)			(0.189)			(−0.224)
INDEX_MAR	−0.521***	−0.529***	−0.531***	−0.181***	−0.176***	−0.176***	0.541***	0.552***	0.552***
	(−4.044)	(−4.106)	(−4.115)	(−3.396)	(−3.309)	(−3.310)	(4.472)	(4.570)	(4.561)
GROUP	−1.065*	−1.001*	−0.984*	0.991	0.921***	0.917***	1.224**	1.081**	1.089**
	(−1.839)	(−1.722)	(−1.689)	(5.269)	(4.893)	(4.852)	(2.422)	(2.128)	(2.130)
GOV	−2.580***	−2.527***	−2.517***	−0.266	−0.309	−0.312	2.207***	2.118***	2.123***
	(−5.066)	(−4.959)	(−4.933)	(−1.194)	(−1.393)	(−1.408)	(4.454)	(4.273)	(4.287)
TOP1	−0.181***	−0.182***	−0.182***	0.009	0.007	0.007	0.078	0.074	0.074
	(−2.922)	(−2.949)	(−2.940)	(0.417)	(0.332)	(0.329)	(1.497)	(1.425)	(1.428)

TOP1²	0.002***	0.002***	0.002***	0.00005	0.00006	0.00006	0.00004	0.00004	0.00004
	(2.864)	(2.920)	(2.914)	(0.227)	(0.224)	(0.226)	(–0.066)	(–0.070)	(–0.071)
TOP2_5	0.064***	0.064***	0.064***	–0.004	–0.005	–0.005	0.019	0.019	0.019
	(2.860)	(2.870)	(2.868)	(–0.460)	(–0.476)	(–0.473)	(0.897)	(0.884)	(0.880)
GROWTH	0.027	0.027	0.027	0.011	0.010	0.010	0.066	0.066	0.066
	(1.549)	(1.559)	(1.560)	(0.407)	(0.402)	(0.401)	(1.458)	(1.452)	(1.452)
LEV	–0.209***	–0.209***	–0.209***	0.005	0.006	0.006	0.130***	0.132***	0.131***
	(–11.468)	(–11.484)	(–11.487)	(0.702)	(0.771)	(0.772)	(9.749)	(9.824)	(9.823)
LISTYEAR	–0.089	–0.085	–0.085	0.258***	0.258***	0.258***	0.247***	0.246***	0.246***
	(–1.109)	(–1.053)	(–1.061)	(7.425)	(7.433)	(7.460)	(3.351)	(3.350)	(3.344)
LNSIZE	0.871***	0.892***	0.892***	–0.189	–0.195	–0.196	1.014***	1.000***	1.001***
	(2.786)	(2.848)	(2.849)	(–1.325)	(–1.371)	(–1.373)	(3.491)	(3.442)	(3.444)
FIXEDEFFECTS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
样本数	4995	4995	4995	4995	4995	4995	4995	4995	4995
Adj_R^2(%)	29.80	29.83	29.82	3.83	4.07	4.05	11.82	12.01	11.99
模型F值	69.58	67.55	65.50	7.34	7.54	7.31	22.31	22.02	21.35
拐点		53.82%			58.38%			62.22%	

注：括号中是经White异方差修正的回归系数T统计量；***、**、*分别表示显著性水平0.01、0.05、0.10。

金占用率62.22%，平均是57.60%。即当内部市场交易比例达到57.60%时大股东的掏空行为最严重，在此之前和之后，则随着内部交易的增加分别上升和下降。值得注意的是，这个转折点与前面关于会计业绩回归的第二个极值点非常的接近。这意味着，大股东的掏空可能是内部市场导致企业价值下降的重要原因。为检验上述结论的可靠性，我们分别在原来模型的基础上再加入内部市场的三次项IPM^3，结果发现，三个模型中IPM^3均不显著。因此，内部市场的活跃程度与大股东掏空行为之间并不存在N型关系。

表6是根据模型(2)对各期间费用率的回归结果。尽管图9描绘的内部市场与期间各费用率之间的曲线关系并不明显，但回归结果却表明，内部市场活跃程度与期间费用率之间确实存在显著的N型关系，即IPM和IPM^3与期间费用率显著负相关，而IPM^2则显著正相关，显著性水平均小于0.0001。根据IPM、IPM^2和IPM^3的回归系数，通过求解一阶条件为0时的一元二次方程，我们计算出营业（管理、财务）费用率曲线的两个极值点分别为26.58%（26.54%、18.32%）和55.47%（54.49%、54.37%），三种期间费用率的平均极值点分别为23.81%和54.78%。换言之，随着内部交易的增加，期间费用率先是下降并在23.81%的内部交易比例时达到低点，接着又开始上升并在54.78%的比例达到高点，最后随着内部交易的增加期间费用率又开始下降。同样值得注意的是，期间费用率的两个转折点与会计业绩非常的接近，结合表5的结果，可以推断，内部市场对上市公司业绩的影响主要取决于“效率促进”和“掏空”两种基本效应的综合影响。

六、敏感性分析

从表3可以看到，内部市场对企业价值的影响在会计指标特别是应计制会计指标中比较明显，而对现金制会计指标和市场价值指标的影响则相对弱一些。对于市场价值与内部市场的微弱正相关关系，我们认为，投资者可能无法区分内部市场中大股东的“掏空”行为和正常的关联交易，从而投资者即使关注到良好的会计业绩，但同时预期在掏空行为严重的情况下即使再多的会计利润也不可能最终返回到投资者手中，导致内部市场在财务表现良好的同时却无法获得相应的市场表现，这与Claessens *et al.*（2006）和Khanna（2000）的观点是一致的。但对于会计指标中应计制与现金制指标的差异，上述理论似乎无法给出满意的解释。相比之下，盈余管理应更有解释力。最近一些关于盈余管理文献的证据表明，大股东存在通过关联交易提高会计盈余以实现其掏空动机的行为。其中，Jian and Wong（2005）发现，当企业有动机去提高盈余或者即将发行新股时，它们倾向于向控制股东或其控制的其他子公司发生关联销售行为。一旦上市公司有了更多的自由现金流量，则它们更可能通过向大股东提供慷慨的借贷等形式向大股东转移资源。Aharony *et al.*（2006）对我国1999年至2001年198家首

表6 内部市场与“效率促进”优势(*IPM = IPM_TOTAL*)

变量	营业费用率			管理费用率			财务费用率		
	1	2	3	4	5	6	7	8	9
常数项	17.889***	17.759***	17.752***	63.161***	62.997***	62.988***	19.809***	19.788***	19.786***
	(7.833)	(7.777)	(7.777)	(10.290)	(10.262)	(10.263)	(7.061)	(7.053)	(7.052)
IPM	−5.624***	−12.979***	−23.330***	−7.527***	−16.675***	−30.522***	−0.734	−1.896	−5.554**
	(−10.222)	(−7.665)	(−6.858)	(−5.048)	(−4.380)	(−4.101)	(−1.222)	(−1.346)	(−2.114)
IPM²		13.638***	64.001***		16.959***	85.499***		2.154	20.264**
		(5.388)	(5.267)		(3.152)	(2.910)		(1.073)	(2.108)
IPM³			−52.016***			−70.339**			−18.585**
			(−4.776)			(−2.540)			(−2.057)
INDEX_MAR	−0.415***	−0.420***	−0.425***	−0.431***	−0.438***	−0.445***	−0.176***	−0.177***	−0.179***
	(−5.328)	(−5.391)	(−5.452)	(−2.686)	(−2.725)	(−2.766)	(−2.715)	(−2.725)	(−2.751)
GROUP	−0.386	−0.316	−0.260	−0.664	−0.577	−0.503	−1.261***	−1.249***	−1.230***
	(−0.964)	(−0.790)	(−0.651)	(−0.770)	(−0.664)	(−0.575)	(−3.018)	(−2.978)	(−2.925)
GOV	−0.254	−0.211	−0.175	1.058	1.113	1.160*	−0.984***	−0.977***	−0.965***
	(−0.802)	(−0.663)	(−0.547)	(1.531)	(1.600)	(1.657)	(−3.276)	(−3.237)	(−3.183)
TOP1	−0.026	−0.024	−0.023	−0.327***	−0.324***	−0.323***	−0.094***	−0.094***	−0.093***
	(−0.761)	(−0.710)	(−0.685)	(−4.973)	(−4.948)	(−4.936)	(−3.300)	(−3.292)	(−3.283)
TOP1²	0.0002	0.0002	0.0002	0.003***	0.003***	0.003***	0.001**	0.001**	0.001**
	(0.499)	(0.509)	(0.499)	(4.348)	(4.357)	(4.353)	(2.449)	(2.451)	(2.448)

表6　续

变量	营业费用率			管理费用率			财务费用率		
	1	2	3	4	5	6	7	8	9
TOP2_5	0.032**	0.032**	0.032**	−0.019	−0.019	−0.020	−0.033**	−0.033**	−0.033**
	(2.537)	(2.553)	(2.512)	(−0.752)	(−0.745)	(−0.772)	(−2.448)	(−2.447)	(−2.457)
GROWTH	−0.025	−0.025	−0.025	−0.146*	−0.146*	−0.146*	−0.044*	−0.044*	−0.044*
	(−1.499)	(−1.495)	(−1.494)	(−1.712)	(−1.711)	(−1.711)	(−1.861)	(−1.860)	(−1.861)
LEV	0.015	0.015	0.014	0.150***	0.150***	0.149***	0.157***	0.157***	0.157***
	(1.388)	(1.346)	(1.328)	(3.517)	(3.503)	(3.497)	(10.561)	(10.557)	(10.557)
LISTYEAR	0.069*	0.069*	0.065	0.538***	0.538***	0.533***	0.162***	0.162***	0.161***
	(1.687)	(1.684)	(1.593)	(5.348)	(5.348)	(5.303)	(3.458)	(3.457)	(3.428)
LNSIZE	−0.753***	−0.747***	−0.744***	−4.352***	−4.344***	−4.339***	−1.477***	−1.476***	−1.475***
	(−3.936)	(−3.906)	(−3.889)	(−7.279)	(−7.268)	(−7.264)	(−6.319)	(−6.315)	(−6.312)
FIXEDEFFECTS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
样本数	4995	4995	4995	4995	4995	4995	4995	4995	4995
Adj_R^2(%)	16.71	16.82	16.91	9.60	9.62	9.65	18.37	18.35	18.35
模型F值	33.43	32.67	31.90	18.06	17.58	17.12	37.27	36.11	35.04
拐点			26.58%			26.54%			18.32%
			55.47%			54.49%			54.37%

注：括号中是经White异方差修正的回归系数T统计量；***、**、*分别表示显著性水平0.01、0.05、0.10。

次公开募股的公司的研究则发现，大股东在首次公开募股前通过内部市场的各种关联交易进行盈余管理以确保公司的顺利上市，而在首次公开募股后则通过关联交易为自己输送利益。那么，内部市场中财务业绩的相对优势，就可能是大股东通过内部市场交易进行盈余操纵的结果，而不是效率优势超过掏空效应的结果。

为了确保本文研究结论的可靠性，我们首先以横截面不分行业的Jones模型计算盈余管理作为因变量，内部市场为主要解释变量构建模型以回答第一个问题，即内部市场中的盈余管理行为是否显著以及内部市场的交易程度是否与盈余管理同样存在曲线关系？如表7所示，我们仅考察大股东是否通过内部市场调增利润，[15]结果发现，内部市场变量虽然均与盈余管理正相关，但都不显著。这个结果表明，内部市场虽然容易导致更多的盈余操纵，但这种现象并不明显。即便如此，盈余管理仍然可能影响本文研究结论的可靠性。比如说，在内部市场之外，可能存在其他原因导致了显著的盈余管理行为，而后者导致了会计业绩的波动。为了解决这一问题，如表7所示，我们在模型1中加入了盈余管理变量*EM*继续考察内部市场与企业价值的关系。结果发现，除了对*TOBIN Q*不显著之外，*EM*分别与*ROA*和*CASHPS*显著正相关和负相关，但此时内部市场变量与企业价值指标之间的关系依然与表3的结果保持一致。这说明，内部市场对企业价值的影响并没有受到盈余管理的影响。

此外，本文的内部市场交易变量全部采用总资产进行调整，为了考察解释变量的稳定性，我们改用主营业务收入对内部交易进行调整，重新对模型(1)和模型(2)进行回归，结果如表8所示。除了根据回归系数计算出来的拐点存在一定的差异之外，新的内部市场变量对企业价值、“掏空”指标和交易成本指标的回归结果均与表3、5和6的结果基本一致。在表8中，内部市场对市场价值*TOBIN Q*的回归系数都变得显著，也表现出了显著的N型关系。最后，我们还做了以下敏感性分析：（1）会计业绩改用调整非经常性项目后的净资产收益率*ROE*和每股收益代替；（2）以上市公司一年内的股票超额原始回报率和超额回报率作为市场业绩的替代变量。上述分析结果的（未报告）均表明，但前面的基本结论没有发生实质性的改变。

七、部分局限性和审稿意见的讨论

尽管相对于以往的研究，无论是在研究变量设计的合理性和研究方法的科学性和研究视角的综合性来看，本文的研究都有了较大的改进，大大提高了研究结论的可靠性。但不可否认，与国内外有关企业集团和内部市场的研究一

[15] 我们也考察了内部市场对不考虑盈余管理方向的操控性应计*EM*的影响，结果与表7没有实质性差异。

表7　敏感性分析：考虑盈余管理的影响(*IPM* = *IPM_TOTAL*)

变量	因变量=调增利润的盈余管理（*EM*>0）			因变量=企业价值			
	1	2	3	*TOBIN Q1*	*TOBIN Q3*	*ROA*	*CASHPS*
常数项	16.780***	16.773***	16.750***	6.284***	15.515***	−11.226***	−1.029***
	(5.098)	(5.103)	(5.093)	(30.558)	(20.895)	(−6.940)	(−7.101)
IPM	1.557	2.228	0.733	0.564***	1.169**	14.560***	0.705**
	(1.135)	(0.583)	(0.120)	(2.649)	(2.071)	(4.192)	(1.989)
IPM^2		−1.307	6.272	−1.518*	−3.631	−51.922***	−2.834**
		(−0.197)	(0.282)	(−1.692)	(−1.577)	(−3.534)	(−2.009)
IPM^3			−8.063	1.756*	4.067*	45.700***	2.578*
			(−0.387)	(1.846)	(1.762)	(3.115)	(1.915)
EM				−0.039	−0.734	14.172***	−0.458***
				(−0.582)	(−1.501)	(8.986)	(−3.406)
INDEX_MAR	0.140	0.141	0.140	0.004	0.047***	0.263***	0.002
	(1.284)	(1.288)	(1.277)	(1.364)	(3.991)	(4.991)	(0.489)
GROUP	−0.969	−0.976	−0.969	−0.050***	−0.103*	−0.137	−0.014
	(−1.511)	(−1.520)	(−1.509)	(−3.029)	(−1.908)	(−0.550)	(−0.642)
GOV	−0.983*	−0.987*	−0.983*	−0.012	−0.115**	−0.444**	−0.021
	(−1.852)	(−1.855)	(−1.845)	(−0.873)	(−2.365)	(−2.053)	(−0.941)
TOP1	−0.043	−0.043	−0.043	−0.004**	−0.014***	−0.026	0.001
	(−0.890)	(−0.893)	(−0.885)	(−2.584)	(−3.231)	(−1.271)	(0.426)
$TOP1^2$	0.001	0.001	0.001	0.00002	0.0004***	0.001***	0.00001
	(0.937)	(0.937)	(0.930)	(1.336)	(7.546)	(2.937)	(−0.521)

