

公司纵向并购财富效应的实证研究

——来自我国上市公司的经验证据¹

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摘要

本文主要检验我国上市公司纵向并购的财富效应。以1998至2008年间发生、上市公司作为收购方公司的国内非关联股权标的并购样本为研究对象,结果发现并购交易双方纵向关系越高,公司并购财富效应相应较高,而且产业上下游间公司纵向并购财富效应会随着公司并购交易双方所在地区产权保护程度的降低而增加,但是这种产业上下游间公司纵向并购财富效应只存在于民营上市公司作为收购方的并购活动。这表明,在我国不完善的司法体系、较差的契约实施和低效的社会信任条件下,纵向一体化可以作为一种替代机制,保护私人控股收购公司双方事前的关系专用性投资激励和防止交易对方潜在的“敲竹杠”行为,节约高昂的市场交易成本,及规避过量的监管负担和政治干预。

关键词:纵向并购、纵向一体化、纵向关系、财富效应

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一、引言

纵向并购(vertical merger), 又称垂直并购, 是指上游(下游)公司通过购买下游(上游)公司的股权获得被收购公司的控制权, 以便于在内部而非通过市场或契约进行交换, 且是公司纵向一体化(vertical integration)的一种动态过程。正如Williamson(1975)所说, 纵向一体化研究是经济理论的一个重要课题, 且必将是为新制度经济学所关注的核心问题, 是要解释经济活动在厂商、市场及一些中间组织方式间的资源配置, 且至少最近30年内也是微观经济学理论和实证研究领域一个重要的研究对象(Joskow, 2005; Lafontaine and Slade, 2007)。Coase(1937)在其经典论文《企业的性质》指出两个基本问题: (1)企业边界的决定因素; (2)企业边界会影响资源配置吗? 后来, Williamson(1975, 1985)、Klein *et al.*(1978)、Grossman and Hart(1986)和Hart and Moore(1990)等又不断地创新和拓展, 试图解释所有的纵向一体化活动, 无论他们解释纵向一体化活动是否完全可行, 但是他们的研究不仅从理论上对于增进人们对纵向一体化活动的理解有益, 而且为实证检验纵向一体化的动因和经济后果提供了理论基础。近20年来, 纵向一体化(企业边界)的实证研究一直受到学者们的关注, 其主要关注两个基本且相关的问题: (1)何种类型的交易最好在企业内部发生? (2)纵向一体化对产品价格、产品数量、投资和利润等产生何种经济后果? (Lafontaine and Slade, 2007)。Klein(2005)、Lafontaine and Slade(2007)和Macher and Richman(2008)等综述发现, 因数据的可获得性使得实证文献通常以某个公司或行业为样本, 公司纵向一体化对产品零售价格、产品数量、系统风险和股票评级等方面的影响, 而对纵向一体化与企业经营绩效间因果关系的实证研究寥寥无几, 至多也是小样本的案例和特定产业研究, 这可能归因于现实中难以确定公司的纵向关系, 而这恰又是考察公司纵向一体化经济后果的实证研究中非常重要和关键的一步(Fan and Lang, 2000; Kedia *et al.*, 2008), 同时现有的研究对象都处于发达市场经济的美国和英国, 因此我们仍然难以清楚地知道纵向一体化对公司经营绩效影响及其相互间因果关系的普适性结论。正如Lafontaine and Slade(2007)所说, 公司并购提供了一个难得的机会通过事件研究法来检验纵向一体化对公司经营绩效影响, 并且可以较好地解决纵向一体化程度潜在的内生性。Fan and Goyal(2006)和Kedia *et al.*(2008)以1962至1996年间美国上市公司并购案例为样本, 运用Fan and Goyal(2006)的产业间纵向相关性系数界定收购公司与目标公司双方间的纵向关系, 结果发现纵向并购宣告期的累计异常收益率显著为正, 但后者又发现1996年后公司纵向并购宣告期的累计异常收益率显著为负。³

Scheffman and Higgins(2004)指出与横向并购相比, 纵向并购的研究既更复杂, 又更受某具体制度安排的影响。尽管冯根福和吴林江(2001)、李善民和朱滔(2006)、周小春和李善民(2008)、巫和懋和张晓明(2009)等运用不同的研究方法和样本对我国上市公司并购绩效进行实证研究, 得出了许多有益的结论, 但是这些实证研究中公司并购类型的界定较为主观, 且真正涉及公司纵向并购绩效的专门研究还较少, 值得学者们进一步地修正和完善。近年来随着我国资本市场制度基础设施的快速发展和不断

³ Kedia *et al.* (2008) 认为, 1996年后公司纵向并购宣告期的累计异常收益率显著为负可能要归因于这些并购不是由行业内支持纵向一体化的基本因素驱动的。

完善，加之中石油、中石化和中国铝业等纵向收购上市公司的产业链条协调整合战略并购案例将会不断增加，那么这些公司纵向并购绩效的表现如何呢？影响公司纵向并购绩效的制度因素又会是哪些呢？结合我国特定的制度安排以及我国资本市场的特殊性，本文拟以1998至2008年间发生、上市公司作为收购方的国内非关联股权标的并购样本为研究对象，结果发现并购交易双方间纵向关系越高，公司并购财富效应相应较高，而且产业上下游间公司纵向并购财富效应会随着公司并购交易双方所在地区产权保护程度的降低而增加，但是这种产业上下游间公司纵向并购财富效应只存在于民营上市公司作为收购方的并购活动。这表明，在我国不完善的法律和司法体系、较差的契约实施和低效的社会信任条件下，纵向一体化可以作为一种替代机制，保护私人控股收购公司双方事前的关系专用性投资激励和防止交易对方潜在的敲竹杠行为，节约高昂的市场交易成本，及规避过量的监管负担和政治干预。

本文的贡献主要体现在三方面：

首先，从公司并购的动态视角，本文通过事件研究法实证检验了纵向一体化对公司经营绩效的影响，较好地解决了纵向一体化程度潜在的内生性(Lafontaine and Slade, 2007)，丰富了交易费用经济学类文献，较好地解释了处于转轨加新兴、且社会信任等制度安排低效甚至缺失的中国资本市场中公司纵向并购财富行为的合理性，而这种合理性可能源于为了保护 and 促进公司并购交易双方事前的关系专用性投资激励和防止交易对方潜在的敲竹杠行为，节约高昂的市场交易成本，规避过量的监管负担和政治干预。

其次，由于公司并购动因的复杂性、多元性和多边性，现实中很难运用一个理论来解释全部绩效的变化，公司并购绩效往往是多种因素相互作用的结果(Bruner, 2002)，因此本文从交易双方间纵向关系为解读公司并购绩效之谜提供了新的视角。周小春和李善民(2008)等研究发现员工抵制程度、资源整合程度、支付方式、收购比例等是影响我国上市公司并购绩效的主要因素。本文通过投入产出表中产品流量信息，从纵向关联程度细化了多元化并购的分类，强调了交易双方间纵向关联程度对公司并购绩效的影响，增进了对收购方并购绩效来源的理解。

最后，从产权和制度环境的视角丰富了公司纵向一体化的相关研究。在转型经济国家，产权特性和制度环境都是理解企业边界的重要因素之一(Klein, 2005；Fan *et al.*, 2009；Acemoglu *et al.*, 2009)。本文发现在不完善的法律制度、较差的契约实施和低效的社会信任条件下，纵向一体化可以作为一种替代机制，能够较好地保护和促使私人控股的收购公司有价值的关系专用性投资免受机会主义行为的侵害，及规避过量的监管负担和政治干预，这为我国企业边界的调整提供了新的思路。

下文结构安排如下：第二部分是理论分析和研究假设；第三部分是研究设计；第四部分实证检验的结果及分析；最后一部分是研究结论。

二、理论分析与研究假设

自从Coase(1937)发表经典论文《企业的性质》以来，Williamson(1975, 1985)、Klein *et al.*(1978)、Grossman and Hart(1986)、Hart and Moore(1990)等不断地在Coase(1937)的基础上进行理论创新和拓展，形成了一种能够有效解释公司边界问题的主流经济学理论。Joskow(2005)指出，解释公司纵向一体化的主流理论主要是Williamson(1975, 1985)

和 Klein *et al.*(1978)等发展的交易费用经济学(TCE)与 Grossman and Hart(1986)、Hart and Moore(1990)等发展的产权理论(PRT)。Williamson(1975, 1985)、Klein *et al.*(1978)等指出,一旦交易方作出关系专用性投资,契约的不完性就会引出交易主体的机会主义行为(opportunism),而资产专用性带来的可占用性准租金(appropriable specialized quasi-rents)使这种机会主义行为由可能转变为现实,产生敲竹杠问题,从而导致事前次优的关系专用性投资和较低的盈利能力。解决敲竹杠问题的一个主要方法是纵向一体化,这会消除供应商和客户间契约非效率引发未来的敲竹杠行为,及增加双方由于存在关系性专用投资而产生的投资效率(Klein *et al.*, 1978; Joskow, 2005)。总之,交易费用经济学理论认为契约不完全导致的交易费用主要源于事后的失调,因而强调事后适应性治理,同时认为公司纵向并购主要是解决专用性资产投资不足及规避潜在要挟问题引起的契约非效率,这种非效率使得内部治理结构比市场签约更为有效,那么纵向并购财富效应是这些内部化交易过程中节约的治理成本的函数(Milgrom and Roberts, 1992)。与此同时, Grossman and Hart(1986)、Hart and Moore(1990)等遵循交易费用经济学的传统,从资产专用性和契约不完全性的前提出发而研究纵向一体化的产权理论,把纵向一体化本身视为所有权,运用剩余控制权推导出由于所有权结构的不同而导致双方事前的投资激励扭曲,通过比较不同情况下投资激励的扭曲程度,从激励角度研究纵向一体化的成本与收益,其中公司纵向并购会因增加收购公司剩余控制权而增加其进行关系专用性投资的激励,但这又会因减少目标公司剩余控制权而降低其进行关系专用性投资的激励,且目标公司事前投资激励的扭曲程度(或激励成本)随着资产专用性程度的提高而日趋严重(Kvaløy, 2007)。相比于新古典经济学,交易费用经济学范式触发了对公司纵向并购(一体化)更多的研究,这些研究中包括对于某一公司、产业或某种形式合约安排的案例研究及少数基于大样本观察数据的计量分析(Joskow, 2005)。