TOP2_5	0.004	0.004	0.004	−0.002***	0.023***	0.032***	0.0004
	(0.212)	(0.212)	(0.205)	(−3.370)	(10.234)	(3.521)	(0.494)
TRADEABLE				0.000006***	0.00002***		
				(3.123)	(3.211)		
LOSS				−0.066***	−0.094		
				(−3.244)	(−1.377)		
GROWTH	−0.002	−0.002	−0.002	0.00007	0.001	0.035**	0.002**
	(−0.137)	(−0.139)	(−0.138)	(0.212)	(0.640)	(2.318)	(2.078)
LEV	0.065***	0.065***	0.065***	0.0004	−0.012***	−0.123***	0.0002
	(4.596)	(4.593)	(4.590)	(−0.765)	(−6.953)	(−17.516)	(0.453)
LISTYEAR	−0.040	−0.040	−0.040	0.015***	0.040***	−0.086***	0.026***
	(−0.460)	(−0.463)	(−0.468)	(5.361)	(5.318)	(−2.374)	(6.739)
LNSIZE	−0.598*	−0.597*	−0.595*	−0.362***	−1.080***	1.586***	0.095***
	(−1.857)	(−1.857)	(−1.848)	(−17.889)	(−14.929)	(11.825)	(8.386)
FIXEDEFFECTS	Yes	Yes	Yes	Yes	Yes	Yes	Yes
样本数	2468	2468	2468	4995	4995	4995	4995
Adj_R^2(%)	4.52	4.48	4.41	55.78	53.11	29.45	5.58
模型F值	4.80	4.65	4.51	158.30	142.62	56.21	8.83
拐点	—	—	—	—	—	**18.28%**	**15.88%**
						57.17%	**57.41%**

注：括号中是经White异方差修正的回归系数T统计量；***、**、*分别表示显著性水平0.01、0.05、0.10。

表8　敏感性分析：关联交易改用主营业务收入进行调整

变量	企业价值				大股东“掏空”		效率优势		
	TOBIN Q1	*TOBIN Q3*	*ROA*	*CASHPS*	销售毛利率	异常资金占有率	营业费用率	管理费用率	财务费用率
常数项	6.200***	14.616***	−8.249***	0.034	41.098***	−26.977***	18.714***	63.872***	20.713***
	(32.378)	(30.433)	(−5.352)	(0.187)	(10.406)	(−5.838)	(8.106)	(10.284)	(7.208)
IPM	0.718***	1.732***	7.667**	0.538	−12.566***	21.745***	−14.775***	−15.483*	−2.676
	(3.493)	(3.285)	(2.491)	(1.359)	(−4.864)	(4.594)	(−4.437)	(−1.764)	(−0.928)
IPM^2	−3.088***	−7.301***	−34.589***	−2.693*	7.960***	−20.837**	35.048**	72.108**	19.131*
	(−3.319)	(−3.266)	(−2.798)	(−1.656)	(−4.864)	(−2.488)	(2.526)	(2.136)	(1.771)
IPM^3	3.471***	7.653***	33.584***	3.052*			−25.904*	−75.536**	−20.196*
	(3.359)	(3.277)	(2.774)	(1.863)			(−1.731)	(−2.394)	(−1.914)
INDEX_MAR	0.001	0.030***	0.273***	0.031***	−0.531***	0.476***	−0.422***	−0.426***	−0.156**
	(0.438)	(3.367)	(5.383)	(4.627)	(−4.153)	(3.072)	(−5.503)	(−2.673)	(−2.345)
GROUP	−0.045***	−0.126***	−0.053	−0.038	−1.040*	0.877	0.027	−0.597	−1.317***
	(−2.892)	(−2.830)	(−0.217)	(−1.347)	(−1.797)	(1.354)	(0.081)	(−0.672)	(−3.115)
GOV	−0.012	−0.082**	−0.612***	−0.082***	−2.587***	1.850***	−0.255	1.002	−0.997***
	(−0.932)	(−2.214)	(−2.958)	(−2.859)	(−5.090)	(3.054)	(−0.800)	(1.432)	(−3.280)
TOP1	−0.003**	−0.015***	−0.017	0.004	−0.165***	0.103	−0.033	−0.321***	−0.095***
	(−2.447)	(−3.747)	(−0.870)	(1.508)	(−2.681)	(1.605)	(−1.020)	(−4.829)	(−3.277)
$TOP1^2$	0.00001	0.0004***	0.001***	0.00007**	0.002**	0.0003	0.0003	0.003***	0.001**
	(1.152)	(8.136)	(2.666)	(−2.346)	(2.505)	(−0.364)	(0.734)	(4.079)	(2.326)

TOP2_5	−0.002***	0.021***	0.034***	−0.001	0.055**	0.016	0.034***	−0.025	−0.036**
	(−3.055)	(12.499)	(3.884)	(−0.439)	(2.492)	(0.630)	(2.851)	(−0.963)	(−2.600)
TRADEABLE	0.00006***	0.00001***							
	(3.258)	(3.417)							
LOSS	−0.065***	−0.125**							
	(−3.337)	(−2.283)							
GROWTH	0.0002	0.002	0.044**	0.003**	0.025	0.060	−0.023	−0.146**	−0.045**
	(0.610)	(1.179)	(2.206)	(1.992)	(1.408)	(1.377)	(−1.455)	(−1.708)	(−1.857)
LEV	−0.001	−0.011***	−0.131***	−0.001*	−0.206***	0.209***	0.007	0.153***	0.159***
	(−1.164)	(−7.990)	(−17.782)	(−1.739)	(−11.433)	(8.868)	(0.727)	(3.513)	(10.489)
LISTYEAR	0.016***	0.037***	−0.205***	−0.055***	−0.090	0.084	0.072*	0.513***	0.153***
	(6.429)	(5.916)	(−6.751)	(−10.504)	(−1.125)	(0.940)	(1.730)	(5.011)	(3.183)
LNSIZE	−0.354***	−0.985***	1.424***	0.040***	0.642**	0.677*	−0.793***	−4.397***	−1.550***
	(−18.554)	(−20.428)	(10.812)	(3.006)	(2.096)	(1.714)	(−4.044)	(−7.273)	(−6.467)
FIXEDEFFECTS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
样本数	4995	4995	4995	4995	4995	4995	4995	4995	4995
Adj_R^2(%)	55.41	59.68	24.87	5.86	29.73	9.95	19.18	9.30	18.32
模型F值	175.55	209.15	50.39	10.26	67.77	18.05	36.46	16.25	34.45
拐点	**15.87%**	**15.77%**	**13.89%**	—	**78.89%**	**52.18%**	**33.58%**	**13.67%**	—
	43.44%	**47.83%**	**54.77%**				**56.62%**	**49.97%**	

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样，仍然存在许多客观局限，其中主要的问题是数据方面的缺陷。正如Khanna（2000）指出的，所有关于企业集团的研究都是基于上市公司进行的。但众所周知，在集团内部还有大量的非上市企业。包括本文在内，现有的研究都是以上市公司为研究对象考察企业集团和内部市场的经济后果。保证这种做法可靠性的一个重要前提是，上市公司作为一个内部成员，与其他成员企业并没有系统性的差异。但各国之间在企业发行上市的标准方面存在较大差异，而关于制度背景如何影响各国企业集团决定内部企业的上市等研究由于数据缺乏而无从开展。因此，在跨国或跨地区的比较研究中，关于集团－上市公司之间的回归结果是否在各国或地区保持稳定的方向仍然是不确定的。退一步讲，即便是在同一制度环境下，仅仅基于上市公司的研究也存在很大的局限性，因为此时即使研究结论在企业之间是无偏的，也可能导致研究结论的不完整。比如说，本文关于内部市场经济后果的研究，都是考察上市公司的数据，以上市公司的表现代表内部市场运作对内部成员的影响，进而推断大股东“掏空”或者降低交易成本等其他效应的存在。但是，内部市场的这些效应不可能仅体现在上市公司本身，如果大股东真的有“掏空”行为，它也可能反映在内部市场的总部即大股东的表现上。又比如，如果内部市场真的具有降低交易成本的功能，那么，除了上市公司之外，在集团层面上我们应该也能观察到这一点。显然，数据的缺乏在很大程度上限制本文研究结论的推广性和实际运用价值。

除此之外，两位审稿人对本文提出了一些非常中肯和尖锐的批评和建议，但由于数据无法获取等问题，部分无法在文章中得到执行。在这里，我们报告其中部分重要的审稿意见和我们的回应，以供读者参考和讨论。

审稿人认为：**“在正常的商业往来中，存在着‘薄利多销’效应，即当厂家向某一特定客户大量销售时，要求较低的毛利率。大股东与上市公司之间发生交易时，也可能采用这一市场原则、参照市场价格定价，因而可能也存在着‘薄利多销’效应。这样，大股东与上市公司之间的内部市场越活跃，意味着上市公司对大股东这个特定客户所要求的毛利率也会越低。这构成了内部市场活跃程度与主营业务成本率或销售毛利率关系的一个替代解释。减轻这一问题的一个方法是，比较内部市场交易与非关联方交易在此方面的差异。”**我们认为，如果确实能够在上市公司的销售毛利率等数据中区分关联的和非关联的部分，那直接比较这两者的差异就可以更有把握的确定大股东是否存在利润转移的问题。但现阶段，在上市公司的年报中，这部分的数据并没有披露。退而求其次，我们只能以上市公司的整体销售毛利率作为关联交易那部分的销售毛利率，以推断大股东的动机。

审稿人又指出：**“在全文中，作者未考虑大股东的‘支持’（Propping）效应。‘支持’可以表现为替上市公司分担有关费用，也可以表现为购销定价过程中对上市公司的让利，如是，作者所检验的节约交易成本的‘效率促进’效应，是否可能是大股东的‘支持’效应呢？如何区分并考虑‘效率促进’、‘掏空’以及‘支持’效应的综合影响？”**我们认为，“掏空”和“支

持”是在公司治理研究中分析大股东的一个分析框架，分析大股东的行为，既要看到其可能“掏空”的一面，也必须考虑其“支持”的可能性。但是，一方面，“掏空”和“支持”经常表现为一个问题的两个方面，即大股东主观上的打算在实际运作中的体现，“掏空”的反面就是“支持”，比如说，在本文的实证研究中，如果关联销售不是降低而是增加上市公司的销售毛利率，那就可能是一个大股东的“支持”行为。另一方面，更重要的是，本文对内部市场的研究并不以此为出发点，而是基于交易成本经济学对企业集团内部市场的两种主流观点进行验证，即“掏空”观点和“效率”观点，**“效率”观点与“支持”理论的主要差异在于**，前者不一定体现为大股东的主观打算，而是客观的经济现象，如在交易成本经济学中科层组织相对于外部市场在降低交易成本方面的客观优势。当然，我们不排除大股东主观上通过构造内部市场交易来获取这种客观优势的可能，因而也可以理 解为一种支持行为，只是我们认为至少在内部市场问题上，用“效率”一词比“支持”更为合理一些，我们的主要任务也是检验大股东内部市场除了具有降低交易成本的“效率”优势之外，还是否存在大股东的“掏空”行为，这种“掏空”行为在多大程度上制约了“效率”优势的发挥。

八、主要的结论

由于国企改制和剥离上市等制度安排以及尚不完善的外部市场环境，我国的上市公司与其大股东通过关联交易形成了各种各样的内部市场。出于对大股东可能通过内部市场运作侵占中小股东利益的担心，上市公司的关联交易问题一直是投资者关注和市场监管的重点。与此同时，根据经典的交易成本理论，内部市场是一种有助于交易进行并且降低交易成本的组织结构，也可能提升上市公司的价值。因此，关于内部市场的经济后果，就形成了“效率促进”和“掏空”两种截然不同的观点。

我们通过对2000年至2004年5141家上市公司样本的实证研究验证了上述两种观点。我们发现，大股东的内部市场确实同时存在效率促进和掏空两种效应，企业价值（尤其是会计业绩）的高低取决于在不同的内部交易范围内效率优势和“掏空”效应的相对大小。总的来说，存在内部市场虽然会带来更多的大股东掏空，但由于更大的交易成本节约而有利于上市公司价值。进一步分析发现，大股东的内部市场与上市公司价值之间不是简单的直线关系，而是向右倾斜的*N*型曲线关系。在20%左右的内部交易比例之前，内部市场的效率优势超过大股东“掏空”的不利影响，交易成本下降从而提高企业价值。在此之后，内部市场的运作更多地掺杂了大股东“掏空”的动机和行为，交易成本上升导致企业价值下降。当内部市场活跃程度因企业集团发展战略的驱动或行业管制等变得非常高（内部交易比例超过50%）时，大股东掏空不再是内部市场运作的主要效应，“效率促进”优势再次超过“掏空”效应，企业价值再次开始上

升。上述结论即使在控制了盈余管理以及其他敏感性分析之后依然成立。本文的政策含义是，对待上市公司与大股东内部市场交易的监管不应该搞“一刀切”，而应在充分发挥其“效率促进”效应的同时规范相关信息的披露，最大限度地限制其掏空效应。

参考文献

陈晓、王琨. 2005.“关联交易、公司治理与国有股改革——来自我国资本市场的实证证据”.《经济研究》第4期.

樊纲、王小鲁. 2001（2003，2004）.《中国市场化指数——各地区市场化相对进程2000（2001，2002）年度报告》.经济科学出版社.

李增泉、孙铮和王志伟. 2004.“‘掏空’与所有权安排——来自我国上市公司大股东资金占用的经验证据”.《会计研究》第12期.

刘峰、贺建刚和魏明海. 2004.“控制权、业绩与利益输送——基于五粮液的案例研究”.《管理世界》第8期.

洪剑峭、方军雄. 2005.“关联交易和会计盈余的价值相关性”.《中国会计评论》3(1).

田利辉. 2005.“国有股权对上市公司绩效影响的U型曲线和政府股东两手论”.《经济研究》第10期.

夏立军、方轶强. 2005.“政府控制、治理环境与公司价值——来自中国证券市场的经验证据”.《经济研究》第5期.

姚俊、吕源和蓝海林，2005.《转轨时期企业集团多元化、结构与绩效的实证研究》.经济科学出版社。

郑国坚、魏明海. 2006.“地区治理环境、关联交易与大股东掏空——基于我国上市公司的实证研究”.中山大学工作论文

郑国坚、魏明海. 2007.“公共治理、公司治理与大股东的内部市场：基于我国上市公司的实证研究”.《中大管理研究》第2期.

中国集团公司促进会. 2004.《母子公司关系研究——企业集团的组织结构和管理控制》.中国财政经济出版社.

Aharony, J., Wang, J., and Yuan, H. (2006), ‘Tunneling as an Incentive for Earnings Management during the IPO Process in China’, *Working Paper*.

Almeida, V. H. and Wolfenzon, D. (2006), ‘A Theory of Pyramidal Ownership and Family Business Groups’, *Journal of Finance* Vol. LXJ, No.6 (December): 2637–2680.

Bae, K. H., and Jeong, S. W. (2002), ‘The Value-relevance of Accounting Information, Ownership Structure, and Business Group Affiliation: Evidence from Korean Business Groups’, *Working Paper*, Korea University.

Bae, K. H., Kang, J. K., and Kim, J. M. (2002), ‘Tunneling or Value-added: Evidence from Mergers by Korean Business Groups’, *Journal of Finance* 57(6): 2695–2740.

Baek, J., Kang, J., and Lee, I. (2006), 'Business Groups and Tunneling: Evidence from Private Securities Offerings by Korean Chaebols', *The Journal of Finance* 61: 2415–2449.

Bertrand, M., Mehta, P., and Mullainathan, S. (2002), 'Ferreting out Tunneling: an Application to Indian Business Groups', *The Quarterly Journal of Economics* 117(1): 121–148.

Chang, S. J. and Hong, J. (2000), 'Economic Performance of Group-affiliated Companies in Korea: Inter-group Resources Sharing and Internal Business Transaction', *Academy of Management Journal* 43(3): 429–448.

Claessens, S. and Fan, J. P. H. (2003), 'Corporate Governance in Asia: A Survey', *International Review of Finance* 3(2): 71–103.

Claessens, S., Djankov, S., Fan, J. P. H., and Lang, L. H. P. (2003), 'The Benefits and Costs of Internal Markets: Evidence from Asia's Financial Crisis', *Working Paper*.

Claessens, S., Fan, J., and Lang, L. (2006), 'The Benefits and Costs of Group Affiliation: Evidence from East Asia', *Emerging Market Review* 7: 1–26.

Gugler, K., Mueller, D. C., and Yurtoglu, B. (2004), 'Corporate Governance and the Returns on Investment', *The Journal of Law and Economics* 47: 589–633.

Johnson, S., La Porta, R., Lopez-de-Silanes, F., and Shleifer, A. (2000), 'Tunneling', *The American Economic Review* 90(2): 22–27.

Jian, M. and Wong, T. J. (2005), 'Earnings Management and Tunneling through Related Party Transactions: Evidence from Chinese Corporate Groups', *Working Paper*.

Keister, L. A. (1998), 'Engineering Growth: Business Group Structure and Firm Performance in China's Transition Economy', *The American Journal of Socioloy* Vol. 104 (2): 404–440.

Khanna, T. (2000), 'Business Groups and Social Welfare in Emerging Markets: Existing Evidence and Unanswered Questions', *European Economic Review* 44 (2000): 748–761.

Khanna, T. and Palepu, K. (1997), 'Why Focused Strategy May Be Wrong in Emerging Markets', *Harvard Business Review* 75(4): 41–51.

Khanna, T. and Palepu, K. (1999), 'Policy Shocks, Market Intermediaries, and Corporate Strategy: The Evolution of Business Groups in Chile and India', *Journal of Economics and Management Strategy* Vol. 8 (2) Summer: 271–310.

Khanna, T. and Palepu, K. (2000), 'Is Group Affiliation Profitable in Emerging Markets? An Analysisof Diversified Indian Business Groups', *Journal of Finance* 55(2): 867–892.

Khanna, T. and Rivkin, J. W. (2001), 'Estimating the Performance Effects of Groups in Emerging Markets', *Strategic Management Journal* Vol. 22: 45–74.

Khanna, T. and Yafeh, Y. (2007), 'Business Groups in Emerging Markets: Paragons or Parasites?', *Journal of Economic Literature*, Vol. XLV (June 2007): 331–372.

Perotti, E. and Gelfer, S. (2001), 'Red Barons or Robber Barons? Governance and Investment in Russian Financial-Industrial Group', *European Economic Review*, 45: 1601–1617.

Stein, J. C. (1997), 'Internal Capital Market and the Competition for Corporate Resources', *Journal of Finance* 52: 111–133.

Williamson, O. E. (1975), *Markets and Hierarchies: Analysis and Antitrust Implication*, New York: Free Press.

2007年12月 第9卷 第4期
中 国 会 计 与 财 务 研 究
China Accounting and Finance Review
Volume 9, Number 4, December 2007

THE LARGE SHAREHOLDER'S INTERNAL MARKET AND VALUE OF A LISTED FIRM: AN EMPIRICAL TEST OF THE EFFICIENCY AND TUNNELLING THEORIES[1]

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ABSTRACT

Literature focusing mainly on Asian and Latin American emerging markets suggests that, despite two primary but competing views—efficiency enhancing and tunnelling—over the relation between an internal market and the value of group affiliates, it is unanimously agreed that business groups and their internal markets are important forces for promoting economic development. Owing to the special institutional environment in China, the dominant form of internal market among Chinese listed firms is the large shareholder's internal market. This paper investigates both the "efficiency" effect and the "tunnelling" effect of a large shareholder's internal market and its net effect on listed firm value. Based on a sample of 5141 firm-year observations, we find that both the efficiency and tunnelling effects exist at the same time, and that the value (especially accounting performance) of a listed firm is determined by the net effect resulting from these two effects. Our non-linear model shows that in most internal markets (when the ratio of internal product transactions to total assets is below 20 per cent or above 50 per cent), the efficiency effect dominates the internal market and increases firm value; however, in some internal markets (when the internal product transaction ratio is between 20 per cent and 50 per cent), the tunnelling effect becomes dominant so that the value of a listed firm decreases. Overall, we find a positive relation between an internal market and firm value.

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[1] This study was funded by the Key Project "Accounting Control Research Oriented Towards Protection of Property Rights" of the National Natural Science Foundation (Ratification no.: 70532005). We appreciate the two reviewers very much for their earnest and constructive opinions; we also thank Professor Zhaoyang Gu, Carnegie Mellon University, for his important inspirations, as well as Xiang Cai, Liping Xu, Deming Yang, Xinquan Xin, Weiqiang Tan, and Yanchao Wang. All remaining errors are ours.

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Keywords: Internal Market, Large Shareholder, Firm Value, Efficiency Enhancing, Tunnelling

I. INTRODUCTION

Ever since China adopted the open-door policy, its market-oriented economic development has made tremendous progress, and the market environment has markedly improved (Fan and Wang, 2004). However, China's economic development still has the characteristics of a typical emerging market and a transition economy. Under such a macro environment, business groups and their internal markets are important forces for promoting economic development. According to an investigation of the National Bureau of Statistics, in China in 2003[5] there were a total of 2692 business groups under management of the central government, state pilot business groups, business groups of key state-owned enterprises, business groups at the provincial and ministerial levels, and business groups whose operating income and total assets were both above RMB500 million. The average size and number of affiliates of each group were RMB6.32 billion and 10.5, respectively. Because of China's special institutional environment, the dominant form of internal market among Chinese listed firms is the **large shareholder's internal market**. As shown in Figure 1, we define the "large shareholder's internal market" as the nexus and channels for internal transactions of products, funds, management, and other input factors between large shareholders (most of them business groups)[6] and their affiliates (hereafter referred to collectively as the "large shareholder"), and the listed firm.[7] In our sample, 81 per cent of the listed firms are controlled by business groups, and over 90 per cent are involved in internal transactions. The average ratios of product (service) transactions to main business income and of inter-group lending to total assets are over 10 per cent and 5 per cent, respectively.

Because they are important economic organisations, it is worth asking what the economic consequences are of business groups and their internal markets. Research on strategic management and corporate finance has developed two primary but competing views on the economic consequences of business groups. One is the "efficiency enhancing view" or "value-added view" argued by Khanna and Palepu (1997, 2000), which suggests that business groups use internal markets to avoid

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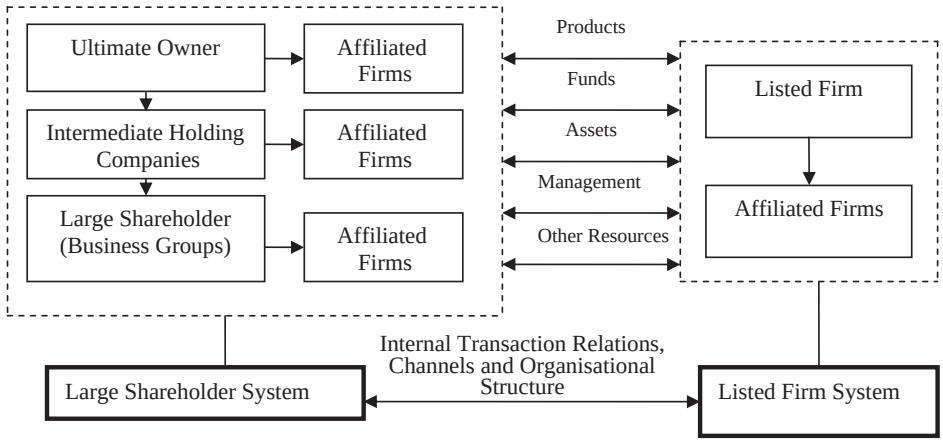
5 Source: *People's Daily Overseas Edition*, 13 October 2003.

6 In this paper, we limit the definition of "large shareholder" to the largest shareholder of a listed firm only; however, we also extend the definition of "large shareholder" to include the controlling shareholder (and its affiliates) of the largest shareholder.

7 Apparently, internal markets and related transactions seem to belong to the same concept, but we consider that an internal market is a kind of organisational structure or the carrier of related transactions, as well as a kind of internal trading system where the main activities are related transactions. In addition, an internal market also includes arranging managing staff and allocating labour and certain interests; thus, it incorporates more than related transactions. Although we adopt the internal market concept in this study, we also use related transactions as a substitute variable for internal markets in the empirical tests.

Figure 1 Definition of the large shareholder's internal market



high transaction costs, thus adding value to group affiliate firms; the other is the "tunnelling" view put forward by Johnson *et al*. (2000), which argues that the operation of internal markets in business groups provides more a convenient channel for controlling shareholders to transfer resources at the expense of the listed firm. These two different views are supported to some degree by research mainly focusing on Asian and Latin American emerging markets. After surveying the related literature, Khanna (2000) tentatively concludes that most of the group affiliates benefit from internal markets, and so the efficiency effect seems to outweigh the tunnelling effect in emerging markets. What will happen with business groups in China, which is also an emerging market? We argue that for certain reasons both effects could appear in Chinese business groups. On the one hand, owing to the limitations of laws and regulations and the weak governance system of listed firms, tunnelling by controlling shareholders through related-party transactions often occurs in China (Jian and Wong, 2005; Chen and Wang, 2005; Zheng and Wei, 2006, 2007). Thus, market regulators have paid great attention to the related-party transactions of listed firms and have implemented many regulations to deal with them. On the other hand, according to classic transaction cost theory, when the external market environment is not perfect and market transaction costs are high, internal investments and operations through business groups become a kind of organisational structure to facilitate transactions and reduce transaction costs (Khanna and Palepu, 1997, 2000). Hence, considering the co-existence of a transition economy and the characteristics of an emerging market, internal markets in Chinese business groups have a greater possibility of enjoying an advantage over outside markets and adding value to affiliates.

In view of these considerations, a series of meaningful empirical propositions arises: In China, will the internal markets between listed firms and their controlling shareholders hurt or enhance firm value? Do both the efficiency effect and tunnel-

ling effect exist in internal markets? If they do, which effect will dominate? Although related-party transactions have generated much concern, little academic research has been undertaken to answer these questions (Jian and Wong, 2005). At present, most conclusions of the research in China are based on case studies.

This paper tries to fill this gap. We use inter-group product (service) transactions as a proxy for the operation of internal markets and try to investigate both the efficiency and the tunnelling effects of the large shareholder's internal market and its net effect on listed firm value. Based on a sample of 5141 firm-year observations, we first test the effect of inter-group transactions on listed firm value and find that the relation between internal markets and firm value is not a simple linear curve, but is rather shaped like an N. In other words, as inter-group transactions increase, firm value first rises, then goes down and then up again. Further testing shows that this result arises from the co-existence of the efficiency and tunnelling effects, and that the value (especially accounting performance) of listed firms is determined by the net effect of these two effects. Our non-linear model shows that the comparative power of these two effects differs with different internal markets having different degrees of inter-group transactions, resulting in the difference in firm value. In most internal markets (when the ratio of internal product transactions to total assets is either below 20 or above 50 per cent), the efficiency effect dominates and increases firm value; however, in some internal markets (when the internal product transaction ratio lies between 20 and 50 per cent), tunnelling becomes dominant, which in turn hurts the value of the listed firm. Overall, we find a positive relation between inter-group transactions and firm value, and these findings are robust as shown by many sensitivity tests.

This paper contributes to the literature on business groups and internal markets in the following ways. First, whereas the existing literature uses either group affiliates or diversification to proxy for the use of internal markets, we use a more direct measure to proxy for the same; the former proxies are simple, indirect, and sometimes even inaccurate. This paper suggests that although all inter-group transactions are controlled by business groups, they are quite different between listed firms; this in turn means that the operation of internal markets in groups may vary greatly. Therefore, using a direct measure can help us identify those underlying factors having economic consequences for business groups, thereby enhancing the credibility of our results. Second, owing to improvements in research design, this is the first time we investigate the co-existence of the efficiency effect with the tunnelling effect along with their inter-relationship, and then test their net effect on the value of listed firms, thereby extending and enriching the findings on business groups and internal markets. Finally, this is one of the first papers to examine the economic consequences of internal markets in Chinese business groups based on a large and recent sample, and our findings will be useful for related research about emerging market economies.

The rest of this paper is arranged as follows. Section II contains a brief review of the literature. In Section III, we empirically test the relationship between internal markets and the value of listed firms. Section IV provides some possible explana-

tions for the reported evidence found in Section III. In Section V, we conduct further empirical tests to provide additional evidence for the explanations. Section VI describes the results of the sensitivity analyses, and Section VII discusses some limitations of the research and comments of the reviewers. The conclusions of this paper are explained in Section VIII.

II. BUSINESS GROUPS, INTERNAL MARKETS, AND FIRM VALUE: LITERATURE REVIEW

Most research on business groups and their internal markets focuses on emerging economies, especially the Asian and Latin American emerging markets. In these countries, business groups are considered to be a kind of organisational structure dominating economic activities (Khanna, 2000; Khanna and Yafeh, 2007).[8] A brief review of the literature for the past 20 years shows that while over half the research reports a positive relation between business groups and the value of affiliates, many papers find the opposite result. These two streams of findings support the efficiency enhancing view and the tunnelling view, respectively.[9]

2.1. The Efficiency Enhancing Effect of Internal Markets

As explained in the literature, the efficiency enhancing effect of internal markets is demonstrated mainly in two ways. On the one hand, internal markets can substitute for unavailable external markets and mechanisms, and business groups can make up for lacking institutions (Khanna, 2000). As documented in the literature, external markets are either underdeveloped or even absent in emerging economies, as shown by a lack of necessary basic services for organised economic activities (Khanna and Palepu, 2000). In developed markets, those basic services are provided through different mature markets of products, capital, technology, and human resources, together with their pricing mechanisms. In emerging markets, the imperfection of external markets increases the cost of firms to obtain necessary inputs. Under such conditions, internal investments and operations through business groups become a kind of organisational structure allowing firms to facilitate transactions and reduce transaction costs (Khanna and Palepu, 1997, 2000). On the other hand,

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[8] In Western studies, business groups and internal markets are treated as two closely related concepts (Yao *et al*., 2005; Chang and Hong, 2000; Khanna and Rivkin, 2001). Therefore, business groups or internal diversification is often used as a substitute variable for internal markets when research on internal markets is conducted in terms of business groups (Khanna, 2000; Claessens and Fan, 2003; Claessens *et al*., 2003). In our literature review, business groups and internal markets have the same or highly similar meanings unless otherwise stated.

[9] According to Khanna (2000) and Khanna and Yafeh (2007), rent seeking and market power can also be used to explain the relationship between business groups and the value of member firms. However, these two views concern the relation of business groups and their political relations to the power of market monopoly, which is not within the scope of our study.

trading in business groups through internal markets can help firms reduce information asymmetry and obstacles (such as searching for prices and dealers) in the transaction process as well as overcome all kinds of difficulties in the production process (such as default risks and opportunism) resulting from executing property rights and contracts. Meanwhile, using related-party transactions may ensure the stability of day-to-day transactions when unexpected changes happen in the external market environment. In addition, internal markets can strengthen the ability of firms to avoid taxes and other regulations and restrictions, thus increasing their adaptability. Therefore, business groups and their internal markets constitute important institutional arrangements for facilitating transactions and lowering transaction costs (Claessens and Fan, 2003; Khanna and Palepu, 1997; Williamson, 1975).

Empirical studies also support the above theories and predictions. For example, Keister (1998) is an early scholar specialising in studying Chinese business groups. Based on a sample of firm-year observations of China's 40 largest business groups and 535 subsidiaries for the years 1988 to 1990, Keister finds that the existence of interlocking directors between members of a group and the establishment of financial companies enhances the financial performance and production efficiency of member firms. Chang and Hong's (2000) study on South Korean business groups discovers that internal transactions of products, labour, and management are positive for the value of group affiliates. Perotti and Gelfer (2001) find that Russian financial business groups are able to use more effective means than the external capital market to allocate capital among group subsidiaries.

2.2. The Tunnelling Effect of Internal Markets

Business groups and the internal market can also become a major device for controlling shareholders to misappropriate the benefits of outside investors (Khanna, 2000). In theoretical research, Almeida and Wolfenzon (2006) argue that in countries with poor protection for the interests of investors, the pyramid structure of business groups usually leads to deviating major shareholders' cash flow rights from their control rights, which can be used to infringe on the interests of investors. Johnson *et al*. (2000) describe this behaviour of major shareholders misappropriating the interests of minority shareholders as "tunnelling", and note that it can have various manifestations. They also point out that in countries where investors have weaker protection, if the major shareholder takes the form of a group, tunnelling may be both more likely to occur and "perfectly justifiable" because of the existence of internal market channels. Under these circumstances, it is very difficult to fix legal responsibility upon major shareholders, particularly in civil law countries. The main evidence found in studies of Asian countries shows that as a consequence of both a lack of external market supervision over the allocation of resources and the complexities of the internal ownership structure, business groups may be involved in even more serious acts of misappropriation. Through an internal market, cash and profits can be transferred from members of the group to the parent company's own pocket or to financially distressed firms who also belong to the group (Claessens and Fan, 2003).