Fan and Lang(2000)创造性地通过投入产出表中产品流量构造了以投入产出为基础的方法来反映产业间和部门间的纵向相关性,再以此为基础构造了公司纵向一体化程度,该方法得到了学者们广泛的运用(Fan and Goyal, 2006; Kedia *et al.*, 2008; Shenoy, 2009; Fan *et al.*, 2009)。Fan and Goyal(2006)以1962至1996年间2162个美国上市公司并购样本为研究对象,通过Fan and Goyal(2006)的产业间纵向相关性界定收购公司与目标公司间的纵向关系,将并购类型划分为完全横向并购(pure horizontal mergers)、完全纵向并购(pure vertical mergers)、混合横向纵向并购(mixed vertical and horizontal mergers)及混合并购(conglomerate mergers),结果发现纵向并购宣告期的累计异常收益率显著为正。Kedia *et al.*(2008)通过Fan and Goyal(2006)的并购类型分类方法,以1979至2002年间1692个美国上市公司并购样本为研究对象,结果发现1996年前公司纵向并购宣告期的累计异常收益率显著为正,但之后又显著变为负,即纵向并购是否创造价值随着时间的变化而有所不同。Shenoy(2008)通过Fan and Goyal(2006)的产业间纵向相关性界定公司部门间的纵向关系,以1981至2005年间93,229个美国上市公司年度观测值为样本,结果发现公司部门间纵向关系系数越高,公司总部越可能将投资配置到具有更好投资机会的部门,意味着部门间纵向关系会有助于提高公司内部资本市场的资本配置效率。同时Shenoy(2009)通过Fan and Goyal(2006)的并购类型分类方法,以1981至2004年间453个美国上市公司并购事件为样本,结果发现公司纵向并购宣告期的累计异常收益率显著为正。此外,公司纵向并购还会增加市场势力、生产效率,防止广告

的搭便车行为和阻止研发投资支出的外溢效应，从而也会增加公司纵向并购财富效应(Bishop *et al.*, 2005)。当然，公司纵向一体化会形成更复杂的组织结构，这会造成核心业务的忽视、部门间无效的交叉补贴、部门经理间权力之争和较差的激励薪酬计划，从而损毁公司价值，进而降低公司纵向并购财富效应(Eckbo and Thorburn, 2008)。

2010年6月底召开的国务院常务会议提出，切实推进企业兼并重组，促进产业结构优化升级，充分发挥资本市场推动企业重组的作用，并于2010年8月28日发布了重要的政策性文件—《国务院关于促进企业兼并重组的意见》(国发〔2010〕27号)。随着我国资本市场制度基础设施的快速发展和不断完善，同时为了应对我国经济发展到现阶段所面临的资源约束、产能过剩、需求降低的现状，及提升我国企业在国际上的竞争力，我国企业需要通过纵向并购来重塑产业链、进行产业链内企业的整合，从而形成完整的产业和价值链，以充分发挥协同效应，降低总体成本，增强公司的核心竞争力。公司纵向并购能够增加收购公司进行关系专用性投资的激励及规避潜在要挟问题引起的契约非效率，但是它也会增加组织内部的官僚主义成本和降低目标公司进行关系专用性投资的激励(Williamson, 1975, 1985; Klein *et al.*, 1978; Grossman and Hart, 1986; Hart and Moore, 1990)及复杂组织结构造成的价值损毁效应(Eckbo and Thorburn, 2008)，这种纵向并购产生收益的增加和引起成本的增加间权衡会对公司边界的调整和公司并购绩效产生决定性的影响(李青原, 2006)。与西方发达的市场经济国家相比，处于转轨加新兴经济中的我国缺乏完善的产权保护、契约实施以及发达的市场要素等。在经济转型的过程中，由于缺乏良好的价格体系和完善的法律体系，从定价和法律执行的角度看，交易成本将十分昂贵(罗党论和唐清泉, 2009)，同时各级地方政府出于对经济发展的引导、稳定经济以及干预经济发展的战略目的，普遍存在对要素资源的配制、管制权和定价权的内在要求(黄益平, 2009)，那么纵向一体化作为一种非正式的制度则能减少产业上下游间的交易成本、规避过量的监管负担、政治干预和保证可靠的要素供应等(Fan *et al.*, 2009)，从而会使得产业上下游间公司并购效益超过其相应增加的成本。并且本文认为这种纵向并购的财富效应可能主要集中于民营上市公司：首先，由于我国现阶段地方官员任期的不稳定性和政治升迁中对绩效考核的过度关注，因而地方政府往往会出于政策性负担或者政治晋升目标而非基于公司效率最大化目标，主导其控制的公司的并购决策行为(张军和高远, 2007)，所以这些公司的纵向并购较多体现为政府干预下“拉郎配”式并购(陈信元和黄俊, 2006)，因此这种由政府控制的产业上下游间的“拉郎配”式并购会导致并购的低效率、甚至产生更大的交易成本。其次，面对国家产业政策和国资委考核等的巨大压力，中央政府控制的公司可以利用其权威和天然的“血缘关系”较顺利地收购企业做强做大，实现资源的有效整合，形成完整的产业链和价值链，以充分发挥协同效应(方军雄, 2008)，但是“所有者”缺位的治理结构对公司重大投资缺乏有效的监督和约束，极易导致公司过度投资，同时还会因公司规模增加而导致组织内部官僚主义成本相应的增加(Williamson, 1985)。最后，私人控股的公司是一个相对更加以利润最大化或股东价值最大化为经营目标的公司，其出于公司战略需要而进行的并购可能更符合市场规律导向，同时在转轨经济中，由于法律对私有财产权保护不明确，私营企业的发展存在不确定性，面临更大的风险(比如被勒索、遇到纠纷时受到不公平待遇等)，而且与国有企业相比还面临着较大的政策劣势(Cull *et al.*, 2005)，因此它们更可能会通过产业上下游间的公司

纵向并购活动来保护和促使交易双方事前的关系专用性投资激励和防止交易对方潜在的敲竹杠行为(Fan *et al.*, 2009; Acemoglu *et al.*, 2009; 李青原, 2011)。因此, 本文提出第一个可检验的研究假设:

H1: 其它条件不变时, 并购交易双方纵向关系与公司并购财富效应正相关, 且这种纵向并购财富效应可能主要集中于民营上市公司。

尽管交易费用经济学(Klein *et al.*, 1978; Williamson, 1975, 1985)和产权理论(Grossman and Hart, 1986; Hart and Moore, 1990)都强调了契约不完全性, 但现有的实证研究都隐含假设即使契约是不完全的, 但契约都会得到良好的实施(Du *et al.*, 2009), 从而忽视了法律环境和契约实施对企业边界的影响(Klein, 2005)。然而, 由于企业面临的外部环境的复杂性以及不确定性, 信息的不对称和不完全性, 以及契约当事人或契约的仲裁者无法证实和观察一切因素(Grossman and Hart, 1986), 这就会造成契约条款的不完全性, 加之契约实施作用于法庭正式程序之外, 即所谓的“法律阴影”之下(in the shadow of the law), 况且处于转轨加新兴经济中的中国还处于交易不发达、市场制度不成熟的发展阶段, 不健全的法律与司法体系、不充分的信息披露、较弱的市场监管力量及社会信任度使得交易双方更难以实施正式契约(Khanna *et al.*, 2000; 张维迎和柯荣住, 2002; Allen *et al.*, 2005; 蔡洪滨等, 2006)。一旦交易方做出关系专用性投资, 那么无论交易契约是否完全, 较低程度的产权保护和契约实施都会引发交易主体的机会主义行为和事前次优的关系专用性投资, 从而导致高昂的市场交易成本和较低的盈利能力, 因此地区产权保护和契约实施越弱, 该地区的公司越可能会通过纵向一体化来保护和促使交易双方事前的关系专用性投资激励、防止交易对方潜在的敲竹杠行为, 节约高昂的市场交易成本、同时还能规避过量的监管负担和政治干预(Fan *et al.*, 2009; Acemoglu *et al.*, 2009)。现如今, 我国社会主义市场经济体系才刚刚建立, 各项法律、法规都存在不完善的地方, 对于法律的保护以及执行相对较为薄弱, 因而通过纵向一体化作为一种替代机制来保障交易顺利实现则显得至关重要。Fan *et al.*(2009)以2001至2003年我国深沪两市的上市企业为样本, 结果发现地区产权保护越弱, 该地区的公司纵向一体化程度越高。Du *et al.*(2009)以2003年初世界银行与中国国家统计局合作的投资气氛调查项目提供的我国制造业企业为样本, 结果发现越弱的契约实施自我感知会导致企业纵向一体化程度越高, 而且地区契约实施程度越低, 该地区内越依赖于外部环境的企业, 其纵向一体化程度相应越高。李青原和唐建新(2010)运用相同的样本也发现契约实施强度越弱, 公司纵向一体化程度相应越高。李青原(2011)以1998至2008年间发生的、上市公司作为收购方的国内非关联股权标的纵向并购为研究对象发现, 随着公司并购交易双方所在地区产权保护程度的降低, 资产专用性与公司纵向并购财富效应间的正相关性越明显。唐建新和陈冬(2010)以2003至2008年间发生的、上市公司作为收购方的异地非关联并购为研究对象, 地区投资者保护是影响公司并购协同效应的重要因素, 这种影响主要源于交易成本的节约和市场摩擦的下降。与以有效的法律和司法体系、发达的金融体系等为特征的发达市场国家相比, 这种以市场失灵和弱契约实施等为特征的我国新兴加转轨市场环境会影响到纵向并购产生收益的增加与引起成本增加间的权衡, 从而会相应地影响到公司边界的调整及公司并购绩效。世界银行(2006)对中国120个城市的投资环境调查显示, 各个城市

之间的产权保护存在着相当的差异,那么这种地区间产权保护的差异必然会影响到产业上下游间公司纵向并购财富效应。特别是,如果产业上下游交易双方都处于产权保护和契约实施较弱的地区,它们都可能更易引发机会主义行为、事前次优的关系专用性投资,因此它们越愿意通过纵向一体化来保护和促使交易双方事前的关系专用性投资激励和防止交易对方潜在的敲竹杠行为,节约高昂的市场交易成本,及规避过量的监管负担和政治干预等。本文提出第二个可检验的研究假设:

H2: 其它条件不变时,产业上下游间公司纵向并购财富效应会随着公司并购交易双方所在地区产权保护程度的降低而增加。⁴

三、研究设计

(一) 样本选择

我们以CSMAR中国上市公司并购重组研究数据库中的1998至2008年发生的、上市公司作为收购方公司的国内非关联股权标的并购事件作为初选样本,然后按照以下的标准进行筛选:第一,由于财务指标不可比,剔除收购方公司或目标公司为金融行业的并购事件;第二,前后两次并购至少间隔6个月;第三,当同一家上市公司在同一天宣告两笔或两笔以上的并购交易时,如果目标公司不是同一家公司时,为避免目标公司异质性对并购事件的累积超常收益率产生噪音,对这样的并购事件给予剔除,如果是同一家上市公司与同一目标公司的不同股东进行并购交易,则将这些交易合并为一个事件;第四,剔除上市当年发生的并购事件;第五,为避免同时披露季报、中报或年报等可能会对公司并购的累积异常收益率产生噪音,剔除在并购首次公告日当天同时披露季报、中报或年报等其它重大信息披露的样本公司;第六,剔除无法识别目标公司行业的并购事件;第七,剔除财务指标存在缺失的并购事件;第八,剔除交易金额小于500万元,并购前持有股权比例超过50%或收购的股份占目标公司股权比例低于10%的并购事件。最终得到有效的公司并购总样本为377个。