The above arguments have been supported by plenty of empirical research. For example, Bae *et al*. (2002) examine the inter-group merger and acquisition activities of South Korean business groups and find that when a merger occurs between a listed firm and another member of the same group, the transaction usually leads to a drop in the share price of the former. Although the interests of outside shareholders are damaged during the merger process, large shareholders on average benefit because mergers and acquisitions are usually beneficial to other group affiliates in which the large shareholder holds even more stakes. Baek *et al*. (2006) also study South Korean business groups from the perspective of intra-group private securities offerings and find more direct evidence of tunnelling by major shareholders. Bertrand *et al*. (2002) examine Indian business groups and find that the sensitivity of a group member's profitability to the industry as a whole is much smaller than it is to other members' profitability, meaning that internal profit transfers may be taking place within the group. Claessens *et al*.'s (2003) study of the different roles of internal markets and diversification in East Asian countries under different market environments finds that before the Asian financial crisis, the use of internal markets led to better performance of firms in the least developed countries, but during the crisis, diversified firms showed worse performance in underdeveloped countries. They believe that use of internal markets and diversification may be linked to greater risk. Claessens *et al*. (2006) further test East Asian listed firms for the years 1994 to 1996 and find that when a listed firm is controlled by a group and the cash flow rights of shareholders are more deviated from their voting rights, the firm value is lower; but when cash flow rights are not deviated from voting rights, the group-controlled firms perform better than independent firms. They therefore argue that as long as investors expect group control to lead to tunnelling, any potential advantages of an internal market will be insufficient to compensate for the resulting loss of value.

With respect to the literature on Chinese business groups and internal markets, Jian and Wong (2005) find that companies controlled by business groups tend to engage in more related-party transactions. Through studying the market returns of related-party transactions, they find that at least a part of such transactions is considered to be opportunism by the market, and that investors believe that these transactions lack credibility when compared to normal transactions; in addition, they find a negative correlation between related lending and firm value as measured by Tobin's Q ratio. Li *et al*. (2004) provide evidence that business groups are likely to appropriate the funds of listed firms through routine transactions. Some recent research obtains the same findings using more specific trading data from internal markets and larger samples. For example, in an empirical study using a sample of 6911 listed companies between 2000 and 2005, Zheng and Wei (2007) find that the major shareholder's type of business group, a large shareholder dominance, government control, the status of key local state enterprises, and the length of time a listed company has been established all have a significantly positive relation to the extent of an internal market's development. This indicates that a likely important function of the internal market is allowing the major shareholder and the local government

to tunnel assets from listed companies. Zheng and Wei (2006) provide evidence of this function. They find that internal procurement and sales with major shareholders significantly increase main operating costs and gross sales margins, respectively, indicating that major shareholders may directly transfer profits from listed companies through internal market transactions. Other literature indirectly studies the tunnelling effect of business groups and internal markets from a transparency perspective. For instance, Bai and Jeong (2002) find from their research on Korean enterprises that the value relevance of accounting earnings of a listed company decreases if the company is a subsidiary of a business group. This finding is consistent with the view that tunnelling by major shareholders is detrimental to accounting information quality. Hong and Fang (2005) find from their research on related sales of listed firms for the year 2001 that the value relevance of earnings shows an inverted U-shaped non-linear relationship as the proportion of related sales increases; in other words, while a lower proportion of related sales does not affect the value relevance of earnings, a higher proportion of related sales does hurt the value relevance of earnings information provided by a listed firm. This result supports both the efficiency and tunnelling effects of related sales.

2.3. Inadequacy of Existing Research

Although the above studies have been useful in helping us to understand the important role of business groups and their internal markets in emerging economies, because of a shortage of research methods most of the literature has significant limitations. First, although business groups usually have internal markets, such markets may not be active, while similar internal markets may also exist in other economic organisations. In their study on Chinese listed firms between 2000 and 2005, Zheng and Wei (2007) find a greater degree of variance in the activity of internal markets among different business groups. While the business group is the extrinsic form, an internal market reflects the substance of the business group's internal structure, which is the real source of economic consequences for the group. Therefore, at least in China, we cannot simply use a dummy variable for whether the listed firm is controlled by a business group to proxy for the existence of an internal market. Second, as for the effect of business groups on the value of group affiliates in the real world, Khanna (2000) points out that it is impossible for there always to be an effect (efficiency enhancing or tunnelling). Furthermore, various effects may exist at the same time and change as time passes; one effect may be dominant within a certain interval of the internal market, while another effect may turn dominant in other intervals. Therefore, a static linear relationship should not exist between the internal market and firm value. But because many studies use a dummy variable for whether a listed firm is controlled by a business group to proxy for the existence of an internal market, only a linear relationship fits their models, thereby obtaining one-sided or even contradictory conclusions. Therefore, it is more reasonable for us to conduct our study of the economic consequences of business groups from the perspective of the internal market.

III. CONTROLLING THE SHAREHOLDER'S INTERNAL MARKET AND THE VALUE OF LISTED FIRMS

3.1. Research Design

3.1.1. Model Construction

Thanks to the various possible effects of the internal market, its relationship with listed firm value will not simply be linear. To describe more accurately the empirical relationship between the two, we refer to the model of Gugler *et al*. (2004) on ownership proportion and investor efficiency, and we introduce variables *IPM*, IPM^2, and IPM^3 for the internal market to study whether various degrees of internal trading will result in different influences on firm value.

Model (1):

$$VALUE_i = \beta_0 + \beta_1 IPM + \beta_2 IPM^2 + \beta_3 IPM^3 + \beta_4 INDEX\_MAR + \beta_5 GROUP + \beta_6 GOV + \beta_7 TOP1 + \beta_8 TOP1^2 + \beta_9 TOP2\_5 + \beta_{10} TRADEABLE + \beta_{11} LOSS + \beta_{12} GROWTH + \beta_{13} LEV + \beta_{14} LISTYEAR + \beta_{15} LNSIZE + FIXEDEFFECTS + \varepsilon_{it} \quad (1)$$

3.1.2. Description of Variables

The main variables of Model (1) are presented in Table 1.

To measure internal markets, although an internal market involves transactions of products, funds, and other business aspects, related transactions of internal products and services should dominate it in terms of the frequency and importance of the transactions. In fact, the regulation of spin-offs and restructuring during the listing process is aimed at reconstructing and repacking the main business assets. Furthermore, internal transactions like funds flow, asset purchases, and sales are closely related to the way internal products are traded. Therefore, we apply the

Table 1 Definitions of Variables

Variables	Definitions
	Panel A: Internal Market Variables
IPM_TOTAL	Ratio of the sum of product purchases and sales to total assets
IPM_BUY	Ratio of product purchases to total assets
IPM_SALE	Ratio of product sales to total assets
	Panel B: Firm Value Variables
ROA	ROA = net income / total assets
CASHPS	Operating cash flows per share
TOBIN Q1 / TOBIN Q2	Market value of a listed firm: *TOBIN Q* = (price × tradable shares + book value of equity per share × non-tradable shares + book value of debt) / book value of total assets; *TOBIN Q1* uses price data at the end of the fiscal year; *TOBIN Q2* uses price data on 30 April of the year the annual report is published.

Table 1 Continued

Variables	Definitions
TOBIN Q3 / TOBIN Q4	Market value of a listed firm: *TOBIN Q* = (price × total shares) / book value of total assets; *TOBIN Q3* uses price data at the end of the fiscal year; *TOBIN Q4* uses price data on 30 April of the year the annual report is published.
	Panel C: Tunnelling Variables
Gross sales margin	Sales margin / main operating income
Absolute net borrowing	(accounts receivable from large shareholders – accounts payable to large shareholders) / total assets
Relative net borrowing	{(accounts receivable from large shareholders – accounts payable to large shareholders) / total assets} – {(accounts receivable from non-large shareholders – accounts payable to non-large shareholders) / total assets}
	Panel D: Transaction Cost Variables
Total fees ratio	Ratio of total fees to main operating income
Operating fees ratio	Ratio of operating fees to main operating income
Management fees ratio	Ratio of management fees to main operating income
Financial fees ratio	Ratio of financial fees to main operating income
	Panel E: Control Variables
INDEX_MAR	Regional marketisation indices from Fan and Wang (2001, 2003, 2004)
GROUP	A dummy variable, which takes the value of 1 if the listed firm is controlled by a business group, and 0 otherwise.
GOV	A dummy variable, which takes the value of 1 if the listed firm is controlled by the government, and 0 otherwise.
TOP1	The proportion of shares held by the large shareholder; $TOP1^2$ is the square of *TOP1*.
TOP2_5	The sum of the proportions of shares held by the second to the fifth largest shareholders
TRADEABLE	The ratio of total tradeable shares to total shares
LOSS	A dummy variable, which takes the value of 1 if the listed firm incurs losses for the current year, and 0 otherwise.
GROWTH	Growth rate of main operating income
LEV	Ratio of total debt to total assets
LISTYEAR	Number of years after the initial public offering
LNSIZE	Natural logarithm of total assets
IND	A dummy variable for industries
YEAR	A dummy variable for year with the benchmark at year 2000

purchases and sales of internal products and labour as an index to measure the development of the internal market.

To measure firm value, we apply traditional accounting variables, such as *ROA* and *CASHPS*, and the market value variable *TOBIN Q*. We adopt two common methods to define *TOBIN Q*. One is to use the sum of the market value of tradeable shares and the book value of non-tradeable shares and debts to proxy for the market value of the listed firm (Xia and Fang, 2005). The other is to multiply the price of tradeable shares by total shares to act as the substitute measure of the market value of the listed firm (Tian, 2005). For the above two definitions, we further measure firm value based on the date on which we choose the price of tradeable shares: 31 December and 30 April when all annual reports have been disclosed.

Regarding the controlling variables, Xia and Fang (2005) find that the local governance environment measured by the regional marketisation index has a positive correlation with the listed firm value. Hence, we control the influence of this variable in our model. In addition, Tian (2005) finds a U-shaped relationship between the proportion of state ownership and the value of the listed firm. We introduce three more variables: *TOP1*, $TOP1^2$, and the proportion of shares owned by other shareholders *TOP2_5*. We also apply *GROUP* as a group control dummy to differentiate the effect of the extrinsic organisational form from that of an internal market on firm value. Finally, we control for other factors that are found to influence the value of listed firms: *TRADEABLE*, *LOSS*, *GROWTH*, *LEV*, *LISTYEAR*, *LNSIZE*, and the fixed effects of year and industry.

3.1.3. Sample and Data

Considering that the split share structure reform carried out in 2005 might greatly influence the market value of listed firms and accounting behaviour, our sample consists of 6006 listed firms covering only the five years from 2000 to 2004. After eliminating financial companies, companies issuing stocks overseas, and companies with unavailable internal market variable data, we obtain a sample of 5141 listed firms, including 1155 for 2004, 1054 for 2003, 1003 for 2002, 962 for 2001, and 867 for 2000. In the regression analysis, eliminating the outliers of 1 per cent and 99 per cent in explained variables and internal market variables reduces the sample size to 4995.

Data of internal product and labour transactions are provided by the China Center for Economic Research (CCER). The ownership structure and organisational form of the ultimate controller of the listed firm as well as data of inter-group lending are manually collected from annual reports provided by www.jrj.com.cn. Data of other variables are taken from the Wind Information database (Wind.NET). Since the sample period is long, to measure the local governance environment more accurately we apply the data of 2002, 2001, and 2000 provided by the *Index of China Marketisation—Report on the Development of Regional Marketisation in China* for the sample years 2002 to 2004, 2001, and 2000, respectively.

3.2. Empirical Study

3.2.1. Descriptive Statistics Analysis

Table 2 contains the results of the descriptive statistics analysis on the main variables. First, the ratios of *IPM_TOTAL*, *IPM_BUY*, and *IPM_SALE* are 6.28 per cent, 3.20 per cent, and 3.08 per cent, respectively. However, the difference in the operation of internal markets between firms is remarkable; for example, firms with the most active internal markets account for only a very small proportion of the total sample. As far as accounting variables are concerned, the mean (median) *ROA* and *CASHPS* are 3.07 (3.36) and 0.17 (0.05), respectively. Regarding the market value index, according to the first definition the means (medians) of *TOBIN Q* calculated based on the stock price at the end of the year and at the end of April are 1.50 (1.34) and 1.50 (1.35), respectively; according to the second definition, the means (medians) of *TOBIN Q* are 2.05 (1.60) and 2.03 (1.60), respectively. Therefore, the values of *TOBIN Q* calculated on the basis of different definitions differ to some degree, while the values of *TOBIN Q* calculated on the basis of different time settings are more or less the same. As for the controlling variables, the mean of local marketisation is 6.68; about 81 per cent and 74 per cent of the firms are controlled by business groups and the government, respectively. The proportions of shares held by the largest shareholder and the second to the fifth largest shareholders are 43.32 per cent and 15.20 per cent, respectively. The proportion of tradeable shares is 38.30 per cent on average. The proportion of sample firms incurring losses, the growth rate of main operating income, leverage, number of listed years, and total assets of the sample firms are 11 per cent, 49.92 per cent, 45.56 per cent, 5.56 years, and RMB2.02799 billion, respectively.

3.2.2. Univariate Analysis

Figures 2 to 5 show the tendency analysis based on the activity of the internal market.[10] In Figures 2 and 3, as internal market transactions increase, *ROA* and *CASHPS* do not always show a rising or falling trend, but rather a cursive change in the middle. This indicates that the influence of internal markets on the listed firms is not a simple linear relationship. In Figure 4, the trend in the four market value indices *TOBIN Q* differs from that in *ROA*. As internal transactions increase, *TOBIN Q* trends almost straight downwards. However, as Figure 5 shows, the activity of the internal market bears a positive linear relation to the asset size of the listed firm, while there is a significantly negative relation between *TOBIN Q* and

[10] As the activity of the internal market is fairly uneven in that the internal transaction proportions of most sample firms are 20 per cent or below, we divide the 20 per cent range at 5 per cent intervals, and the 20 per cent to 50 per cent range at 10 per cent intervals. Since only 174 firms have a transaction proportion above 50 per cent, we set only two ranges—50 per cent to 80 per cent, and above 80 per cent—to avoid the influence of outliers. Therefore, the figures along the X-axes in all figures represent different degrees of activity of the internal market as follows: 0, (0–5%), (5%–10%), (10%–15%), (15%–20%), (20%–30%), (30%–40%), (40%–50%), (50%–80%), and above 80%.

Table 2 Descriptive Statistics of Variables in Model (1)

Variable	Obs.	Mean	Sd. Dev.	Min	Max	P25	Median	P75
IPM_BUY (%)	5141	3.20	13.78	0.00	379.70	0.00	0.00	1.21
IPM_SALE (%)	5141	3.08	33.79	0.00	2268.32	0.00	0.00	0.97
IPM_TOTAL (%)	5141	6.28	39.47	0.00	2424.57	0.00	0.16	3.22
ROA (%)	5141	3.07	5.57	–45.60	40.98	1.17	3.36	5.64
CASHPS	5141	0.17	0.76	–3.81	4.13	–0.16	0.05	0.36
TOBIN Q1	5141	1.50	0.54	0.37	4.81	1.15	1.34	1.68
TOBIN Q2	5141	1.50	0.53	0.37	6.68	1.15	1.35	1.69
TOBIN Q3	5141	2.05	1.70	0.00	43.52	0.99	1.60	2.59
TOBIN Q4	5141	2.03	1.68	0.00	36.12	0.98	1.60	2.60
INDEX_MAR	5141	6.68	1.71	1.57	9.74	5.53	6.39	8.13
GROUP	5141	0.81	0.39	0.00	1.00	1.00	1.00	1.00
GOV	5141	0.74	0.44	0.00	1.00	0.00	1.00	1.00
TOP1 (%)	5141	43.32	17.72	0.00	91.982	29.00	42.86	58.26
TOP2_5 (%)	5141	15.20	12.74	0.00	58.84	3.85	12.45	24.63
TRADEABLE (%)	5141	38.30	11.40	3.60	100.00	30.23	36.71	44.54
LOSS	5141	0.11	0.31	0.00	1.00	0.00	0.00	0.00
GROWTH (%)	5141	49.92	693.76	–441.10	40067.71	–0.65	15.66	36.85
LEV (%)	5141	46.33	19.97	0.81	199.81	32.44	45.65	59.05
LISTYEAR	5141	5.56	39.69	–1.00	15.00	2.00	5.00	7.00
LNSIZE (RMB ’0000)	5141	202799	456000	6046	15005456	77339	123565	219966

Figure 2 Internal Market Activity and *ROA*

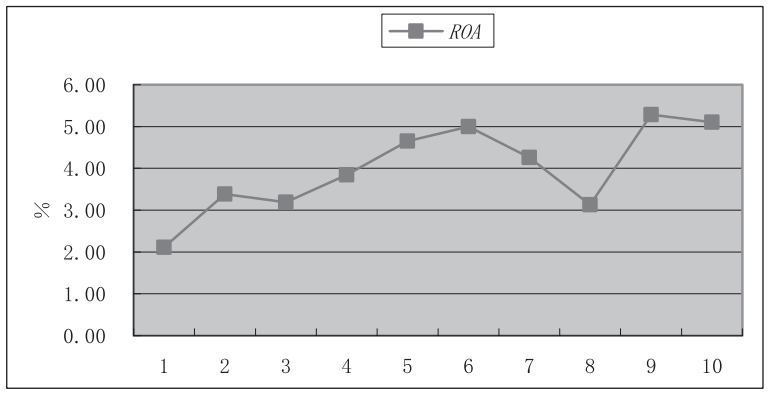


Figure 3 Internal Market Activity and Cash Flows Per Share

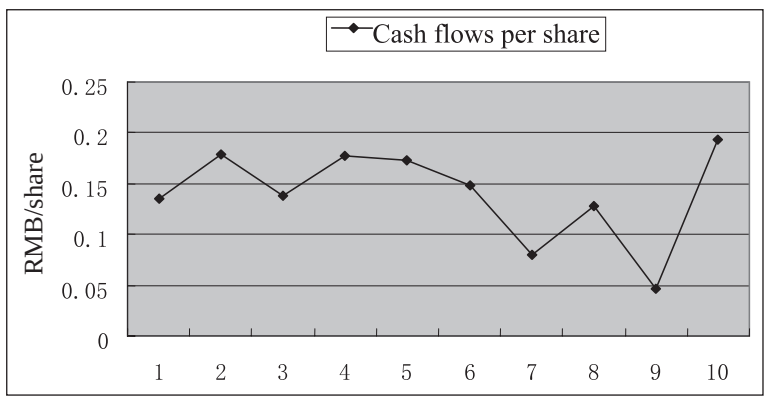


Figure 4 Internal Market Activity and Market Value

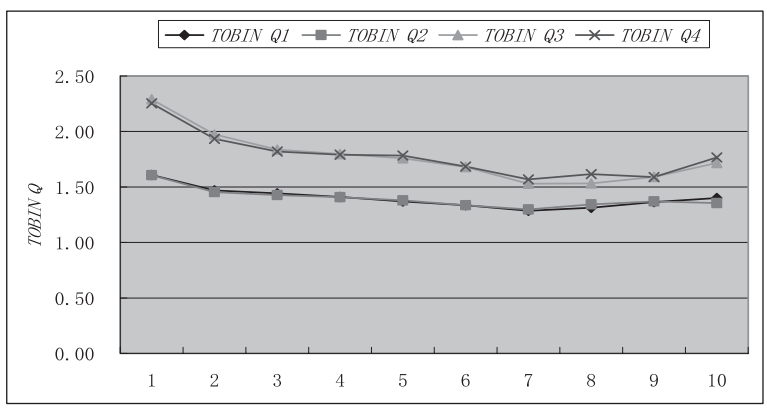
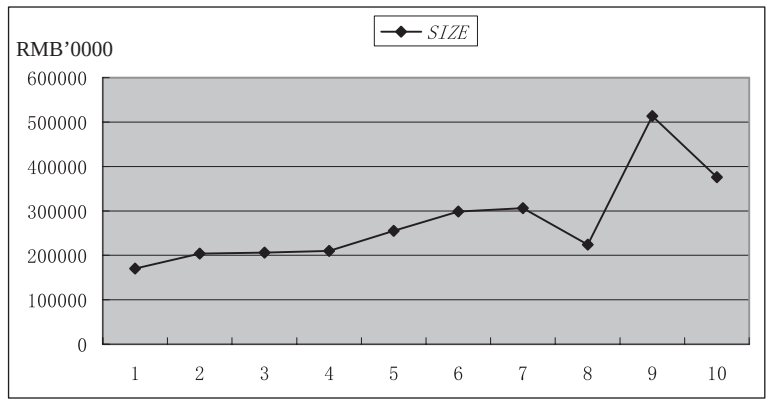


Figure 5 Internal Market Activity and Firm Size



the size of the listed firm. Therefore, the relationship between *TOBIN Q* and internal trading might not be negative as presented in Figure 4 and should be tested in further regression analyses.

3.3. Regression Analysis

Table 3 presents the regression results of Model (1). First, with only *IPM* added, all value measures are significantly positive except *CASHPS*. As far as listed firms are concerned, the internal market of large shareholders is generally an efficient organisational structure, which is consistent with Khanna (2000). Then after adding IPM^2 and IPM^3, *ROA* and *CASHPS* bear positive, negative, and positive relations with the three forms of *IPM*, respectively, and all three relations are significant. After constructing a cubic equation based on the three coefficients of *IPM*, we obtain two optimal solutions with the first order condition equalling zero in the quadratic equations. For the regression equation with *ROA* as the dependant variable, the two maxima are 19.19 per cent and 53.41 per cent; for the regression equation with *CASHPS* as the dependant variable, the two maxima are 15.63 per cent and 58.27 per cent. In other words, when the proportion of internal trade reaches 19.19 per cent (or 15.63 per cent) and 53.41 per cent (or 58.27 per cent), the *ROA* (or *CASHPS*) reaches its highest and lowest points, respectively. Before reaching the first extreme point, *ROA* (or *CASHPS*) increases gradually as internal trading increases; between the two extreme points, *ROA* (or *CASHPS*) falls gradually, then increases again after reaching the second extreme point. As opposed to the accounting variables, internal markets have no distinct cursive influence on market value. Although the coefficient symbols are the same as those of the accounting indices, neither shows any significance.[11]

[11] In sensitivity analyses, if we change the internal trading variable from total assets to main operating income, there is a distinctive curve relationship between internal markets and market value.

Generally, the internal market of large shareholders has an interval effect on the listed firm value, especially on its accounting performance; internal markets with different degrees of activity can impose different effects on firm value. Therefore, there is no linear relationship between internal trading and listed firm value.

IV. THE MULTIFUNCTIONAL INTERNAL MARKET WITH COMPLEX MOTIVES: A THEORETICAL EXPLANATION

4.1. The Multifunctional Internal Market with Complex Motives: An Analytical Framework

To explain the complex relationship between the market value of a listed firm and the large shareholder's internal market, we attempt to put forward an analytical framework: "the multifunctional internal market with complex motives". This framework argues that under China's special institutional environment, complex causes, namely the complexity of the environment and the diversity of interest groups, lead to the formation of an internal market between the large shareholder and the listed firm. Internal markets are driven by both internal and external factors, including external market mechanisms, the large shareholder's interests, and government incentives. The complexity of such motives means the large shareholder's internal market has complex economic consequences. An internal market may improve operational efficiency and even enable the government to fulfil its public management responsibilities, but an internal market could also become a tunnelling tool for large shareholders. This shows the diversity of internal market functions. The theoretical framework can be explained based on three considerations.

First, analysis of the causes and effects of a large shareholder's internal market should be conducted in terms of the market's institutional environment. China is a typical emerging market economy in transition; under such an environment, external market mechanisms born out of the planned economic system still have many inadequacies, and the transaction costs of these market mechanisms remain high. Therefore, companies have high incentive to use alternative or complementary non-market mechanisms. Moreover, as an important step in economic reform, business groups came into being in China under the dual effects of government administrative intervention and market mechanisms, laying the organisational foundation of internal markets. Nevertheless, another important feature of China's economic transition is that since the decentralisation reform, local governments at all levels have a clear and strong source of incentive from the micro-economic operating process, which leads to widespread government intervention. Finally, the joint-stock reform of state-owned enterprises generates a basic demand for the stock market to work for state enterprise reform, causing the predominant phenomenon of large shareholder dominance, where listed firms are controlled by the major business group shareholder and their ultimate owner is the government. This results in a series of governance issues, the core one of which is tunnelling by the large shareholder.

Table 3 Internal Market Activity and Firm Value (*IPM* = *IPM_TOTAL*)

Variables	*ROA*			*CASHPS*		
	1	2	3	4	5	6
Constant	–8.406***	–8.350***	–8.254***	0.076	0.078	0.078
	(–5.409)	(–5.371)	(–5.324)	(0.426)	(0.437)	(0.441)
IPM	1.949***	5.080***	13.149***	0.037	0.145	0.773*
	(2.694)	(2.919)	(4.164)	(0.372)	(0.574)	(1.738)
***IPM*^{2}**		–5.805**	–46.572***		–0.199	–3.136*
		(–2.058)	(–3.509)		(–0.468)	(–1.775)
***IPM*^{3}**			42.769***			2.829*
			(3.284)			(1.646)
INDEX_MAR	0.292***	0.294***	0.298***	0.031***	0.031***	0.031***
	(5.727)	(5.771)	(5.857)	(4.677)	(4.682)	(4.743)
GROUP	–0.126	–0.155	–0.195	–0.037	–0.038	–0.042
	(–0.518)	(–0.639)	(–0.799)	(–1.359)	(–1.392)	(–1.517)
GOV	–0.643***	–0.661***	–0.686***	–0.082***	–0.082***	–0.085***
	(–3.109)	(–3.190)	(–3.302)	(–2.866)	(–2.880)	(–2.971)
TOP1	–0.017	–0.018	–0.018	0.004	0.004	0.004
	(–0.878)	(–0.915)	(–0.934)	(1.621)	(1.611)	(1.555)
TOP1²	0.001**	0.001**	0.001**	0.00007**	0.00007**	0.00007**
	(2.487)	(2.483)	(2.469)	(–2.488)	(–2.489)	(–2.440)
TOP2_5	0.032***	0.032***	0.031***	–0.001	–0.001	–0.001
	(3.639)	(3.633)	(3.615)	(–0.622)	(–0.624)	(–0.592)
TRADEABLE						
LOSS						
GROWTH	0.044**	0.044**	0.043**	0.003**	0.003**	0.003**
	(2.207)	(2.207)	(2.208)	(2.010)	(2.010)	(2.010)
LEV	–0.129***	–0.129***	–0.128***	–0.001*	–0.001*	–0.001*
	(–17.662)	(–17.616)	(–17.557)	(–1.821)	(–1.808)	(–1.803)
LISTYEAR	–0.228***	–0.228***	–0.225***	–0.054***	–0.054***	–0.053***
	(–7.521)	(–7.517)	(–7.444)	(–10.486)	(–10.484)	(–10.414)
LNSIZE	1.453***	1.451***	1.439***	0.037***	0.037***	0.037***
	(10.926)	(10.909)	(10.859)	(2.881)	(2.875)	(2.877)
FIXEDEFFECTS	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	4995	4995	4995	4995	4995	4995
Adj_R^2 (%)	24.68	24.71	24.77	5.75	5.74	5.76
F	55.66	53.98	5251	11.16	10.81	10.54
Inflexion point	—	—	19.19%	—	—	15.63%
			53.41%			58.27%

Notes: T values adjusted by White heteroscedasticity are in brackets; ***, **, and * denote significance levels at 0.01, 0.05, and 0.10, respectively.

TOBIN Q1			*TOBIN Q3*		
7	8	9	10	11	12
6.215***	6.213***	6.214***	15.238***	15.235***	15.237***
(32.773)	(32.764)	(32.737)	(23.084)	(23.085)	(23.080)
0.297***	0.241**	0.503**	0.541***	0.409	1.049**
(5.596)	(2.151)	(2.559)	(4.316)	(1.413)	(1.998)
	0.105	−1.192		0.244	−2.921
	(0.491)	(−1.481)		(0.489)	(−1.392)
		1.331			3.247
		(1.625)			(1.590)
0.002	0.002	0.002	0.040***	0.040***	0.040***
(0.510)	(0.496)	(0.544)	(3.667)	(3.660)	(3.691)
−0.043***	−0.042***	−0.044***	−0.082	−0.081	−0.084
(−2.760)	(−2.707)	(−2.792)	(−1.586)	(−1.554)	(−1.615)
−0.012	−0.011	−0.012	−0.107**	−0.106**	−0.109**
(−0.891)	(−0.863)	(−0.928)	(−2.513)	(−2.492)	(−2.539)
−0.003**	−0.003**	−0.003**	−0.014***	−0.014***	−0.014***
(−2.274)	(−2.266)	(−2.278)	(−3.589)	(−3.582)	(−3.594)
0.00001	0.00001	0.00001	0.0004***	0.0004***	0.0004***
(0.910)	(0.914)	(0.917)	(7.915)	(7.916)	(7.922)
−0.002***	−0.002***	−0.002***	0.023***	0.023***	0.023***
(−3.369)	(−3.368)	(−3.342)	(10.407)	(10.407)	(10.420)
0.00006***	0.00006***	0.00006***	0.0001***	0.0002***	0.0001***
(3.358)	(3.355)	(3.356)	(3.450)	(3.448)	(3.449)
−0.061***	−0.061***	−0.060***	−0.032	−0.032	−0.031
(−3.060)	(−3.068)	(−3.043)	(−0.368)	(−0.373)	(−0.360)
0.0001	0.0002	0.0002	0.001	0.001	0.001
(0.525)	(0.526)	(0.525)	(0.989)	(0.990)	(0.989)
0.0004	0.0004	0.0004	−0.012***	−0.012***	−0.012***
(−1.016)	(−1.022)	(−1.012)	(−7.645)	(−7.646)	(−7.637)
0.015***	0.015***	0.015***	0.040***	0.040***	0.041***
(6.305)	(6.306)	(6.335)	(5.715)	(5.715)	(5.740)
−0.355***	−0.355***	−0.356***	−1.049***	−1.048***	−1.049***
(−18.824)	(−18.821)	(−18.806)	(−15.670)	(−15.671)	(−15.669)
Yes	Yes	Yes	Yes	Yes	Yes
4995	4995	4995	4995	4995	4995
55.53	55.52	55.53	53.73	53.72	53.72
189.89	184.28	179.11	176.94	171.71	166.84
—	—	—	—	—	—

Second, because an internal market has many "natural" advantages, large shareholders have sufficient and complex incentives to establish internal markets with listed firms. There are incentives not only to lower the transaction costs of external markets but also to tunnel assets, especially when the legal environment and governance systems are relatively weak. In addition, the local governments also have incentives to realise public governance through local enterprises. The formation of an internal market in China is thus co-driven by the above complex motives.

Third, thanks to the complexity of the above-mentioned motives and potential conflicts, the actual operating process of the internal market will inevitably reflect complex economic consequences, showing the diversity of internal market functions. For the same economic consequences, such as accounting performance, market value, and transparency, varying degrees of activity in the internal market may represent different incentives and lead to performances of different degrees and a different nature. Even within the same internal market, its operation may reduce market transaction costs while at the same time allowing large shareholders to tunnel assets through internal channels out of self-serving interests. Thus, the net effect of the internal market depends on the comparative strength of various kinds of incentives and restraints.