(二) 纵向关系度量

Fan and Lang(2000)创造性通过投入产出表中产品流量构造了以投入产出为基础的方法来反映产业间和部门间的纵向相关性,再以此为基础构造了公司纵向一体化程度,该方法得到了学者们广泛的运用(Fan and Goyal, 2006; Kedia *et al.*, 2008; Shenoy, 2009; Fan *et al.*, 2009)。首先,对于收购方公司,通过CSMAR数据库中的分行业主营业务收入数据找到第一大主营业务收入的行业信息,而对于目标公司,逐一查阅并购公告中披露的目标公司行业信息;其次,构造收购公司与目标公司行业间的纵向相关性系数 V_{ij} 。中国国家统计局提供的2002年部门投入产出表包括了122个行业中每一对行业间的投入产出系数,其主要说明了对于每一对行业 i 和 j ,生产1元的行业 j 的产出所需要行业 i 的投入值(A_{ij})和生产1元行业 i 的产出所需要行业 j 的投入值(A_{ji}),那么我们通过两个投入产出系数的最大值计算收购公司与目标公司行业 i 和 j 间的纵向相关系数(V_{ij}),即 $V_{ij} = \text{Max}(A_{ij}, A_{ji})$,从而能有效地解释它们间潜

⁴ 事实上,该假说可以较好地排除产业组织文献中市场封闭、共谋假设对公司纵向并购财富效应的解释。

表1 样本按照《上市公司行业分类指引》的大类行业分布

| | 收购公司 | 目标公司 |
|----------------|--------|--------|
| 农、林、牧、渔业 | 3.45% | 1.06% |
| 采掘业 | 1.06% | 2.92% |
| 制造业 | 47.75% | 46.15% |
| 电力、煤气及水的生产和供应业 | 6.37% | 4.77% |
| 建筑业 | 1.86% | 0.27% |
| 交通运输、仓储业 | 3.71% | 4.24% |
| 信息技术业 | 5.84% | 9.02% |
| 批发和零售贸易 | 7.96% | 6.37% |
| 房地产业 | 6.37% | 14.32% |
| 社会服务业 | 4.51% | 9.81% |
| 传播与文化产业 | 0.53% | 0.80% |
| 综合类 | 10.61% | 0.27% |

资料来源：作者整理。

在的纵向一体化机会 (Fan and Goyal, 2006)。以2007年北京京能热电股份有限公司(代码：600578)收购内蒙古伊泰京粤酸刺沟矿业有限责任公司为例，收购公司的第一大行业电力、热力的生产和供应业(i)为每1元的目标公司煤炭开采和洗选业(j)产出提供0.10145元的投入值，即 $A_{ij} = 0.10145$ ，而煤炭开采和洗选业(j)为每1元的电力、热力的生产和供应业(i)产出提供0.18682元的投入值，即 $A_{ji} = 0.18682$ ，则收购公司与目标公司行业 i 和 j 间的纵向相关系数 V_{ij} 为0.18682。

图1显示了公司并购双方间纵向相关系数的累计概率分布。按照Fan and Goyal(2006)的公司并购类型分类，若将收购公司与目标公司间纵向相关系数 V_{ij} 超过临界值1%的样本界定为纵向并购，那么31.3%的公司并购样本的纵向相关系数小于1%，相应地若将收购公司与目标公司间纵向相关系数 V_{ij} 超过临界值5%的样本界定为纵向并购，则55.7%的公司并购样本的纵向相关系数小于5%，这意味着与Fan and Goyal(2006)的研究样本相比，具有较高纵向关系的并购样本所占比重较高，这可能与市场失灵和弱契约实施等为特征的我国新兴加转轨市场环境有关。

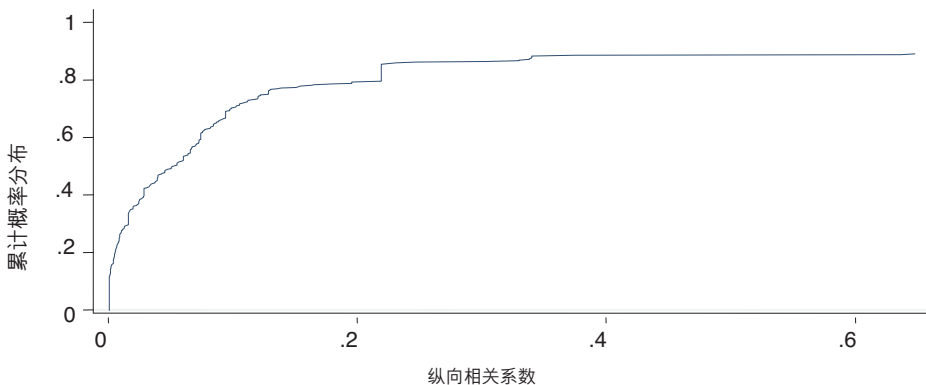


图1 公司并购双方间纵向相关系数的累计概率分布

(三) 模型设计

为了检验纵向关系对公司并购财富效应的影响程度,根据Fan and Goyal(2006)、Kedia *et al.*(2008)和Shenoy(2009)等的研究,本文选取收购公司规模、交易规模、资产负债率、成长性、收购公司市场集中度、行业管制等作为检验模型的控制变量,回归模型如下:

$$\begin{aligned} CAR_{it} = & \lambda_0 + \lambda_1 PVC_{it} + \lambda_2 PHC_{it} + \lambda_3 VHC_{it} + \lambda_4 MB_{i,t-1} + \lambda_5 SIZE_{i,t-1} \\ & + \lambda_6 VOL_{it} + \lambda_7 LEV_{i,t-1} + \lambda_8 HERFS_{i,t-1} + \lambda_9 IDIOS_{it} + \lambda_{10} AHI_{i,t-1} \\ & + \lambda_{11} LGOV_{it} + \lambda_{12} CGOV_{it} + \lambda_{13} ROA_{i,t-1} + \lambda_{14} REG_{it} \\ & + \lambda_{15} LPROTECT + \lambda_{16} YEAR + \delta_{it} \end{aligned} \quad (1)$$

式(1)中, CAR 是被解释变量,表示收购方公司首次并购公告日前后若干个交易日的累积异常收益率,以度量公司纵向并购的财富效应(Lafontaine and Slade, 2007)。遵循Fan and Goyal(2006)、Kedia *et al.*(2008)和Shenoy(2009)等的主流文献,我们将公司纵向并购财富效应分别界定为运用市场模型法计算出的并购首次公告日前后1、2、5和10个交易日收购方公司的累积异常收益率,其中 β 参数的估计区间为并购首次公告日前180个交易日至公告前30个交易日。

按照McGuckin *et al.*(1991)、Fan and Goyal(2006)、Kedia *et al.*(2008)和Shenoy(2009)等的公司并购类型分类方法,同时又参考了图1中公司并购双方间纵向相关系数的累计概率分布特征,将收购公司与目标公司行业*i*和*j*间的纵向相关系数 V_{ij} 超过1%或5%的并购样本界定为纵向并购(VC)。基于此分类标准,将收购公司与目标公司属于不同行业,但纵向相关系数 V_{ij} 超过临界值1%或5%的样本界定为“完全纵向并购(pure vertical mergers)”,将其定义为 PVC ,其中 PVC 为完全纵向并购,取值为1,否则为0;将收购公司与目标公司属于同一行业,但纵向相关系数 V_{ij} 小于临界值1%或5%的样本界定为“完全横向并购(pure horizontal mergers)”,将其定义为 PHC ,其中 PHC 为完全横向并购,取值为1,否则为0;将收购公司与目标公司属于同一行业,同时纵向相关系数 V_{ij} 超过临界值1%或5%的样本界定为“混合纵向并购(mixed horizontal and vertical mergers)”,其中 HVC 为混合并购,取值为1,否则为0;将界定为“完全纵向并购”、“完全横向并购”和“混合纵向并购”之外的并购样本界定为“混合并购(conglomerate mergers)”。

根据已有文献,公司特征和并购交易特征会影响并购收益,同时结合我国上市公司并购活动的实际情况,我们使用如下控制变量:公司特征变量包括公司规模 $SIZE$ 、负债水平 LEV 、成长性 $GROWTH$ 、产品市场集中度 AHI 、投资者异质性预期 $IDIOS$ 、股权制衡度 $HERFS$ 、资产收益率 ROA 、地方政府控股 $LGOV$ 、中央政府控股 $CGOV$;交易特征变量包括交易规模 VOL 、行业管制 REG 和并购年度 $YEAR$ 等。

公司规模越大,收购方公司越易存在过度自信(Roll, 1986),越易进行溢价收购(Moeller *et al.*, 2004)。根据自由现金流量假说,收购方公司自由现金流大且负债率低时,更易进行无效并购(Jensen, 1986)。公司成长性影响并购收益,追求公司成长驱动公司实施战略性并购,但盲目扩张会导致公司价值下降;收购方公司的治理状况越好,越会选择进行价值创造型的并购(Servaes, 1991)。不同的并购规模下收购方公司对目标公司产生影响的能力不同,进而影响到收购方公司能够获取的并购收益

(Fuller *et al.*, 2002)。如果公司并购双方属于纵向并购,则该并购活动可能改变其市场势力和市场份额,而且还会在非竞争性市场创造价值(Kedia *et al.*, 2008; Shenoy, 2009),故本文加入收购公司并购行业的赫芬达尔指数(*AHI*),以反映它们所在行业的产品市场竞争程度,而且预期符号为正。此外,公司最终控制人的产权性质可能会影响到收购公司进行并购的动机和能力,进而影响到公司并购财富效应,因此本文又控制了地方政府控股和中央政府控股这两种最终控制人的产权性质对公司并购财富效应的影响。

收购公司的股价表现不仅与公司的决策行为相关,同时也与投资者的信心和对市场的预期有重要关联。在做空套利机制受限的情况下,由于存在事前的信息不对称,投资者的异质预期会导致对收购公司股价的严重高估,市场对错误股价的反应有滞后性,股价回归基本面需要时间,投资者长期持有的损失可能是先前的错误定价导致的,故投资者的异质性预期(*IDIOS*)可能会负向影响收购公司公告日前后若干个交易日的累积异常收益率(赖步连等,2006)。

政府管制改变了市场交易成本和公司内部组织成本的对比关系,从而使得公司通过并购来绕过政府管制,进而影响了公司的经营边界,且经验证据表明政府规制政策是影响厂商边界的重要因素之一(陈信元和黄俊,2006;李青原和唐建新,2010),故将目标公司是否属于政府规制行业(煤炭、钢铁、石油、天然气、水供应、金属、航空、电力、铁路、邮政、电信等)(Fan *et al.*, 2009)作为政府规制政策的替代变量(*REG*)。

由于新会计准则的实施,股权分置改革、《公司法》、《证券法》及《上市公司收购管理办法》的重新修订与实施,故2006年是我国资本市场的转折点(中国证券业监督管理委员会,2008),本文将*YEAR*定义为并购事件发生于2007和2008年,且取值为1,否则为0。变量定义如表2所示。