As the experience of developing countries shows, during their early stages of economic development business groups are considered a kind of organisational structure to substitute for underdeveloped markets and systems (Khanna and Palepu, 1997, 2000). Therefore, China's economic transition and emerging market characteristics are certainly important factors leading to the establishment of business groups. However, the special economic and political system in China determines that the formation of these business groups largely results from government administrative intervention, because most Chinese business groups originate from industry administrative departments and state-owned enterprises through restructuring, and they have their own specific ways of being established.

In particular, according to the China Group Companies Promotion Association (2004), Chinese business groups are formed mainly in one of the following five ways: (1) reforming large groups and granting core member firms of business groups the authority to manage state-owned assets; (2) reforming national sectorial companies; (3) reforming administrative agencies in charge of different industry sectors; (4) establishing state-owned holding companies through centralised management of state equity; and (5) forming and developing business groups through reforming the investment system. In view of the above, it is obvious that business groups in China are mainly the result of the reforms of state-owned enterprises and the economic system (Jian and Wong, 2005). Nevertheless, the formation of an internal market during the actual operation of business groups may not simply be the result of administrative intervention, but may also be closely linked to the external market environment. Zheng and Wei (2007) provide evidence supporting the above argument.

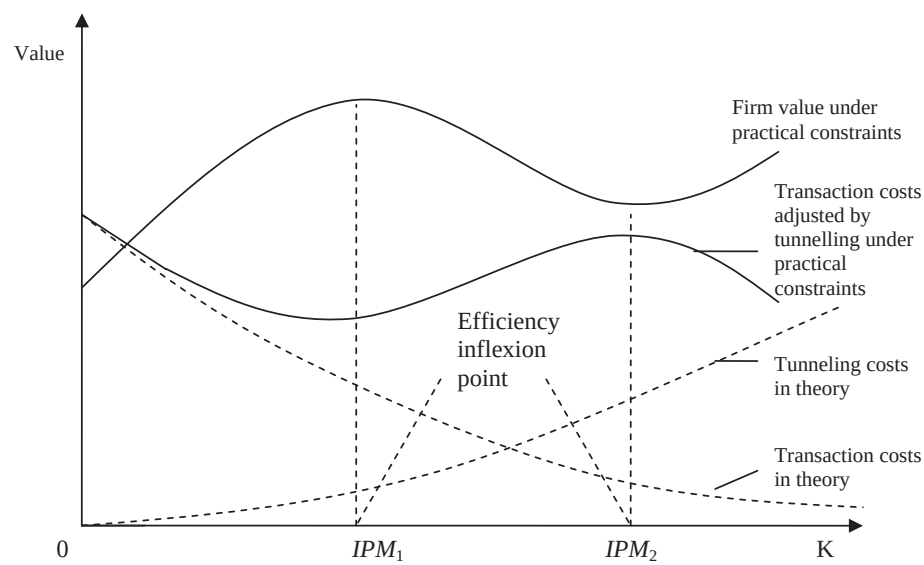
Furthermore, although different functions of internal markets may exist simultaneously, some functions may be related mainly to a certain degree of activity in

the internal market. In some internal markets, the efficiency advantage reflected by transaction cost savings may be the main effect, while in other circumstances the internal market may be used as a means of tunnelling for the large shareholder. Therefore, different interval effects will exist in internal markets.

With respect to internal markets in China, what are the characteristics of this "interval effect"? In other words, under what circumstances might the internal market primarily reflect the tunnelling incentives of large shareholders, as opposed to mainly reflecting improvements in operating efficiency?

Figure 6 presents a simplified analytical framework. The abscissa represents the activity of an internal market, while the ordinate proxies for the value of listed firms. The topmost curve in the figure is based on the empirical research findings described above to the effect that the value of listed companies increases nonlinearly with an increase in internal transactions. For analysis purposes, we assume that internal markets have only two main effects—the efficiency enhancing effect and the tunnelling effect. According to classical transaction cost economics and the related mainstream of research on business groups, internal market transactions are helpful in reducing transaction costs. In theory, the more active the internal market, the more obvious the efficiency advantage is; therefore, without considering other factors of interference, transaction costs should decrease as internal market transactions increase until the internal market reaches its largest transaction capacity under practical constraints (point K in the figure). The bottom dotted line in Figure 6 depicts this trend. Meanwhile, internal markets may also lead to substantial tunnelling by large shareholders. According to the tunnelling theory, in the absence of insider trading, the costs related to tunnelling are zero; afterwards, as internal

Figure 6 Internal Market Activity and Firm Value



trading increases, the capacity and incentives for the large shareholder to transfer interests through the internal market increase, leading to an increase in tunnelling costs. Therefore, theoretically the tunnelling curve should be contrary to the ideal transaction cost curve. Another dotted line in Figure 6 depicts this trend.

As the above two dotted lines indicate, transaction costs decrease and tunnelling costs increase as internal trading increases. What will then happen in the internal market under practical constraints? We argue that, owing to reasons of institutional arrangements and monopolies, the efficiency effect may dominate in internal markets where internal trading is either very large or very small, while tunnelling is more likely to be the main effect in internal markets with medium activity. The specific analysis is as follows.

First, because of special situations in China, such as a transition economy, the state-owned enterprise reform, and the establishment of large business groups, the vast majority of business groups have been established through spinning off, which suggests that listed firms are usually formed by shareholders of business groups stripping either parts of or the main operating assets of the group. In such circumstances, the listed firms are often not completely independent operators even though they may possess the main operating assets or parts thereof. For such operations as upstream or downstream businesses, the listed firms still need to rely on their parent companies, while in other cases the normal operation of the parent company needs support from the listed firm. During this activity interval, the large shareholders may use the internal market purely for the sake of the listed firms or for the integrity and stability of their own business. Therefore, when the internal market is taking shape (internal transactions from 0 to IPM_1 in Figure 6), the marginal advantage of the internal market to reduce transaction costs increases; meanwhile the tunnelling effect is either small or non-existent. The operation of an internal market primarily reflects its efficiency advantages.

Second, when internal trading is very high (from IPM_2 to K in Figure 6), efficiency advantages may become the major effect. This is because in the 1980s China began to imitate Japan and South Korea in setting up large business groups, which often engaged in heavy industries like iron, steel, and automobiles, as well as other fundamental monopolistic energy sectors like petrochemicals and electricity. Currently, a considerable number of Chinese listed companies are subsidiaries of these business groups. In addition to the impact of institutional arrangements, such as asset restructuring before an initial public offering, two circumstances may also lead to very active internal transactions. On the one hand, since integrating internal resources is particularly important given the large scale of these groups, internal business arrangements and the design of organisational structures are key to their success or failure. Large business groups often choose an internal vertical integration strategy, which means that the listed company becomes the production and processing base of a core business within the group, while the downstream or other important businesses are undertaken by other members of the group. Under such circumstances, internal markets do not exist or are not particularly active, and the implementation of vertical integration is purely an overall strategic choice of the

business group. We call this kind of internal relationship a "strategic internal market". On the other hand, owing to monopoly control by the government, some listed firms engaging in monopolistic industries cannot obtain key inputs to meet their business needs directly from the external market (such as the demand for oil from petrochemical firms) or directly sell their products to the external market. Under such circumstances, the usual practice is to establish a special group affiliate of a monopolistic nature, which provides raw materials (or sells products) to other group members, leading to a very active internal market within the group. We call this a "monopolistic internal market". Therefore, whether in a strategic internal market or a monopolistic internal market, the primary consideration of large shareholders should be reducing transaction costs and promoting the group's overall operating efficiency; in that case, tunnelling should be neither the main reason for internal trading nor the main effect of the internal market.

Finally, we analyse internal markets with a medium degree of internal trading. Although this kind of internal market cannot be driven by strategic or monopolistic considerations, these markets are sufficiently active that the motivations for their activity are subject to query. Moreover, compared with meeting the normal transaction needs of listed firms (or shareholders), internal market transactions at this level may be excessive, providing huge room for manipulation. In view of these two points, internal market transactions at this level may result mainly from the opportunistic motives of large shareholders to transfer profits and resources from the listed firm. Despite the objective fact that internal market transactions at this level still have the advantage of lower transaction costs, such advantage may no longer be the main driving force, and an internal market at this interval of activity may ultimately show the tunnelling of large shareholders.

Based on the above analysis, if we take transaction costs as the basis for analysis, and real transaction costs adjusted by other factors, including tunnelling, as the sole factor determining the value of a listed firm, then when the degree of internal trading is either very small or very large, the internal market will have a positive net effect on firm value after adjustments for the tunnelling effect because the efficiency effect is stronger than the tunnelling effect. In some internal markets with a medium degree of internal transactions, tunnelling will become the main effect, leading to an increase in real transaction costs and a decrease in firm value. Thus, for the entire internal market, under practical constraints, the transaction costs curve and the value curve will show a trend of "first declining, then rising and declining again", and "first rising, then declining and rising again", respectively.

V. THE TUNNELLING EFFECT AND THE EFFICIENCY ENHANCING EFFECT OF THE CONTROLLING SHAREHOLDER'S INTERNAL MARKET: FURTHER EMPIRICAL EVIDENCE

In this section, we empirically test the existence of the tunnelling effect and the efficiency enhancing effect in internal markets, giving further support of experience for the previous explanations.

5.1. Research Design

We test the tunnelling and the efficiency enhancing effects of internal markets by applying Model (2) to run a regression in which *IPM*, IPM^2, and IPM^3 are introduced to examine whether different degrees of internal trading have different effects on the above two.

Model (2):

$$TUNNELLING_i/TRANSCOST_i = \beta_0 + \beta_1 IPM + \beta_2 IPM^2 + \beta_3 IPM^3 + \beta_4 INDEX\_MAR + \beta_5 GROUP + \beta_6 GOV + \beta_7 TOP1 + \beta_8 TOP1^2 + \beta_9 TOP2\_5 + \beta_{10} GROWTH + \beta_{11} LEV + \beta_{12} LISTYEAR + \beta_{13} LNSIZE + FIXEDEFFECTS + \varepsilon_{it} \quad (2)$$

In the above model, the dependent variable *TUNNELLING* includes two measures—gross sales margin and ratio of net borrowing of controlling shareholders to total assets—and is taken to measure the tunnelling effect of the controlling shareholder. *TRANSCOST* is the proxy for the efficiency effect, including three sub-items of the total fees ratio: ratio of operating fees, ratio of management fees, and ratio of financial fees.

As Table 1 shows, previous research applies either the market reaction during a certain time window after related-party transactions (Bae *et al*., 2002; Jian and Wong, 2005) or firm value (Claessens *et al*., 2003) as proxies for the tunnelling behaviour of large shareholders. Since the above measurements are usually restricted by loud noise, we apply a more direct way of examining the tunnelling effect induced by related-party transactions, as illustrated in Panel C of Table 1. With respect to internal market trading, if the large shareholder raises the price of raw materials, the procurement costs of the listed firm undertaking the related purchases will increase, leading to an indirect decrease in gross sales margins. If the selling prices of the listed firm's products are pressed down by the large shareholder, the firm's gross sales profits will decrease directly. Therefore, the purchase and sales behaviour of the listed firm is helpful for analysing, through gross sales profits, whether the large shareholder is exhibiting "sell high, buy low" behaviour through related-party transactions.[12] In addition, appropriating the funds of a listed firm is a common way for large shareholders to tunnel assets from the firm; this in turn is closely related to the operation of an internal market. Hence, we use the "net borrowing from large shareholders" as a substitute index for the tunnelling behaviour of large shareholders. We take two kinds of measures into account: absolute net borrowing and relative net borrowing. The former is the net borrowing by large shareholders adjusted by total assets, while the latter is the absolute net borrowing by large shareholders

[12] It should be noted that the ratio of both main operating costs and gross sales margins have no direct relation to the tunnelling of large shareholders; the tunnelling behaviour can be observed only when these indices are analysed in connection with related product purchases and sales. Therefore, the regression results of other variables in the model may have other implications.

minus the absolute net borrowing by other shareholders, reflecting the relative degree of tunnelling by the large shareholders. Finally, we adopt the sum of the total fee ratios and the three sub-items to proxy for transaction costs. According to contemporary accounting standards, the fees represent various expenses other than production costs, including operating fees, management fees, and financial fees as recognised in the income statement. Each item includes several sub-items. We argue that without considering other influential factors, a change in total fees initially reflects changes in many direct transaction costs, indicating the economic predominance of the internal market. For instance, information sharing between two trading parties will reduce operating fees, such as advertisement expenses; however, total fees will also reflect the direct or indirect cost burdens of the listed firm caused by the tunnelling behaviour of large shareholders. This is well exemplified by the default payments of large shareholders through related-party transactions, which increase the possibility of bad debts borne by the listed firm while inducing a rise in management and financial costs as well. Therefore, the total fees ultimately observed in our study better reflect transaction costs after adjustment by the tunnelling costs of large shareholders, that is, the real transaction costs as shown in Figure 6.[13]

5.2. Regression Results

5.2.1. Descriptive statistical analysis

Table 4 contains the statistical analysis results of the main variables. The average gross sales margin (median) is 73.82 per cent (77.18 per cent), while on average large shareholders appropriate 2 per cent of the funds. In contrast, other shareholders have no default payments; instead, 0.41 per cent of the listed firm's funds are lent by other shareholders. Thus, the relative net borrowing of large shareholders is 2.41 per cent. The average (median) ratios of total fees, operating fees, management fees, and financial fees are 20.08 per cent (15.25 per cent), 5.93 per cent (3.88 per cent), 11.15 per cent (8.07 per cent), and 3.00% (1.79 per cent), respectively.

5.2.2. Univariate Analysis

Figures 7 to 9 present the interval description based on the activity of the internal market. First, as Figures 7 and 8 illustrate, the net borrowing of large shareholders is at its lowest point and the gross sales margin at its highest point when no internal trading occurs, indicating that the existence of an internal market may lead to more tunnelling behaviour by the large shareholders. As internal trading increases, the gross sales margin declines gradually, showing that the profit transfer behaviour of

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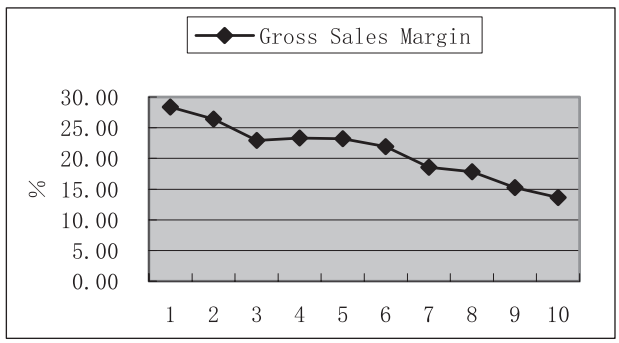
[13] Previous analyses show that using a variable directly reflecting transaction costs is the best way to test the economic predominance of an internal market; however, we cannot find a transaction cost variable that will not be affected by other factors (such as the tunnelling of large shareholders) in our empirical study. The total fees ratio should be an ideal variable that better reflects transaction costs, although it may still include the tunnelling costs of large shareholders. We consider, therefore, the total fees ratio after the tunnelling costs of large shareholders to test for the existence of efficiency advantages in the internal market, rather than directly examining the economic predominance of an internal market.