四、检验结果及分析

(一)描述性统计

表3示了描述性统计。在公司并购首次公告的窗口期[-1,+1]、[-2,+2]、[-5,+5]、[-10,+10]内,收购方公司均获得的累积异常收益率(*CAR*)均值分别为0.009、0.011、0.010、0.006,这表明我国上市公司对非上市公司的收购会带来显著正的累积异常收益率,与李善民和陈玉罡(2002)等的研究结论相一致,也与Fuller *et al.*(2002)、Moeller *et al.*(2004)、Faccio *et al.*(2006)对以美国或非美国上市公司收购非上市公司事件为样本的研究结论相一致。以收购公司与目标公司行业*i*和*j*间的纵向相关系数 V_{ij} 超过1%(5%)的并购为分组标准,纵向并购占总样本比例为68.7%(44.30%);完全横向并购占总样本比例为2.12%(7.69%),完全纵向并购占总样本比例为39.26%(20.42%),混合纵向并购占总样本比例为29.44%(23.87%),这意味着与以有效的法律和司法体系、发达的金融体系等为特征的发达市场国家相比,在以市场失灵和弱契约实施等为特征的我国新兴加转轨市场环境下,纵向并购更可能会因节约产业上下游间的交易成本而成为一种较普遍的现象。与此同时,公司并购财富效应的分组检验显示,纵向并购样本的平均累积异常收益率(*CAR*)超过了总样本的平均累积异常收益率,而且进一步细分并购类型发现混合纵向并购财富效应超过其它类型并购的财富效应。表3 Panel C中主要变

表2 变量定义与符号预期

| 变量名 | 变量定义 | 预期 |
|-----------------|--|----|
| <i>CAR</i> | 收购方公司首次并购公告日前后若干个交易日的累积异常收益率 | |
| <i>VC</i> | 收购公司与目标公司间纵向相关系数 V_{ij} 超过临界值1%或5%的并购样本, 取值为1, 否则为0 | + |
| <i>PVC</i> | 收购公司与目标公司属于不同行业, 但纵向相关系数 V_{ij} 超过临界值1%或5%的并购样本, 取值为1, 否则为0 | + |
| <i>PHC</i> | 收购公司与目标公司属于相同行业, 但纵向相关系数 V_{ij} 小于临界值1%或5%的并购样本, 取值为1, 否则为0 | + |
| <i>VHC</i> | 收购公司与目标公司属于相同行业, 同时纵向相关系数 V_{ij} 超过临界值1%或5%的并购样本, 取值为1, 否则为0 | + |
| <i>LPROTECT</i> | 表示较低的地区产权保护指数, 若收购公司和目标公司所在地区的产权保护指数最小值都位于40分位数以下(0.45), 其中产权保护指数来自于世界银行对我国120个城市投资环境调查数据, 则将其定义为1, 否则为0 | + |
| <i>SIZE</i> | 收购方公司在并购前一年总资产的自然对数 | - |
| <i>LEV</i> | 收购方公司在并购前一年的资产负债率 | + |
| <i>GROWTH</i> | 收购方公司在并购前一年市帐比率 | + |
| <i>AHI</i> | 按照《上市公司行业分类指引》的三级分类计算收购公司所处行业的赫芬达尔指数 | + |
| <i>IDIOS</i> | 运用市场模型法计算出的并购首次公告日前180个交易日至公告前30个交易日的回归残差平方之和 | - |
| <i>HERFS</i> | 公司前5位大股东持股比例的平方和 | + |
| <i>ROA</i> | 收购方公司在并购前一年的资产收益率 | + |
| <i>VOL</i> | 本次公司购买目标公司的股权比例 | + |
| <i>LGOV</i> | 若最终控制人为地方政府, 取值为1, 否则为0 | - |
| <i>CGOV</i> | 若最终控制人为中央政府, 取值为1, 否则为0 | - |
| <i>REG</i> | 目标公司是否属于政府管制行业(煤炭、钢铁、石油、天然气、水供应、金属、航空、电力和铁路等) | + |
| <i>YEAR</i> | 如果并购事件发生于2007和2008年, 则取值为1, 否则为0 | + |

量的 Spearman 相关系数矩阵显示, 收购方公司在并购首次公告窗口期内累积异常收益率 $CAR[-1,+1]$ 、 $CAR[-2,+2]$ 、 $CAR[-5,+5]$ 和 $CAR[-10,+10]$ 相互间都在1%的显著性水平下正相关, 且相关系数至少为0.406, 而且其与混合纵向并购(*VHC*)至少在5%的水平下显著正相关。此外, 收购公司为地方政府控股的企业占46.7%, 收购公司为中央控股的企业占18%, 中央控股样本少于地方控股样本; 交易规模 *VOL* 的均值(中位数)56%(51%)表明公司纵向并购多为控股收购。

表3 分组检验和Spearman相关系数

| | 总体 | 纵向并购 | 完全 纵向并购 | 完全 横向并购 | 混合 纵向并购 | 混合 混合并购 |
|-----------------------------|------------|------------|------------|--------------|------------|------------|
| Panel A : 1%的临界点 | | | | | | |
| CAR[-1,+1] | 0.009*** | 0.012*** | 0.006** | 0.003* | 0.017*** | 0.002 |
| CAR[-2,+2] | 0.011*** | 0.015*** | 0.008* | 0.031 | 0.026*** | 0.000 |
| CAR[-5,+5] | 0.010** | 0.016*** | 0.010 | 0.053 | 0.030*** | -0.008 |
| CAR[-10,+10] | 0.006* | 0.014* | 0.003 | 0.084* | 0.038*** | -0.017* |
| V | 0.068 | 0.096 | 0.078 | 0.023 | 0.120 | 0.004 |
| N | 377 | 259 | 148 | 8 | 111 | 110 |
| Panel B : 5%的临界点 | | | | | | |
| CAR[-1,+1] | 0.009*** | 0.019*** | 0.015*** | 0.002 | 0.021*** | 0.001 |
| CAR[-2,+2] | 0.011*** | 0.024*** | 0.016** | 0.010 | 0.031*** | -0.001 |
| CAR[-5,+5] | 0.010** | 0.023*** | 0.011 | 0.028** | 0.033*** | -0.004 |
| CAR[-10,+10] | 0.006* | 0.019** | 0.004 | 0.051* | 0.039*** | -0.012* |
| V | 0.068 | 0.135 | 0.126 | 0.022 | 0.143 | 0.013 |
| N | 377 | 167 | 77 | 29 | 90 | 181 |
| Panel C : 主要变量的Spearman相关系数 | | | | | | |
| | CAR[-1,+1] | CAR[-2,+2] | CAR[-5,+5] | CAR[-10,+10] | PVC | PHC |
| CAR[-1,+1] | 1.000*** | | | | | |
| CAR[-2,+2] | 0.822*** | 1.000 | | | | |
| CAR[-5,+5] | 0.572*** | 0.699*** | 1.000 | | | |
| CAR[-10,+10] | 0.406*** | 0.514*** | 0.747*** | 1.000 | | |
| PVC | -0.014 | -0.050 | -0.043 | -0.078 | 1.000 | |
| PHC | -0.020 | 0.046 | 0.078 | 0.100* | -0.118** | 1.000 |
| VHC | 0.130** | 0.148*** | 0.158*** | 0.181*** | -0.519*** | -0.095* |

其中,变量描述见表2;***、**、*分别表示显著性水平为1%、5%、10%。此外,Panel C中的1%的并购类型分组标准为1%。

(二) 检验结果与分析

以CAR[-1,+1]为因变量,本文分别运用模型(1)对公司并购类型的财富效应进行普通最小二乘法回归分析,得到各变量的回归系数。首先,本文对所有回归模型进行White(1980)异方差检验,均拒绝了存在异方差的零假设,表明检验模型没有异方差问题;其次,考察了模型中自变量的VIF值,发现所有自变量的VIF值均小于5,表明模型没有多重共线性问题,因此检验模型的建立是合理的。

1、假设 H1 的检验

表4 Panel A中模型(1)和(2)显示,对全部样本进行的回归中,以收购公司与目标公司行业 i 和 j 间的纵向相关系数 V_{ij} 超过1%的并购为纵向并购时,纵向并购(VC)的回归系数边际显著为正,而且再按照收购公司与目标公司是否属于相同行业进一步细分并购类型,结果发现混合纵向并购(VHC)的回归系数显著为正,同时表4 Panel B中模型(1)和(2)也表明,若以收购公司与目标公司行业 i 和 j 间的纵向相关系数 V_{ij} 超过5%的并购为纵向并购时,纵向并购(VC)、混合纵向并购(VHC)和完全纵向并购(PVC)的回归系数都显著为正,意味着相对于其它并购类型,纵向并购将会获得至少3.71%的更高累积异常收益率,同时具有较强纵向关系的横向并购将会获得至少6.03%的更高累积异常收益率,意味着并购交易双方间纵向关系越高,公司并购财富效应越明显。本文又按公司最终控制人的产权性质进一步分组检验,结果发现仅当最终控制人为私人企业控制时,公司纵向并购(VC)、混合纵向并购(VHC)和完全纵向并购(PVC)的回归系数都显著为正,而其它产权性质的公司并购类型回归系数不显著,同时较低地区产权保护组分别与纵向并购(VC)、混合纵向并购(VHC)和完全纵向并购(PVC)间交叉项的回归系数也都为正,且该系数至少在10%的显著性水平下显著异于零,意味着产业上下游间公司纵向并购财富效应可能主要集中于民营上市公司,支持了本文的研究假设H1。这表明我国不完善的法律和司法体系、较差的契约实施和低效的社会信任条件下,纵向关系可以作为一种替代机制,保护和促使交易双方事前的关系专用性投资激励和防止交易对方潜在的敲竹杠行为,节约高昂的市场交易成本,还能稳定产业链上下游公司间的产品供销关系及一定程度上缓减地区保护主义(Fan *et al.*, 2009; Acemoglu *et al.*, 2009)。⁵同时相对地方和中央政府控制的公司而言,私人控股的公司更可能面临着弱的产权保护和契约实施,从而使得它们更有动力和意愿通过产业上下游间的公司纵向并购活动来保护和促使交易双方事前的关系专用性投资激励和防止交易对方潜在的敲竹杠行为,节约高昂的市场交易成本,及规避过量的监管负担和政治干预等(Fan *et al.*, 2009; Acemoglu *et al.*, 2009),进而会提高这些具有较高纵向关系的私人控股型公司并购绩效,

2、假设 H2 的检验

由于各地区产权保护程度在不同年度间相对稳定,本文采用了世界银行报告的中国120个城市的产权保护指数作为地区产权保护的替代变量,从而能在城市而非省区的视角度量产权保护程度。将收购公司和目标公司所在地区间的产权保护指数

⁵ 当然,公司纵向并购的样本具有选择性偏见。由于Heckman(1979)选择模型依赖于特定的函数间接估计公司选择纵向并购的处理效应,而且还需要一个有效的工具变量,否则估计是有偏的,但现实中难以找到有效的工具变量,同时以属性为基础的匹配模型并不依赖于特定的函数,且能直接估计公司选择纵向并购的处理效应(Li and Prabhala, 2007),因此本文又运用倾向评分模型(propensity-score matching models)找到与纵向并购样本相匹配的样本进行回归分析,此外又以纵向并购前后两年间的总资产报酬率(税前利润/总资产)平均数为因变量,通过倍数差分法进行回归分析,这些结果仍然支持本文的假设,即并购交易双方间纵向关系与公司并购财富效应正相关。

最小值都位于40分位数以下(0.45)的样本定义为地区产权保护较低组,⁶其中产权保护指数来自于世界银行对我国120个城市投资环境调查数据,并将其定义为1,否则为0,并通过其与公司并购类型的替代变量(VC 、 VHC 、 PVC 和 PHC)交叉相乘项来检验上述理论推测。表5 Panel A中模型(1)和(2)显示,较低地区产权保护组分别与纵向并购(VC)、混合纵向并购(VHC)和完全纵向并购(PVC)间交叉项的回归系数都为正,且该系数至少在10%的显著性水平下显著异于零,意味着公司并购交易双方所在地区产权保护程度越弱,公司通过产业上下游间纵向并购获得的财富效应越强,支持了本文的研究假设H2,即产业上下游间公司纵向并购财富效应会随着公司并购交易双方所在地区产权保护程度的降低而增加。⁷这意味着在不完善的法律制度、较差的契约实施和低效的社会信任条件下,纵向一体化可以作为一种替代机制,保护交易双方在产业上下游间有价值的关系专用性投资免受机会主义行为的侵害,节约交易成本,及规避过量的监管负担和政治干预等。

此外,表4和5中控制变量的回归结果表明,年度哑变量 $YEAR$ 的回归系数为正,且基本显著性异于零,意味着随着会计准则、资本市场监管法律法规等资本市场基础设施的完善,上市公司收购时面临的外部治理环境得到改善和加强,从而增加了并购财富效应。此外,收购公司的产品市场集中度 AHI 不显著为负,意味着收购公司的财富效应并非来自于其市场势力的加强。尽管本文加入了文献中常见的控制变量,但是这些控制变量都不显著,原因还有待进一步探讨。

(三) 稳健性检验

为了检验结果的稳健性,我们对表4和5的结果进行了敏感性测试。首先,将收购方公司在并购首次公告窗口期内累积异常收益率 $CAR[-2,+2]$ 、 $CAR[-5,+5]$ 和 $CAR[-10,+10]$ 作为因变量重新进行普通最小二乘法(OLS)估计;(2)若公司管理层拥有公司并购潜在协同效应的私人信息,那么普通最小二乘法(OLS)估计是有偏的(Eckbo *et al.*, 1990),因此本文又进行了一致性最大似然估计;(3)由于本文是通过收购公司第一大主营业务收入行业界定公司并购双方的纵向关系系数,事实上收购公司的第二大主营业务收入行业与目标公司也可能具有重要的纵向关联性(Fan and Goyal, 2006),因此首先结合收购公司第一大和第二大主营业务收入行业界定公司并购双方的纵向关系系数,并将收购公司与目标公司行业 i 和 j 间的纵向相关系数 V_{ij} 1%或5%作为公司是否具有纵向关系的临界点,然后进行普通最小二乘法(OLS)估计。稳健性检验结果都表明这些检验都在所有的重要结论上基本与前面保持一致。

⁶ 约15%的公司并购交易样本所在地区不属于世界银行(2006)调查的120个城市范围内,为了增加样本量,本文通过本省所在具有数据的城市平均值来替代其它城市,同时本文存在一个既无地区调查数据,又无省平均值的样本,即拉萨地区样本(600773),但由于拉萨地区属于中西部地区,假定其属于产权保护较低的地区样本是合理的。事实上,若临界值采用30%或50%时,结果依然保持不变。当然,当地区产权保护程度来自《中国市场化指数——各地区市场化相对进程2006年报告》中“市场中介组织发育和法律制度环境”时,结论基本保持不变,仅是显著性系数略有下降。

⁷ 值得注意的是,以纵向并购前后两年间的总资产报酬率(税前利润/总资产)平均数之差为因变量,结果发现研究假设H2中测试变量的回归系数虽符合预期,但它们基本不显著。

表4 纵向关系与公司并购绩效

Panel A: 纵向相关系数 V 的临界点为1%

| | 全部样本 | | 样本分组 | | | | | |
|-------------------------|---------|---------|-----------|---------|---------|---------|----------|---------|
| | (1) | (2) | 地方政府控股(3) | | 中央控股(4) | | 私人控股(5) | |
| <i>VC</i> | 0.008* | | 0.002 | | 0.003 | | 0.0224** | |
| | (1.90) | | (0.23) | | (0.25) | | (2.55) | |
| <i>PVC</i> | | 0.004 | | 0.001 | | -0.002 | | 0.012* |
| | | (1.63) | | (0.16) | | (-0.19) | | (1.83) |
| <i>PHC</i> | | -0.001 | | 0.033 | | -0.021 | | -0.020 |
| | | (-0.01) | | (0.94) | | (-1.10) | | (-0.74) |
| <i>VHC</i> | | 0.013** | | 0.009 | | 0.005 | | 0.030** |
| | | (2.04) | | (1.23) | | (0.30) | | (2.51) |
| <i>LPROTECT</i> | 0.005 | 0.004 | 0.006 | 0.006 | 0.004 | 0.003 | -0.002 | -0.003 |
| | (0.88) | (0.84) | (0.74) | (0.80) | (0.34) | (0.25) | (-0.17) | (-0.27) |
| <i>IDIOS</i> | -0.252 | -0.238 | -0.114 | -0.067 | -0.339 | -0.390 | -0.374* | -0.325 |
| | (-1.34) | (-1.26) | (-0.33) | (-0.20) | (-1.20) | (-1.30) | (-1.90) | (-1.54) |
| <i>HERFS</i> | -0.003 | -0.006 | 0.009 | -0.004 | 0.023 | 0.024 | -0.031 | -0.031 |
| | (-0.15) | (-0.35) | (0.37) | (-0.18) | (0.56) | (0.58) | (-0.98) | (-0.98) |
| <i>VOL</i> | -0.005 | -0.006 | -0.006 | -0.010 | 0.028 | 0.031 | -0.010 | -0.012 |
| | (-0.60) | (-0.80) | (-0.63) | (-0.98) | (1.46) | (1.60) | (-0.61) | (-0.76) |
| <i>SIZE</i> | -0.006 | -0.007 | -0.007 | -0.008 | -0.019 | -0.019 | -0.008 | -0.004 |
| | (-0.91) | (-0.97) | (-0.72) | (-0.90) | (-1.28) | (-1.23) | (-0.50) | (-0.28) |
| <i>LEV</i> | 0.014 | 0.015 | 0.003 | 0.007 | 0.069* | 0.0732* | 0.014 | 0.014 |
| | (1.09) | (1.16) | (0.15) | (0.35) | (1.86) | (1.86) | (0.62) | (0.61) |
| <i>ROA</i> | 0.025 | 0.024 | 0.039 | 0.045 | 0.065 | 0.0709 | -0.035 | -0.075 |
| | (0.59) | (0.57) | (0.78) | (0.92) | (0.71) | (0.74) | (-0.39) | (-0.84) |
| <i>MB</i> | 0.003 | 0.003 | -0.007 | -0.008 | -0.010 | -0.0113 | 0.008 | 0.011* |
| | (0.68) | (0.65) | (-1.41) | (-1.53) | (-0.90) | (-1.01) | (1.39) | (1.78) |
| <i>LGOV</i> | -0.001 | -0.001 | | | | | | |
| | (-0.13) | (-0.07) | | | | | | |
| <i>CGOV</i> | 0.013* | 0.013* | | | | | | |
| | (1.89) | (1.91) | | | | | | |
| <i>AHI</i> | -0.017 | -0.010 | -0.024 | -0.017 | 0.059* | 0.065* | -0.020 | -0.006 |
| | (-0.90) | (-0.52) | (-1.14) | (-0.84) | (1.81) | (1.78) | (-0.43) | (-0.12) |
| <i>REG</i> | 0.008 | 0.007 | -0.005 | -0.006 | 0.014 | 0.014 | 0.024* | 0.028** |
| | (1.25) | (1.15) | (-0.71) | (-0.72) | (0.95) | (0.96) | (1.81) | (2.08) |
| <i>YEAR</i> | 0.014** | 0.014** | 0.013 | 0.011 | 0.031 | 0.0310 | 0.011 | 0.009 |
| | (2.17) | (2.13) | (1.46) | (1.21) | (1.56) | (1.52) | (1.02) | (0.80) |
| <i>cons</i> | 0.051 | 0.055 | 0.072 | 0.091 | 0.124 | 0.131 | 0.071 | 0.041 |
| | (0.81) | (0.88) | (0.80) | (1.02) | (0.92) | (0.90) | (0.50) | (0.29) |
| Adjusted R ² | 0.034 | 0.034 | -0.032 | -0.025 | 0.057 | 0.043 | 0.088 | 0.112 |
| F | 1.93** | 1.84** | 0.55 | 0.69 | 1.52 | 1.57 | 2.07** | 2.19** |
| N | 377 | 377 | 176 | 176 | 68 | 68 | 133 | 133 |

Panel B: 纵向相关系数 V 的临界点为 5%

| | 全部样本 | | 样本分组 | | | | | |
|-------------------------|--------------------|---------------------|-------------------|-------------------|-------------------|---------------------|--------------------|--------------------|
| | (1) | (2) | 地方政府控股(3) | | 中央控股(4) | | 私人控股(5) | |
| <i>VC</i> | 0.015*** (3.36) | | 0.006 (1.13) | | 0.001 (0.02) | | 0.037*** (4.16) | |
| <i>PVC</i> | | 0.0128** (2.20) | | 0.00571 (0.76) | | -0.00616 (-0.65) | | 0.033** (2.60) |
| <i>PHC</i> | | -0.00197 (-0.21) | | 0.0171 (1.27) | | -0.008 (-0.34) | | -0.009 (-0.66) |
| <i>VHC</i> | | 0.017*** (2.88) | | 0.011 (1.56) | | 0.006 (0.40) | | 0.037*** (3.10) |
| <i>LPROTECT</i> | 0.005 (1.02) | 0.005 (1.02) | 0.006 (0.76) | 0.006 (0.78) | 0.004 (0.37) | 0.005 (0.39) | 0.002 (0.23) | 0.002 (0.25) |
| <i>IDIOS</i> | -0.212 (-1.15) | -0.202 (-1.08) | -0.104 (-0.31) | -0.080 (-0.24) | -0.346 (-1.23) | -0.280 (-0.87) | -0.266 (-1.19) | -0.266 (-1.16) |
| <i>HERFS</i> | -0.003 (-0.15) | -0.003 (-0.19) | 0.006 (0.25) | -0.003 (-0.12) | 0.022 (0.52) | 0.020 (0.47) | -0.026 (-0.79) | -0.025 (-0.74) |
| <i>VOL</i> | -0.004 (-0.51) | -0.004 (-0.52) | -0.006 (-0.59) | -0.010 (-0.94) | 0.028 (1.50) | 0.028 (1.55) | -0.006 (-0.41) | -0.006 (-0.40) |
| <i>SIZE</i> | -0.005 (-0.76) | -0.005 (-0.76) | -0.006 (-0.59) | -0.008 (-0.86) | -0.018 (-1.32) | -0.020 (-1.34) | -0.011 (-0.76) | -0.011 (-0.74) |
| <i>LEV</i> | 0.013 (1.03) | 0.014 (1.07) | 0.003 (0.14) | 0.005 (0.27) | 0.069* (1.85) | 0.071* (1.80) | 0.011 (0.55) | 0.014 (0.62) |
| <i>ROA</i> | 0.015 (0.35) | 0.013 (0.31) | 0.038 (0.76) | 0.045 (0.90) | 0.066 (0.73) | 0.056 (0.55) | -0.060 (-0.71) | -0.066 (-0.77) |
| <i>MB</i> | 0.003 (0.73) | 0.003 (0.69) | -0.007 (-1.42) | -0.008 (-1.54) | -0.010 (-0.89) | -0.012 (-1.05) | 0.009 (1.42) | 0.009 (1.39) |
| <i>LGOV</i> | -0.002 (-0.35) | -0.002 (-0.34) | | | | | | |
| <i>CGOV</i> | 0.012* (1.73) | 0.012* (1.76) | | | | | | |
| <i>AHI</i> | -0.016 (-0.88) | -0.014 (-0.77) | -0.023 (-1.10) | -0.017 (-0.85) | 0.058* (1.76) | 0.062* (1.68) | -0.027 (-0.64) | -0.029 (-0.66) |
| <i>REG</i> | 0.007 (1.13) | 0.007 (1.13) | -0.005 (-0.67) | -0.006 (-0.81) | 0.014 (0.96) | 0.016 (1.17) | 0.016 (1.34) | 0.017 (1.36) |
| <i>YEAR</i> | 0.014** (2.15) | 0.014** (2.13) | 0.012 (1.36) | 0.011 (1.32) | 0.031 (1.58) | 0.032 (1.56) | 0.012 (1.08) | 0.013 (1.10) |
| <i>CONS</i> | 0.039 (0.63) | 0.040 (0.64) | 0.059 (0.67) | 0.086 (0.96) | 0.120 (0.92) | 0.140 (1.02) | 0.100 (0.71) | 0.099 (0.69) |
| Adjusted R ² | 0.059 | 0.055 | -0.025 | -0.026 | 0.056 | 0.035 | 0.170 | 0.159 |
| F | 2.69*** | 2.38*** | 0.65 | 0.68 | 1.54 | 1.78* | 3.26*** | 3.02*** |
| N | 377 | 377 | 176 | 176 | 68 | 68 | 133 | 133 |