Table 4 Descriptive Statistics of Variables in Model (2)

Variable (%)	Obs.	Mean	Sd. Dev.	Min	Max	P25	Median	P75
Gross sales margin	5141	26.18	15.15	–0.01	96.26	15.44	22.82	33.65
Absolute net borrowing of large shareholders	5141	2.00	6.96	–40.90	99.01	–0.03	0.00	1.32
Absolute net borrowing of other shareholders	5141	–0.41	21.47	–947.00	63.92	–7.18	0.25	8.04
Relative net borrowing of large shareholders	5141	2.41	23.46	–81.86	947.00	–7.43	0.73	9.03
Total fees ratio	5141	20.08	18.90	0.11	198.12	9.78	15.25	23.40
Operating fees ratio	5141	5.93	7.08	0.00	107.23	1.85	3.88	7.35
Management fees ratio	5141	11.15	13.14	–31.01	165.62	4.87	8.07	12.67
Financial fees ratio	5141	3.00	5.07	–18.05	124.06	0.55	1.79	4.00

Figure 7 Internal Market Activity and Gross Sales Margin



large shareholders may monotonically increase with the increase in internal trading. Both the absolute and relative net borrowing of large shareholders shows an inverted U-shaped trend, by which the net borrowing of large shareholders first rises and then falls; in particular, net borrowing increases gradually before interval 7, and then trends downwards after the interval. Second, as Figure 9 shows, the real transaction costs reflect the fact that various fee ratios are at their highest points when no internal trading occurs. This suggests that although tunnelling costs will be

Figure 8 Internal Market Activity and Net Borrowing of Large Shareholders

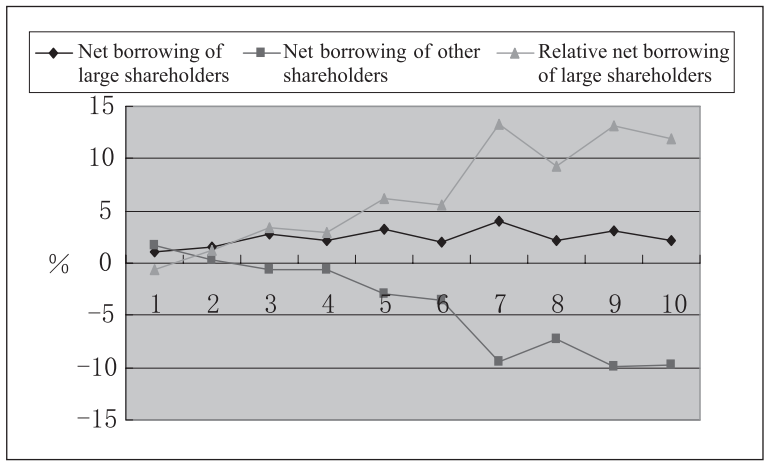
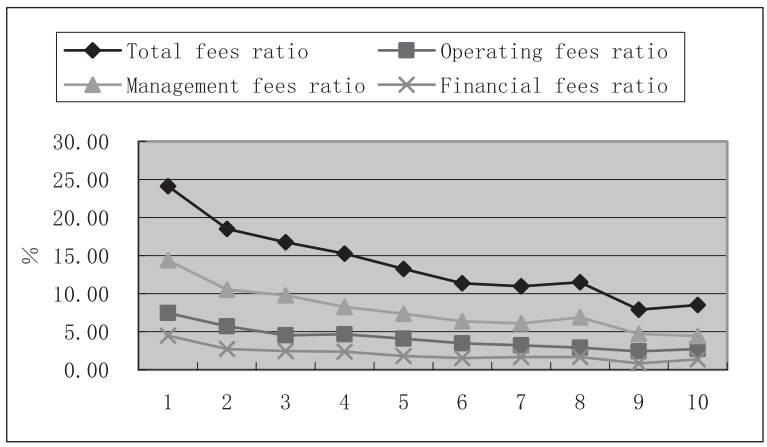


Figure 9 Internal Market Activity and Real Transaction Cost



higher in the presence of an internal market, the large shareholders can obtain greater economic advantages in trading costs. After adjusting for tunnelling costs, the net transaction costs of the internal market are still low. As internal trading increases, various fee ratios tend to drop linearly before reaching interval 6; afterwards they rise slightly and reach their inflexion points at interval 8, at which point all fee ratios fall. This shows that the relationship between internal market activity and real transaction costs is not simply linear; instead it is likely to be an inverted N-shaped curve, by which the real transaction costs first fall, then rise, and then fall again with increasing internal trading. Moreover, comparing Figure 8 with Figure 9, we find that the tunnelling effect of large shareholders is severest at interval 7, and that the real transaction costs after adjusting for tunnelling costs trend upwards

Table 5 Internal Market and Tunnelling

Variable	Related sales and gross sales margin (*IPM = IPM_SALE*)			Absolute net borrowing (*IPM = IPM_TOTAL*)			Relative net borrowing (*IPM = IPM_TOTAL*)		
	4	5	6	7	8	9	10	11	12
Constant	38.207***	37.947***	37.945***	2.931*	3.066*	3.067*	−27.800***	−27.522***	−27.523***
	(9.499)	(9.416)	(9.415)	(1.727)	(1.803)	(1.804)	(−7.668)	(−7.595)	(−7.595)
IPM	−23.072***	−35.080***	−40.716***	3.763***	10.995***	11.722**	19.401***	34.225***	32.738***
	(−8.046)	(−6.171)	(−4.259)	(3.220)	(4.091)	(2.599)	(9.160)	(6.881)	(3.749)
IPM²		32.588***	65.327		−9.417***	−17.019		−27.503***	−20.146
		(3.014)	(1.263)		(−3.153)	(−0.857)		(−3.446)	(−0.568)
IPM³			−44.478			3.693			−7.545
			(−0.754)			(0.189)			(−0.224)
INDEX_MAR	−0.521***	−0.529***	−0.531***	−0.181***	−0.176***	−0.176***	0.541***	0.552***	0.552***
	(−4.044)	(−4.106)	(−4.115)	(−3.396)	(−3.309)	(−3.310)	(4.472)	(4.570)	(4.561)
GROUP	−1.065*	−1.001*	−0.984*	0.991	0.921***	0.917***	1.224**	1.081**	1.089**
	(−1.839)	(−1.722)	(−1.689)	(5.269)	(4.893)	(4.852)	(2.422)	(2.128)	(2.130)
GOV	−2.580***	−2.527***	−2.517***	−0.266	−0.309	−0.312	2.207***	2.118***	2.123***
	(−5.066)	(−4.959)	(−4.933)	(−1.194)	(−1.393)	(−1.408)	(4.454)	(4.273)	(4.287)
TOP1	−0.181***	−0.182***	−0.182***	0.009	0.007	0.007	0.078	0.074	0.074
	(−2.922)	(−2.949)	(−2.940)	(0.417)	(0.332)	(0.329)	(1.497)	(1.425)	(1.428)
TOP1²	0.002***	0.002***	0.002***	0.00005	0.00006	0.00006	0.00004	0.00004	0.00004
	(2.864)	(2.920)	(2.914)	(0.227)	(0.224)	(0.226)	(−0.066)	(−0.070)	(−0.071)
TOP2_5	0.064***	0.064***	0.064***	−0.004	−0.005	−0.005	0.019	0.019	0.019
	(2.860)	(2.870)	(2.868)	(−0.460)	(−0.476)	(−0.473)	(0.897)	(0.884)	(0.880)

GROWTH	0.027	0.027	0.027	0.011	0.010	0.010	0.066	0.066	0.066
	(1.549)	(1.559)	(1.560)	(0.407)	(0.402)	(0.401)	(1.458)	(1.452)	(1.452)
LEV	–0.209***	–0.209***	–0.209***	0.005	0.006	0.006	0.130***	0.132***	0.131***
	(–11.468)	(–11.484)	(–11.487)	(0.702)	(0.771)	(0.772)	(9.749)	(9.824)	(9.823)
LISTYEAR	–0.089	–0.085	–0.085	0.258***	0.258***	0.258***	0.247***	0.246***	0.246***
	(–1.109)	(–1.053)	(–1.061)	(7.425)	(7.433)	(7.460)	(3.351)	(3.350)	(3.344)
LNSIZE	0.871***	0.892***	0.892***	–0.189	–0.195	–0.196	1.014***	1.000***	1.001***
	(2.786)	(2.848)	(2.849)	(–1.325)	(–1.371)	(–1.373)	(3.491)	(3.442)	(3.444)
FIXEDEFFECTS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	4995	4995	4995	4995	4995	4995	4995	4995	4995
Adj_R^2 (%)	29.80	29.83	29.82	3.83	4.07	4.05	11.82	12.01	11.99
F	69.58	67.55	65.50	7.34	7.54	7.31	22.31	22.02	21.35
Inflexion point		53.82%			58.38%			62.22%	

Notes: T values adjusted by White Heteroscedasticity are in brackets; ***, **, and * denote significance levels at 0.01, 0.05, and 0.10, respectively.

between intervals 6 and 8; this shows that the efficiency enhancing effect is restrained by the tunnelling effect.

5.2.3. Regression Results

Table 5 contains the regression results of Model (2). The dependent variables are different measures of tunnelling. According to the previous analysis, we predict an inverted U-shaped relationship between the internal market activity and tunnelling behaviour of large shareholders. The regression coefficients of *IPM* and IPM^2 should thus have a significantly negative and positive correlation with tunnelling behaviour, respectively; the results shown in Table 5 support our prediction. Furthermore, based on the regression coefficients, we find that the inflexion points of the curves are as follows: gross sales margin at 53.82 per cent, absolute net borrowing at 58.38 per cent, relative net borrowing at 62.22 per cent, and the average inflexion point at 57.60 per cent. In other words, tunnelling behaviour is the severest when the proportion of internal market transactions mounts to 57.60 per cent, before or after which it increases or decreases with the increase in internal market trading. It is worth noting that this inflexion point is very close to the second extreme point in the accounting performance regression analysis, meaning that the tunnelling behaviour of large shareholders might be an important cause of the decrease in firm value by the internal market. To test the reliability of the above conclusion, we add an IPM^3 of the internal market based on the original model, and find that the IPM^3 of all three models is not significant. Therefore, no N-shaped relationship exists between internal market activity and the tunnelling effect.

Table 6 presents the regression results of different fee ratios based on Model (2). Although there is no significant curvilinear relationship between the internal market and various fee ratios as shown in Figure 9, the regression results indicate that an N-shaped relationship does indeed exist between internal market trading and the total fees ratio. In particular, *IPM* and IPM^3 are significantly and negatively related to the total fees ratio, while IPM^2 is significantly and positively related to the same. The average significance level is less than 0.0001. Based on the regression coefficients of *IPM*, IPM^2, and IPM^3, and by using a quadratic equation with the first order condition equalling zero, we find the two extreme points of the operating fees ratio (management fees ratio, financial fees ratio) are 26.58 per cent (26.54 per cent, 18.32 per cent) and 55.47 per cent (54.49 per cent, 54.37 per cent), respectively. The average maximum and minimum points of the three fee ratios are 23.81 per cent and 54.78 per cent, respectively. It is also worth noting that the two inflexion points of the total fees ratio are similar to those of the accounting performance, so we can conclude in conjunction with the results in Table 5 that the effect of an internal market on firm value is dependent on the net effect of efficiency enhancing and tunnelling.

VI. SENSITIVITY TEST

Table 3 shows that the effect of internal markets on accounting performance indices, especially accounting accruals, is more obvious than the effect on cash-based

Table 6 Internal Market and Efficiency Enhancing Effect (*IPM = IPM_TOTAL*)

Variable	Operating fees ratio			Management fees ratio			Financial fees ratio		
	1	2	3	4	5	6	7	8	9
Constant	17.889***	17.759***	17.752***	63.161***	62.997***	62.988***	19.809***	19.788***	19.786***
	(7.833)	(7.777)	(7.777)	(10.290)	(10.262)	(10.263)	(7.061)	(7.053)	(7.052)
IPM	−5.624***	−12.979***	−23.330***	−7.527***	−16.675***	−30.522***	−0.734	−1.896	−5.554**
	(−10.222)	(−7.665)	(−6.858)	(−5.048)	(−4.380)	(−4.101)	(−1.222)	(−1.346)	(−2.114)
IPM²		13.638***	64.001***		16.959***	85.499***		2.154	20.264**
		(5.388)	(5.267)		(3.152)	(2.910)		(1.073)	(2.108)
IPM³			−52.016***			−70.339**			−18.585**
			(−4.776)			(−2.540)			(−2.057)
INDEX_MAR	−0.415***	−0.420***	−0.425***	−0.431***	−0.438***	−0.445***	−0.176***	−0.177***	−0.179***
	(−5.328)	(−5.391)	(−5.452)	(−2.686)	(−2.725)	(−2.766)	(−2.715)	(−2.725)	(−2.751)
GROUP	−0.386	−0.316	−0.260	−0.664	−0.577	−0.503	−1.261***	−1.249***	−1.230***
	(−0.964)	(−0.790)	(−0.651)	(−0.770)	(−0.664)	(−0.575)	(−3.018)	(−2.978)	(−2.925)
GOV	−0.254	−0.211	−0.175	1.058	1.113	1.160*	−0.984***	−0.977***	−0.965***
	(−0.802)	(−0.663)	(−0.547)	(1.531)	(1.600)	(1.657)	(−3.276)	(−3.237)	(−3.183)
TOP1	−0.026	−0.024	−0.023	−0.327***	−0.324***	−0.323***	−0.094***	−0.094***	−0.093***
	(−0.761)	(−0.710)	(−0.685)	(−4.973)	(−4.948)	(−4.936)	(−3.300)	(−3.292)	(−3.283)
TOP1²	0.0002	0.0002	0.0002	0.003***	0.003***	0.003***	0.001**	0.001**	0.001**
	(0.499)	(0.509)	(0.499)	(4.348)	(4.357)	(4.353)	(2.449)	(2.451)	(2.448)

Table 6 Continued

Variable	Operating fees ratio			Management fees ratio			Financial fees ratio		
	1	2	3	4	5	6	7	8	9
TOP2_5	0.032**	0.032**	0.032**	−0.019	−0.019	−0.020	−0.033**	−0.033**	−0.033**
	(2.537)	(2.553)	(2.512)	(−0.752)	(−0.745)	(−0.772)	(−2.448)	(−2.447)	(−2.457)
GROWTH	−0.025	−0.025	−0.025	−0.146*	−0.146*	−0.146*	−0.044*	−0.044*	−0.044*
	(−1.499)	(−1.495)	(−1.494)	(−1.712)	(−1.711)	(−1.711)	(−1.861)	(−1.860)	(−1.861)
LEV	0.015	0.015	0.014	0.150***	0.150***	0.149***	0.157***	0.157***	0.157***
	(1.388)	(1.346)	(1.328)	(3.517)	(3.503)	(3.497)	(10.561)	(10.557)	(10.557)
LISTYEAR	0.069*	0.069*	0.065	0.538***	0.538***	0.533***	0.162***	0.162***	0.161***
	(1.687)	(1.684)	(1.593)	(5.348)	(5.348)	(5.303)	(3.458)	(3.457)	(3.428)
LNSIZE	−0.753***	−0.747***	−0.744***	−4.352***	−4.344***	−4.339***	−1.477***	−1.476***	−1.475***
	(−3.936)	(−3.906)	(−3.889)	(−7.279)	(−7.268)	(−7.264)	(−6.319)	(−6.315)	(−6.312)
FIXEDEFFECTS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	4995	4995	4995	4995	4995	4995	4995	4995	4995
Adj_R^2 (%)	16.71	16.82	16.91	9.60	9.62	9.65	18.37	18.35	18.35
F	33.43	32.67	31.90	18.06	17.58	17.12	37.27	36.11	35.04
Inflexion point			26.58%			26.54%			18.32%
			55.47%			54.49%			54.37%

Notes: T values adjusted by White Heteroscedasticity are in brackets; ***, **, and * denote significance levels at 0.01, 0.05, and 0.10, respectively.

accounting variables and market variables, which is relatively weak. We think this weak relation between internal markets and market value may result from investors' inability to distinguish between normal related-party transactions and opportunistic transactions. Therefore, even when a firm performs well, investors will not value it at the same level as its accounting performance, since they expect possible tunnelling by the large shareholder will hurt their benefits, leading to inconsistency between accounting performance and market performance of the firm. This view is consistent with Claessens *et al*. (2006) and Khanna (2000). However, the above analysis appears incapable of explaining well the difference between accrual-based and cash-based variables. Instead, such differences may be better explained using earnings management. Recent literature on earnings management has demonstrated that sometimes large shareholders have an incentive to increase earnings to facilitate tunnelling through related-party transactions (Jian and Wong, 2005). Aharony *et al*. (2006) find that Chinese firms manage earnings through related-party transactions in the internal market to ensure a smooth listing of the firm. In view of this, the relatively better accounting performance compared with the firm's market performance may result from earnings management, rather than from the net effect of efficiency enhancing and tunnelling.