注：变量描述见表 2；T 值运用 White(1980) 进行方差修正；***、**、* 分别表示显著性水平为 1%、5%、10%。

表5 产权保护、纵向关系与公司并购绩效

Panel A: 纵向相关系数V的临界点为1%

| | 全部样本 | | 样本分组 | | | | | |
|-------------------------|---------|----------|-----------|---------|---------|---------|---------|---------|
| | (1) | (2) | 地方政府控股(3) | | 中央控股(4) | | 私人控股(5) | |
| <i>VC</i> | 0.002* | | 0.007 | | 0.004 | | 0.0184 | |
| | (1.67) | | (0.97) | | (1.34) | | (1.82) | |
| <i>VC*</i> | | | | | | | | |
| <i>LPROTECT</i> | 0.026** | | 0.034* | | 0.026 | | 0.021** | |
| | (2.25) | | (1.96) | | (1.06) | | (2.20) | |
| <i>PVC</i> | | 0.005 | | 0.009 | | 0.011 | | 0.005* |
| | | (1.55) | | (1.24) | | (0.79) | | (1.83) |
| <i>PVC*LPROTECT</i> | | 0.037*** | | 0.041** | | 0.032 | | 0.032** |
| | | (2.97) | | (2.15) | | (1.25) | | (2.36) |
| <i>PHC</i> | | -0.008 | | 0.026 | | -0.046 | | -0.044 |
| | | (-0.38) | | (0.51) | | (-1.09) | | (-0.75) |
| <i>PHC*LPROTECT</i> | | 0.050 | | 0.027 | | | | |
| | | (1.35) | | (0.50) | | | | |
| <i>VHC</i> | | 0.010* | | 0.002 | | -0.003 | | 0.027* |
| | | (1.79) | | (0.25) | | (-0.19) | | (1.91) |
| <i>VHC*LPROTECT</i> | | 0.016* | | 0.031 | | 0.025 | | 0.0171* |
| | | (1.93) | | (1.62) | | (0.82) | | (1.86) |
| <i>LPROTECT</i> | -0.015 | -0.017 | -0.019 | -0.022 | -0.017 | -0.020 | -0.018 | -0.023 |
| | (-1.52) | (-1.07) | (-1.21) | (-1.34) | (-0.80) | (-0.97) | (-1.33) | (-1.44) |
| Control | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Adjusted R ² | 0.044 | 0.052 | -0.004 | -0.003 | 0.054 | 0.026 | 0.087 | 0.109 |
| F | 2.16*** | 2.08*** | 0.94 | 0.97 | 1.88* | 1.89* | 1.97** | 2.01** |
| N | 377 | 377 | 176 | 176 | 68 | 68 | 133 | 133 |

Panel B: 纵向相关系数V的临界点为5%

| | 全部样本 | | 样本分组 | | | | | |
|---------------------|---------|--------|-----------|---------|---------|--------|----------|---------|
| | (1) | (2) | 地方政府控股(3) | | 中央控股(4) | | 私人控股(5) | |
| <i>VC</i> | 0.010* | | 0.003 | | 0.0121 | | 0.029*** | |
| | (1.88) | | (0.51) | | (1.05) | | (2.71) | |
| <i>VC*</i> | | | | | | | | |
| <i>LPROTECT</i> | 0.020** | | 0.011 | | 0.0374 | | 0.030* | |
| | (2.04) | | (0.73) | | (1.54) | | (1.92) | |
| <i>PVC</i> | | 0.004 | | -0.001 | | 0.014 | | 0.017 |
| | | (1.50) | | (-0.02) | | (1.05) | | (1.60) |
| <i>PVC*LPROTECT</i> | | 0.034* | | 0.022 | | 0.021 | | 0.062** |
| | | (2.43) | | (1.09) | | (0.64) | | (2.23) |

Panel B: 纵向相关系数 V 的临界点为 5%

| | 全部样本 | | 样本分组 | | | | | |
|-------------------------|-------------------|-------------------|-----------------|-------------------|--------------------|---------------------|---------------------|--------------------|
| | (1) | (2) | 地方政府控股 (3) | | 中央控股 (4) | | 私人控股 (5) | |
| <i>PHC</i> | | -0.001 (-0.08) | | 0.009 (0.51) | | 0.007 (0.25) | | -0.016 (-0.99) |
| <i>PHC*LPROTECT</i> | | -0.001 (-0.07) | | 0.031 (1.50) | | -0.043 (-0.95) | | 0.0266 (1.09) |
| <i>VHC</i> | | 0.015* (2.11) | | 0.009 (1.06) | | -0.009 (-0.54) | | 0.0319** (2.24) |
| <i>VHC*LPROTECT</i> | | 0.009 (0.70) | | 0.008 (0.50) | | 0.041 (1.42) | | 0.0163* (1.76) |
| <i>LPROTECT</i> | -0.004 (-0.65) | -0.004 (-0.55) | 0.001 (0.06) | -0.003 (-0.29) | -0.0161 (-0.92) | -0.00869 (-0.56) | -0.00902 (-0.87) | -0.0135 (-1.15) |
| Control | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Adjusted R ² | 0.068 | 0.067 | -0.027 | -0.029 | 0.077 | 0.046 | 0.180 | 0.175 |
| F | 2.82*** | 2.41*** | 0.65 | 0.71 | 1.73* | 1.49 | 3.22*** | 2.64*** |
| N | 377 | 377 | 176 | 176 | 68 | 68 | 133 | 133 |

注：变量描述见表 2；T 值运用 White(1980) 进行方差修正；***、**、* 分别表示显著性水平为 1%、5%、10%。

五、结论

与以有效的法律和司法体系、发达的金融体系等为特征的发达市场国家相比，在以市场失灵和弱契约实施等为特征的我国新兴加转轨市场环境下，纵向一体化应该更能保护公司交易双方事前的关系专用性投资激励及防止交易对方潜在的敲竹杠行为。本文以 1998 至 2008 年间发生的、上市公司作为收购方公司的国内非关联股权标的的并购样本为研究对象，结果发现并购交易双方间纵向关系较高，公司并购财富效应相应较高，而且产业上下游间公司纵向并购财富效应会随着公司并购交易双方所在地区产权保护程度的降低而增加，但是这种产业上下游间公司纵向并购财富效应只存在于民营上市公司作为收购方的并购活动。这表明，在我国不完善的法律和司法体系、较差的契约实施和低效的社会信任条件下，纵向一体化可以作为一种替代机制，保护私人控股收购公司交易双方事前的关系专用性投资激励和防止交易对方潜在的敲竹杠行为，节约高昂的市场交易成本，及规避过量的监管负担和政治干预等。

本文研究发现产业上下游间公司纵向并购是一种有效率的资源配置行为，那么究竟什么动因驱动了我国上市公司纵向并购财富效应呢？同时我国新兴市场和转轨经济的特征使得我国上市公司纵向并购动因显得非常复杂和更具政策含义，因此今后的研究将运用投入产出表中产品流量找到公司纵向并购双方的竞争对手、上游供应商和下游客户，将效率假设、共谋假设、市场封闭假设等国外相关理论同中国实际相结合，构建适合我国上市公司纵向并购的动因理论体系。

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The Wealth Effects of Vertical Mergers: Empirical Evidence from Listed Corporations in China¹

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Abstract

This paper tests primarily the wealth effects of vertical mergers of Chinese listed firms. Studying a sample of domestic mergers with non-related-party acquirers and private target firms from 1998 to 2008, we find that the closer the vertical relation between the transaction parties of mergers and acquisitions (M&As), the higher the wealth effects of vertical mergers. Moreover, these wealth effects increase as local legal protection of property rights decreases, but only for those M&As whose acquirers are privately controlled listed corporations. The results indicate that presently in China, where laws and regulations are imperfect, law enforcement is poor, and social trust inefficient, vertical integration serves as a substitute mechanism to protect valuable relationship-specific investments from opportunism, prevent potential holdups for each party to the transaction, save on high transaction costs, and avoid excessive regulatory burdens and political intervention, especially for privately controlled listed corporations.

Keywords: Vertical Merger, Vertical Integration, Vertical Relation Coefficient, Wealth Effects

CLC codes: F425, F830

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I. Introduction

A vertical merger is defined as a dynamic process of vertical integration in which upstream (downstream) companies acquire the control rights of downstream (upstream) companies through purchasing shares of target firms so that transactions will take place within the company rather than through the market or by contract. Williamson (1975) predicted that vertical integration, which is used to explain the economic activities of resource allocation among firms, markets, and intermediate organisations, would become a core issue in what he termed the “new institutional economics”. And indeed it has been an important subject in theoretical and empirical studies of microeconomics for at least the past 30 years (Joskow, 2005; Lafontaine and Slade, 2007).

In his seminal paper “The Nature of the Firm”, Coase (1937) raises two basic questions: (1) what are the determinants of firm boundaries, and (2) do firm boundaries affect resource allocation? Since then, Williamson (1975, 1985), Klein *et al.* (1978), Grossman and Hart (1986), and Hart and Moore (1990) have continuously provided new insights and extended these studies to try to explain all types of vertical integration activities. Whether or not their explanations work, their studies have not only promoted theoretically the comprehension of vertical integration, but have also rendered empirically a theoretical basis for its motivation and economic consequences.

Over the past nearly 20 years, scholars have paid much attention to empirical studies on vertical integration (firm boundaries), focusing on two basic and interrelated questions: (1) what types of transactions are best made within the firm, and (2) what are the economic consequences of vertical integration in terms of prices and quantities of products, investment, and profits (Lafontaine and Slade, 2007)? Klein (2005), Lafontaine and Slade (2007), and Macher and Richman (2008) reveal that traditional empirical studies usually take a single company or industry as their sample because of the accessibility of data, and examine the impact of vertical integration only on retail prices, quantities of products, systematic risk, and stock ratings. Thus, empirical studies on the causality of vertical mergers and corporate performance are rare, and at most are only case studies of a small sample and a specific industry. This consequence may be attributed to the undeterminable intensity of vertical integration at the firm level, which is a critical variable for empirically examining the economic consequences of such integration (Fan and Lang, 2000; Kedia *et al.*, 2008). At the same time, the existing empirical studies of vertical integration focus predominantly on developed economies, such as the United States and the United Kingdom; hence, it remains difficult to know the general results of the impacts of such integration on corporate performance in addition to their causal relationship. But as Lafontaine and Slade (2007) point out, corporate mergers and acquisitions (M&As) provide a good opportunity to test the impact of vertical integration on corporate performance through applying event study methodology, which provides a better solution to the potential endogeneity problem of vertical integration. Choosing the M&A activities of listed corporations from 1962 to 1996 in the US as their sample,

both Fan and Goyal (2006) and Kedia *et al.* (2008) define a vertical relation between the acquirer and target company by adopting the longitudinal correlation coefficient used by Fan and Goyal (2006). Although they find the cumulative abnormal returns (CARs) to be significantly positive, Kedia *et al.* (2008) find them to be significantly negative after 1996.³

Scheffman and Higgins (2004), moreover, point out that compared with horizontal mergers, vertical mergers are more complicated and tend to be affected by certain institutional arrangements. And although Feng and Wu (2001), Zhou and Li (2008), and Wu and Zhang (2009) use different methods and samples to test the M&A performance of Chinese listed companies and draw many useful conclusions, their various definitions of merger types are so subjective that few of them really focus on the performance of vertical mergers. Thus, it remains worthwhile for scholars to conduct further research to improve on these results.

With the rapid development and continuous improvement of the institutional infrastructure in the Chinese capital market, vertical acquisitions such as the cases of China National Petroleum Corporation, China National Offshore Oil Corporation, and Aluminium Corporation of China are continuing to increase, thereby obtaining synergy in the industry chain. So how do these companies perform? What are the institutional factors influencing the performance of vertical mergers? Considering the particularity of China's institutional arrangements and its unique capital market, in this paper we use a sample of domestic mergers with non-related-party acquirers and private target firms from 1998 to 2008. We find that the closer the vertical relation coefficient between the M&A transaction parties, the higher the wealth effects of vertical mergers; such effects also increase as local protection of property rights decreases. These findings, however, exist only for those M&As whose acquirers are privately controlled listed corporations. The results indicate that under the condition of imperfect laws and regulations, poor law enforcement, and inefficient social trust, vertical integration serves as a substitute mechanism in present-day China to protect valuable relationship-specific investment from opportunism, prevent potential holdups for each party to the transaction, save on high transaction costs, and avoid excessive regulatory burdens and political intervention, especially for privately controlled listed corporations.

This paper makes three main contributions. First, from the dynamic perspective of corporate M&As, it tests the impact of vertical integration on corporate performance using event study methodology. Our study partially solves the potential endogeneity problem of vertical integration (Lafontaine and Slade, 2007), enriches the literature on transaction cost economics, and better illustrates the rationality of vertical mergers in the transitioning and emerging Chinese capital market, where institutional arrangements such as social trust are of low efficiency.

³ Kedia *et al.* (2008) believe that the negative CARs of firms after 1996 may result from the fact that these vertical transactions were not motivated by fundamental forces in the industry favourable to vertical integration.

Second, since the motives for corporate M&As are complicated, diverse, and multilateral, and since M&A performance tends to result from interactions between multiple factors, it is quite difficult to use a particular theory to illustrate changes in overall performance (Bruner, 2002). Consequently, this paper provides a new perspective from which to explain the mystery of corporate M&A performance by looking at vertical relationships. Zhou and Li (2008) discover that the main factors affecting the performance of M&As between listed corporations in China are employee resistance, resource integration, payment method, and acquisition percentage. Using commodity flow information from an input-output (IO) table, this paper further classifies the types of diversified M&As according to their degree of vertical relatedness, and emphasises the influence of this degree of relatedness between the two parties on corporate M&A performance, thereby enhancing our understanding of the performance of acquiring firms.

Finally, this paper enriches the relevant studies on vertical integration from the perspective of property rights and institutional background. In countries with transitional economies, ownership and institutional background are both important factors for understanding firm boundaries (Klein, 2005; Fan *et al.*, 2009; Acemoglu *et al.*, 2009). Since presently in China the laws and regulations are imperfect, law enforcement is poor, and social trust inefficient, vertical integration serves as a substitute mechanism to protect valuable relationship-specific investments from opportunism as well as avoid excessive regulatory burdens and political intervention, and thus it provides new ideas for adjusting Chinese firm boundaries.

The remainder of this paper is organised as follows: Section II provides the background and hypothesis development, Section III describes the research design, Section IV presents the results of the empirical investigation, and the final section concludes.

II. Background and Hypothesis Development

Since Coase (1937) first published his seminal paper “The Nature of the Firm”, Williamson (1975, 1985), Klein *et al.* (1978), Grossman and Hart (1986), and Hart and Moore (1990) have made theoretical improvements and innovations, forming the mainstream economic theory that effectively explains firm boundaries. Joskow (2005) points out that the main theories explaining vertical integration fall into two categories: transaction cost economics (TCE), generally identified by Klein *et al.* (1978) and Williamson (1975, 1985), and property rights theory (PRT), generally identified by Grossman and Hart (1986) and Hart and Moore (1990). Williamson (1975, 1985) and Klein *et al.* (1978) indicate that once the counterparties make relationship-specific investments, contractual incompleteness leads to opportunistic behaviour; at the same time, appropriable specialised quasi-rents from asset specificity turn this probability of opportunism into reality and generate the holdup problem, thus leading to *ex ante* sub-optimal, relationship-specific investments and low profitability. One main solution to

holdup problems is vertical integration, which eliminates such potential problems caused by inefficient contracts between buyer and seller, thus improving investment efficiency resulting from relationship-specific investments (Klein *et al.*, 1978; Joskow, 2005). In a word, according to TCE, transaction costs created by contractual incompleteness are due mainly to *ex post* maladaptation problems. Accordingly, TCE emphasises *ex post* adaptive governance and maintains that vertical integration resolves the contract inefficiency caused by under-investment of relationship-specific assets and avoids potential holdup problems. This inefficiency makes internal governance more effective than arms-length market transactions, and thus the wealth effect of vertical mergers becomes a function of governance costs saved in the process of internalising trading relationships (Milgrom and Roberts, 1992).

Furthermore, Grossman and Hart (1986), and Hart and Moore (1990), following the tradition of TCE, take asset specificity and contract incompleteness as a premise for understanding vertical integration, which they regard as the ownership of physical assets. Using residual rights of control over physical assets, they deduce that the distortion of the *ex ante* investment incentive is the result of different ownership structures; they further study the costs and benefits of vertical integration by comparing the degree of investment distortions under various circumstances from the perspective of incentives. That is to say, the incentive of the acquiring firm to make a relationship-specific investment will increase because the firm will receive a bigger fraction of the surplus from the transaction. This will, however, decrease the fraction of the acquired firm, thus diminishing the latter's incentive to make relationship-specific investments. The incentive costs (distortion) of integration are moreover positively related to asset specificity (Kvaløy, 2007). Compared with neoclassical economics, TCE paradigmatically has inspired more studies on vertical mergers (vertical integration), among which are numerical analysis studies of certain companies, industries, and cases of typical contracts, as well as a few econometrics analyses based on large samples (Joskow, 2005).

Fan and Lang (2000) innovatively use the dollar value of commodity flows between different industries provided by the benchmark IO accounts of the US economy to capture the vertical relation between industries, and then obtain a proxy for the degree of corporate vertical integration. This method in turn has been widely used by many scholars (Fan and Goyal, 2006; Kedia *et al.*, 2008; Shenoy, 2009; Fan *et al.*, 2009). Following the methodology in their 2000 study, Fan and Goyal (2006) use 2,162 M&A samples in the US between 1962 and 1996 and define the vertical relation between acquiring and target firms. Classifying merger types into pure horizontal, pure vertical, mixed vertical and horizontal, and conglomerate, they find that the CARs of only vertical mergers are significantly positive. Following the M&A classification method of Fan and Goyal (2006), Kedia *et al.* (2008) analyse 1,692 M&A samples in the US from 1979 to 2002 and find that before 1996, CARs in the announcement period of vertical mergers are significantly positive, but after 1996 they become significantly negative. In other words, whether vertical integration creates value varies with the time

period. Shenoy (2008) defines vertical relations between business segments according to the inter-industry vertical relatedness created by Fan and Lang (2000), and selects 93,229 annual observations in the US between 1981 and 2005 as the sample. Her study finds that as vertical relatedness between segments increases, corporate headquarters allocates more investment to those segments with better investment opportunities; this indicates that vertical integration improves the capital allocation efficiency of internal capital markets. Meanwhile, following Fan and Goyal (2006), Shenoy (2009) identifies 453 vertical takeovers in the US between 1981 and 2004 and finds that CARs are significantly positive in the announcement period of a vertical merger. Additionally, vertical integration enhances market power and productive efficiency, prevents free-riding on pre-sale services, and avoids the spill-over effects of investment in research and development, thereby increasing the wealth effects of the vertical merger (Bishop *et al.*, 2005). Certainly, vertical integration might also lead to a more complicated organisational structure, which could result in ignorance of the core business, the inefficiency of cross-subsidisation, power struggles between department managers, and inferior incentive plans. Those factors might finally destroy firm value as well as reduce the wealth effects of vertical mergers (Eckbo and Thorburn, 2008).

In an executive meeting in June 2010, the State Council of China pointed out the necessity of effectively promoting corporate M&As, upgrading industrial structure, and taking full advantage of the capital market in promoting corporate M&As. On 28 August 2010, it also published the important policy document, *Opinions of the State Council on Promoting Corporate M&As*. In view of the rapid development and increasing improvement of the institutional infrastructure of the Chinese capital market, and to address such present issues as resource constraints, over-capacity, reduced demand, and the need to upgrade the international competitiveness of domestic corporations, Chinese corporations need to rebuild industry chains and make inter-industry integrations with complete industry value chains using vertical mergers; these in turn could maximise synergies, reduce overall costs, and enhance core competitiveness. But although vertical integration can increase the incentive of acquiring firms to make relationship-specific investments and avoid the contract inefficiency of potential holdups, it also increases organisational bureaucratic costs while decreasing the acquired firms' incentive to make relationship-specific investments (Williamson, 1975, 1985; Klein *et al.*, 1978; Grossman and Hart, 1986; Hart and Moore, 1990). It also strengthens the value-destroying effect created by a complicated organisational structure (Eckbo and Thorburn, 2008). This balance between the increment of benefits and costs in turn has a decisive influence on the adjustment of firm boundaries as well as the performance of corporate M&As (Li, 2006). Compared with advanced Western market economies, China, as an emerging and transitional economy, lacks perfect property protection, contract enforcement, or advanced market factors. Since there are no sound pricing mechanisms or legal systems during this special transitional age, transaction costs are fairly expensive from the perspective of pricing and legal enforcement (Luo and Tang, 2009). Meanwhile, it is

common for local governments to regulate the distribution, confinement, and pricing of factor resources for the strategic purpose of guiding economic development and stabilising and intervening in the national economy (Huang, 2009). Consequently, as an informal institution, vertical integration can decrease the transaction costs of upstream and downstream industries, avoid heavy-handed regulation and political intervention, and ensure a stable factor supply (Fan *et al.*, 2009), and thus the benefits of vertical mergers outweigh the corresponding increased costs.