To ensure the reliability of our results, we first run a model using accruals calculated from the cross-sectional Jones model as the dependent variable, and internal markets as the independent variable. As Table 7 shows, although the relation between earnings management and internal trading is positive, it is not significant. Furthermore, when we run Model (1) but add earnings management as the independent variable, we find that it bears a significantly positive relation to *ROA* and a significantly negative relation to *CASHPS*, but find no significant relation to *TOBIN Q*. Meanwhile, the coefficient of internal trading is consistent with the results in Table 3 with respect to the existence of earnings management, meaning that the effect of internal markets on firm value is not influenced by earnings management.

In addition, we adjust the internal market measurements by changing the denominator to main operating income and re-run Models (1) and (2). As Table 8 shows, except for some slight differences in inflexion points, the regression results are basically consistent with the results in Tables 3, 5, and 6. Finally, we do the following sensitivity tests: (1) we use *ROE* and earnings per share (*EPS*) to substitute for *ROA* as the dependent variables; and (2) we use one-year market-adjusted stock returns as the market value measure. All test results (unreported) are not substantially changed.

VII. DISCUSSION ON LIMITATIONS AND REVIEWERS' COMMENTS

Compared with previous studies, this research has made significant improvements in the rationality of the design of variables, the research method, and the comprehensiveness of the research topic, thereby greatly increasing the reliability of our conclusions. However, like local and overseas research on business groups and

Table 7 Sensitivity Test 1 (*IPM = IPM_TOTAL*)

Variable	Dependent variable = Positive accruals (*EM* > 0)			Dependent variable = Firm value			
	1	2	3	*TOBIN Q1*	*TOBIN Q3*	*ROA*	*CASHPS*
Constant	16.780***	16.773***	16.750***	6.284***	15.515***	−11.226***	−1.029***
	(5.098)	(5.103)	(5.093)	(30.558)	(20.895)	(−6.940)	(−7.101)
IPM	1.557	2.228	0.733	0.564***	1.169**	14.560***	0.705**
	(1.135)	(0.583)	(0.120)	(2.649)	(2.071)	(4.192)	(1.989)
IPM²		−1.307	6.272	−1.518*	−3.631	−51.922***	−2.834**
		(−0.197)	(0.282)	(−1.692)	(−1.577)	(−3.534)	(−2.009)
IPM³			−8.063	1.756*	4.067*	45.700***	2.578*
			(−0.387)	(1.846)	(1.762)	(3.115)	(1.915)
EM				−0.039	−0.734	14.172***	−0.458***
				(−0.582)	(−1.501)	(8.986)	(−3.406)
INDEX_MAR	0.140	0.141	0.140	0.004	0.047***	0.263***	0.002
	(1.284)	(1.288)	(1.277)	(1.364)	(3.991)	(4.991)	(0.489)
GROUP	−0.969	−0.976	−0.969	−0.050***	−0.103*	−0.137	−0.014
	(−1.511)	(−1.520)	(−1.509)	(−3.029)	(−1.908)	(−0.550)	(−0.642)
GOV	−0.983*	−0.987*	−0.983*	−0.012	−0.115**	−0.444**	−0.021
	(−1.852)	(−1.855)	(−1.845)	(−0.873)	(−2.365)	(−2.053)	(−0.941)
TOP1	−0.043	−0.043	−0.043	−0.004**	−0.014***	−0.026	0.001
	(−0.890)	(−0.893)	(−0.885)	(−2.584)	(−3.231)	(−1.271)	(0.426)
TOP1²	0.001	0.001	0.001	0.00002	0.0004***	0.001***	0.00001
	(0.937)	(0.937)	(0.930)	(1.336)	(7.546)	(2.937)	(−0.521)
TOP2_5	0.004	0.004	0.004	−0.002***	0.023***	0.032***	0.0004
	(0.212)	(0.212)	(0.205)	(−3.370)	(10.234)	(3.521)	(0.494)
TRADEABLE				0.000006***	0.00002***		
				(3.123)	(3.211)		

LOSS				−0.066***	−0.094		
				(−3.244)	(−1.377)		
GROWTH	−0.002	−0.002	−0.002	0.00007	0.001	0.035**	0.002**
	(−0.137)	(−0.139)	(−0.138)	(0.212)	(0.640)	(2.318)	(2.078)
LEV	0.065***	0.065***	0.065***	0.0004	−0.012***	−0.123***	0.0002
	(4.596)	(4.593)	(4.590)	(−0.765)	(−6.953)	(−17.516)	(0.453)
LISTYEAR	−0.040	−0.040	−0.040	0.015***	0.040***	−0.086***	0.026***
	(−0.460)	(−0.463)	(−0.468)	(5.361)	(5.318)	(−2.374)	(6.739)
LNSIZE	−0.598*	−0.597*	−0.595*	−0.362***	−1.080***	1.586***	0.095***
	(−1.857)	(−1.857)	(−1.848)	(−17.889)	(−14.929)	(11.825)	(8.386)
FIXEDEFFECTS	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	2468	2468	2468	4995	4995	4995	4995
Adj_R^2 (%)	4.52	4.48	4.41	55.78	53.11	29.45	5.58
F	4.80	4.65	4.51	158.30	142.62	56.21	8.83
Inflexion point	–	–	–	–	–	**18.28%**	**15.88%**
						57.17%	**57.41%**

Notes: T values adjusted by White Heteroscedasticity are in brackets; ***, **, and * denote significance levels at 0.01, 0.05, and 0.10, respectively.

internal markets, our research still has many limitations, one of which is the problem of data deficiencies. Khanna (2000) points out that all research on business groups is based on listed companies, but as we all know, quite a number of non-listed enterprises fall within the group. Existing research, including our study, aims at studying the economic consequences of an internal market using listed firms as the research subject. An important prerequisite to the reliability of such a research method is that the listed firms, as members of a business group, not be systematically different from other members of the group. But large differences in IPO standards exist among different countries, and we know little about how institutional systems influence the listing decisions of a business group owing to data unavailability. In comparative cross-country or cross-regional research, therefore, it remains uncertain whether the regression results of groups versus listed firms can maintain consistency across different countries or regions. In addition, even under the same institutional environment, listed firm-based research continues to have many limitations because, even if the results are unbiased between listed firms, they may lead to incomplete research conclusions. For example, our study focuses on the economic consequences of an internal market based on listed firm data, and uses the performance of listed firms as a proxy for the effect of the internal market on other group members. We then determine the existence of either the tunnelling effect or the efficiency enhancing effect of the internal market. However, the above effects of internal markets exist not only in listed firms but also in the business group, that is, the large shareholders. For example, if the efficiency enhancing effect of an internal market really exists, we can also find such an effect using data at the group level. It is obvious that the problem of data unavailability greatly limits the practical application of our research results.

The two reviewers of this paper have provided some very pertinent and critical comments and suggestions, but owing to such difficulties as data unavailability, some of the suggestions could not be implemented in this paper. We herein report some important review comments and our responses for reference and discussion purposes.

The reviewers consider that with respect to normal business dealings, there is a "bulk-cheap" effect, meaning that when a manufacturer sells a large quantity of products to a particular customer, it usually requires lower margins. When a listed company does business with its large shareholders, it may follow the same market principles, leading to the same "bulk-cheap" effect. Thus, the more active the internal market, the lower the margins the listed company requires from the large shareholder, who is considered to be a particular customer. This may be an alternative explanation for the negative relation between internal trading and gross sales margins. One way to alleviate this problem is to compare the differences in gross sales margins between internal market transactions and non-related-party transactions.

We believe that if detailed data about the sales margins of both related- and non-related-party transactions were available, we could directly compare the difference in different types of sales and identify with greater certainty the incentives of large

Table 8 Sensitivity Test 2

Variable	Firm value				Tunnelling		Efficiency enhancing		
	TOBIN Q1	*TOBIN Q3*	*ROA*	*CASHPS*	Gross sales margin	Relative net borrowing	Operating fees ratio	Management fees ratio	Financial fees ratio
Constant	6.200***	14.616***	−8.249***	0.034	41.098***	−26.977***	18.714***	63.872***	20.713***
	(32.378)	(30.433)	(−5.352)	(0.187)	(10.406)	(−5.838)	(8.106)	(10.284)	(7.208)
IPM	0.718***	1.732***	7.667**	0.538	−12.566***	21.745***	−14.775***	−15.483*	−2.676
	(3.493)	(3.285)	(2.491)	(1.359)	(−4.864)	(4.594)	(−4.437)	(−1.764)	(−0.928)
IPM²	−3.088***	−7.301***	−34.589***	−2.693*	7.960***	−20.837**	35.048**	72.108**	19.131*
	(−3.319)	(−3.266)	(−2.798)	(−1.656)	(−4.864)	(−2.488)	(2.526)	(2.136)	(1.771)
IPM³	3.471***	7.653***	33.584***	3.052*			−25.904*	−75.536**	−20.196*
	(3.359)	(3.277)	(2.774)	(1.863)			(−1.731)	(−2.394)	(−1.914)
INDEX_MAR	0.001	0.030***	0.273***	0.031***	−0.531***	0.476***	−0.422***	−0.426***	−0.156**
	(0.438)	(3.367)	(5.383)	(4.627)	(−4.153)	(3.072)	(−5.503)	(−2.673)	(−2.345)
GROUP	−0.045***	−0.126***	−0.053	−0.038	−1.040*	0.877	0.027	−0.597	−1.317***
	(−2.892)	(−2.830)	(−0.217)	(−1.347)	(−1.797)	(1.354)	(0.081)	(−0.672)	(−3.115)
GOV	−0.012	−0.082**	−0.612***	−0.082***	−2.587***	1.850***	−0.255	1.002	−0.997***
	(−0.932)	(−2.214)	(−2.958)	(−2.859)	(−5.090)	(3.054)	(−0.800)	(1.432)	(−3.280)
TOP1	−0.003**	−0.015***	−0.017	0.004	−0.165***	0.103	−0.033	−0.321***	−0.095***
	(−2.447)	(−3.747)	(−0.870)	(1.508)	(−2.681)	(1.605)	(−1.020)	(−4.829)	(−3.277)
TOP1²	0.00001	0.0004***	0.001***	0.00007**	0.002**	0.0003	0.0003	0.003***	0.001**
	(1.152)	(8.136)	(2.666)	(−2.346)	(2.505)	(−0.364)	(0.734)	(4.079)	(2.326)
TOP2_5	−0.002***	0.021***	0.034***	−0.001	0.055**	0.016	0.034***	−0.025	−0.036**
	(−3.055)	(12.499)	(3.884)	(−0.439)	(2.492)	(0.630)	(2.851)	(−0.963)	(−2.600)

Table 8 Continued

Variable	Firm value				Tunnelling		Efficiency enhancing		
	TOBIN Q1	*TOBIN Q3*	*ROA*	*CASHPS*	Gross sales margin	Relative net borrowing	Operating fees ratio	Management fees ratio	Financial fees ratio
TRADEABLE	0.00006***	0.00001***							
	(3.258)	(3.417)							
LOSS	–0.065***	–0.125**							
	(–3.337)	(–2.283)							
GROWTH	0.0002	0.002	0.044**	0.003**	0.025	0.060	–0.023	–0.146**	–0.045**
	(0.610)	(1.179)	(2.206)	(1.992)	(1.408)	(1.377)	(–1.455)	(–1.708)	(–1.857)
LEV	–0.001	–0.011***	–0.131***	–0.001*	–0.206***	0.209***	0.007	0.153***	0.159***
	(–1.164)	(–7.990)	(–17.782)	(–1.739)	(–11.433)	(8.868)	(0.727)	(3.513)	(10.489)
LISTYEAR	0.016***	0.037***	–0.205***	–0.055***	–0.090	0.084	0.072*	0.513***	0.153***
	(6.429)	(5.916)	(–6.751)	(–10.504)	(–1.125)	(0.940)	(1.730)	(5.011)	(3.183)
LNSIZE	–0.354***	–0.985***	1.424***	0.040***	0.642**	0.677*	–0.793***	–4.397***	–1.550***
	(–18.554)	(–20.428)	(10.812)	(3.006)	(2.096)	(1.714)	(–4.044)	(–7.273)	(–6.467)
FIXEDEFFECTS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	4995	4995	4995	4995	4995	4995	4995	4995	4995
Adj_R^2 (%)	55.41	59.68	24.87	5.86	29.73	9.95	19.18	9.30	18.32
F	175.55	209.15	50.39	10.26	67.77	18.05	36.46	16.25	34.45
Inflexion point	**15.87%**	**15.77%**	**13.89%**	–	**78.89%**	**52.18%**	**33.58%**	**13.67%**	–
	43.44%	**47.83%**	**54.77%**				**56.62%**	**49.97%**	

Notes: T values adjusted by White Heteroscedasticity are in brackets; ***, **, and * denote significance levels at 0.01, 0.05, and 0.10, respectively.

shareholders to transfer profits. The problem is that because such detailed data are not disclosed in companies' annual reports at this time, we could use only total gross sales margins to proxy for the gross sales margins of related-party transactions, inferring from there the motives of the large shareholder.

The reviewers also note that we have not taken into account the "propping" effect of large shareholders. Propping can be expressed as sharing costs with the listed company or sharing profits during purchases and sales. If so, the efficiency enhancing effect tested in this paper could also reflect the propping effect. It is thus important to consider how to distinguish between the efficiency enhancing, tunnelling, and propping effects and their combined effects.

We argue that tunnelling and propping provide an important framework for analysing large shareholder behaviour in corporate governance; in other words, when we analyse the behaviour of large shareholders, we must consider both the tunnelling and propping incentives. On the one hand, tunnelling and propping frequently manifest themselves through two aspects of the same issue—the opposite of tunnelling could be propping. For example, in this study, if the related sales increased rather than decreased the sales margins of the listed firm, the large shareholder could be considered to be propping up the listed firm. On the other hand, our study on internal markets does not target tunnelling and propping, but instead aims at testing two primary and competing views on internal markets based on conditional transaction cost economics, that is, the tunnelling view and the efficiency enhancing view. The main difference between efficiency enhancing and propping is that the former is not necessarily expressed as the subjective plan of the large shareholder, but is rather an objective economic outcome, such as the objective advantage of a firm over an external market in reducing transaction costs according to transaction cost theory. Of course, we cannot rule out the possibility that large shareholders intentionally establish an internal market in order to obtain such an objective advantage, which could be viewed as a kind of propping behaviour. But we believe that as far as internal market issues are concerned, using the term "efficiency enhancing" is more reasonable than using "propping". The main task of our study is to test whether the tunnelling effect exists and if so, how it influences the functioning of the efficiency enhancing effect.

VIII. CONCLUSIONS

Because of the institutional requirements of listing, spinning off, and restructuring state-owned enterprises and the underdeveloped external market environment, large shareholders in China establish internal markets with listed firms through many kinds of related-party transactions. Since the tunnelling of the interests of outside investors by large shareholders through internal markets has generated much concern, the issue of connected transactions has attracted attention from both investors and market regulators. According to the classical theory of transaction costs, because the internal market is an organisational structure designed to facilitate transactions and lower transaction costs, it may increase the value of listed firms. Therefore,

two completely different views—efficiency enhancing and tunnelling—arise in relation to the economic consequences of the internal market.

Based on a sample of 5141 firm-year observations, we first test the effect of inter-group transactions on listed firm value and find that the relation between internal markets and firm value is not a simple linear curve but instead takes on an N-shape. In particular, as inter-group transactions increase, firm value first rises, then goes down and then up again. Further tests show that this results from the co-existence of the efficiency and tunnelling effects, and that the value (especially accounting performance) of a listed firm is determined by the net effect of these two. Our non-linear model shows that in different internal markets with different degrees of inter-group transactions, the comparative power of these two effects differs, causing the difference in firm value. In most internal markets (when the ratio of internal transactions to total assets is below 20 per cent or over 50 per cent), the efficiency effect dominates the internal market and increases firm value. But in some internal markets (when the ratio of internal transactions is between 20 and 50 per cent), tunnelling becomes the main effect and hurts the value of the listed firm. Overall, we find a positive relation between inter-group transactions and firm value, and these findings are robust to many sensitivity tests. The policy implications of this paper are thus as follows: Regulatory requirements for internal market transactions between large shareholders and listed firms should not be implemented across the board; rather, the efficiency enhancing effect should be given full play while the disclosure of information is regulated in order to restrain the tunnelling effect to the fullest degree.

REFERENCES

Please refer to pp. 40–41.