At the same time, such wealth effects of vertical mergers may exist primarily in private listed companies. Firstly, considering the uncertainty of the tenure of local officials and the excessive focus on performance evaluations during political promotion in China, local governments may direct corporate M&As for reasons of policy burdens or political promotions, rather than maximisation of corporate efficiency (Zhang and Gao, 2008). A large majority of such merger activities are accordingly referred to as “forced marriages” under local governmental intervention (Chen and Huang, 2006), resulting in corporate M&A inefficiency and even higher transaction costs. Secondly, facing pressure from national industrial policies and performance evaluations by the State-owned Assets Supervision and Administration Commission (SASAC), central government-controlled firms are able to take advantage of their privileges and inherent connections to effectively integrate resources in order to make themselves bigger and stronger, as well as construct integrated value chains and industry chains to fully achieve their synergies (Fang, 2008). But a corporate governance structure in which the “owner” is absent may lack efficient monitoring and constraints on important investments, making it easier for the company to over-invest. Meanwhile, internal bureaucratic costs increase with company expansion (Williamson, 1985). Finally, privately controlled firms are more dedicated to maximising profits or shareholder value, which is considered to be their operational objective, and so M&A decisions based on strategic needs may be more market-oriented. On the other hand, in a transitional economy like China’s, property protection is unclearly defined in law, and the development of privately controlled firms faces greater uncertainty and risk, such as blackmail, unfair treatment in disputes, and policy disadvantages, compared with state-owned enterprises (Cull *et al.*, 2005). As a result, such firms will tend to use vertical integration between upstream and downstream industries to protect and promote their *ex ante* incentives to make relationship-specific investments as well as prevent potential holdups (Fan *et al.*, 2009; Acemoglu *et al.*, 2009; Li, 2011). Accordingly, we render the first testable hypothesis as follows:

H1: All other conditions held constant, the vertical relation between the acquirer and the target firm will have a positive correlation with the wealth effects of merger activities, which will exist mainly in private listed firms.

Although both TCE (Klein *et al.*, 1978; Williamson, 1975, 1985) and PRT (Grossman and Hart, 1986; Hart and Moore, 1990) emphasise contractual incompleteness,

existing empirical studies hold an implicit assumption that contracts, albeit incomplete, can be well enforced (Du *et al.*, 2009); thus, they ignore the impacts of legal environment and contract enforcement on firm boundaries (Klein, 2005). But because of the uncertainty and complexity of external environments, as well as information asymmetry and incompleteness, contracting parties or arbitrators are unable to confirm and observe all factors (Grossman and Hart, 1986), resulting in contractual incompleteness. In addition, contract enforcement is conducted according to formal legal procedures, or in the so-called “shadow of the law”. Under the transitioning and emerging Chinese economy, transactions are also still in the stage of under-development, and the market remains immature. An unsound legal and judicial system, inadequate information disclosure, and weak market regulation and social trust thus make it harder for both parties involved to conclude formal contracts (Khanna *et al.*, 2000; Zhang and Ke, 2002; Allen *et al.*, 2005; Cai *et al.*, 2006). Consequently, once the transaction parties make relationship-specific investments-whether the contract is complete or not-weak property protection and contract enforcement will lead to opportunism and *ex ante* sub-optimal, relationship-specific investments, resulting in *ex post* higher transaction costs and lower profitability. Therefore, the weaker the property protection and contract enforcement of a district, the more likely vertical integration will be used to protect and promote valuable, relationship-specific investments from opportunism, thereby preventing potential holdups, saving high transaction costs, and avoiding excessive regulatory burdens and political intervention (Fan *et al.*, 2009; Acemoglu *et al.*, 2009).

Moreover, because the socialist market economy of China has been newly established with imperfect laws and regulations, and both legal protection and enforcement are relatively weak, vertical mergers are of vital importance as a substitute mechanism to guarantee smooth transaction enforcement. For instance, Fan *et al.* (2009) use samples of companies listed in the Shanghai Stock Exchange and Shenzhen Stock Exchange between 2001 and 2003 and find that vertical integration is more common when regional property protection is weak. Du *et al.* (2009) use samples of Chinese manufacturing companies provided by the Survey of Chinese Enterprises (SCE) conducted in 2003 by the World Bank with the Enterprise Survey Organization of China, and reveal that weaker perceived contract enforcement leads firms to become more vertically integrated; also, firms with greater reliance on the external environment are more vertically integrated in cities with poorer contract enforcement. This is also supported by Li and Tang (2010) using the same samples. Using a sample of domestic vertical mergers with non-related-party acquirers and private target firms from 1998 to 2008, Li (2011) finds that the positive correlation between relationship-specific assets and the wealth effects of vertical mergers becomes more obvious when acquiring and acquired firms are located in regions with weak legal protection of property rights. Tang and Chen (2010) examine the CARs of acquirers that are listed companies in respect of 162 successful cross-province, non-relating M&As during the period 2003 to 2008, and find that investor protection affects the synergistic effect of M&As by decreasing transaction

costs and alleviating market frictions. Thus, compared with developed countries that have efficient legal and judicial systems and advanced financial systems, the emerging and transitional market environment in China, characterised by market failure and imperfect contract enforcement, will influence the trade-off between the increment of benefits and the increase in costs induced by vertical mergers; this will accordingly affect the adjustment of firm boundaries as well as the performance of corporate M&As. A survey on the investment environments of 120 Chinese cities conducted by the World Bank (2006) further reveals significant differences in property protection among different cities which have a definite influence on the wealth effects of vertical mergers between upstream and downstream industries. In particular, if both the upstream and downstream transaction parties come from areas with weak property protection and contract enforcement, it will be easier for them to exhibit opportunistic behaviour and make *ex ante* sub-optimal, relationship-specific investments. Thus, they will be more willing to use vertical integration to protect and promote *ex ante* relationship-specific investments, prevent potential holdups, save high transaction costs, and avoid excessive regulatory burdens and political intervention. In this way, we put forward the second testable hypothesis:

H2: All other conditions held constant, the wealth effects of vertical integration among upstream and downstream industries will increase as the degree of local property protection decreases.⁴

III. Research Design

3.1 Sample Selection

We choose domestic mergers with non-related-equity acquirers and private target firms between 1998 and 2008 from the Chinese listed-firm M&A and restructuring database in the CSMAR database as our primary sample, which we then screen according to the following criteria. First, we exclude merger cases in which financial firms are involved as the acquiring or target companies owing to the incomparability of their financial data. Second, the time interval between two consecutive merger cases should be at least six months for a specific firm. Third, when the same listed firm announces two or more than two merger events on the same day, (1) if the target companies in those events are different, we eliminate those cases to avoid affecting CARs owing to the target companies' heterogeneity; and (2) if the mergers take place between the same listed firm and different shareholders of the same target company, we consolidate these transactions into a single event. Fourth, we eliminate those merger events taking place in the same year that the acquiring firm goes public. Fifth, we exclude cases where

⁴ In fact, the hypothesis effectively excludes the explanations of the wealth effects of vertical integration in terms of market foreclosure and the collusion hypothesis, as described in the industrial organisation literature.

quarterly reports, interim reports, and annual reports are announced on the same day as the first day of the M&A announcement to avoid the impact on CARs. Sixth, we exclude cases where we are unable to identify industries in which the target companies operate. Seventh, we exclude cases with inadequate financial data. Eighth, we eliminate those merger events of less than 5 million renminbi, or in which the acquiring firm already holds more than 50 per cent of the target company's shares before the merger, or less than 10 per cent after the merger. Our final valid sample thus consists of 377 firms.

Table 1 M&A Activities by Industry

| | Acquiring company | Target company |
|---|-------------------|----------------|
| Agriculture, herding, fishery | 3.45% | 1.06% |
| Mining | 1.06% | 2.92% |
| Manufacturing | 47.75% | 46.15% |
| Power, gas, water production and supply | 6.37% | 4.77% |
| Construction | 1.86% | 0.27% |
| Transportation and storage | 3.71% | 4.24% |
| IT | 5.84% | 9.02% |
| Wholesale and retail trade | 7.96% | 6.37% |
| Real estate | 6.37% | 14.32% |
| Social service | 4.51% | 9.81% |
| Communication and culture | 0.53% | 0.80% |
| Integrated industry | 10.61% | 0.27% |

Note: Percentages represent the proportion of all M&A transactions in a particular industry classification.

3.2 The Measurement of Vertical Relation

Fan and Lang (2000) innovatively use a methodology based on commodity flows from IO tables to capture the vertical relation between industries, and then obtain a proxy for the degree of vertical integration; many scholars have widely followed this approach (Fan and Goyal, 2006; Kedia *et al.*, 2008; Shenoy, 2009; Fan *et al.*, 2009). First, for the acquiring companies, we look to the segment information in the CSMAR database for a firm's primary industry in which it has the largest sales; for the target companies we look for their industry information as disclosed in the merger announcement. Afterwards, we construct V_{ij} as the vertical relatedness coefficient between the acquiring and target companies. The 2002 Chinese industry IO table provided by the National Bureau of Statistics of China includes each pair of IO coefficients among 122 industries; it explains mainly the input of industry i (A_{ij}) needed to produce every one renminbi output of industry j , and the input of industry j (A_{ji}) needed to produce every one renminbi output of industry i , for each pair of industries i and j . We may then employ the larger coefficient to calculate the vertical relatedness coefficient V_{ij} between the acquiring company and

industries i and j , which is defined as $V_{ij} = \text{Max}(A_{ij}, A_{ji})$, so as to effectively explain the potential vertical integration opportunity between them (Fan and Goyal, 2006). To take the acquisition by Beijing Jingneng Thermal Power (stock code: 600578) of Inner Mongolia Yitai Coal in 2007 as an example, the acquiring company's largest business is power and thermal production and supply (i), which provides the target company with an input of 0.10145 renminbi for every 1 renminbi output of coal mining and dressing business (j)—that is, $A_{ij} = 0.10145$ —and in return, j provides an input of 0.18682 renminbi for every 1 renminbi of output of i —that is, $A_{ji} = 0.18682$. We then obtain the coefficient between the acquiring enterprise industry (i) and the target company industry (j) V_{ij} , which is 0.18682.

Figure 1 presents the cumulative distribution of the vertical relatedness coefficients of our M&A samples. We classify the sample mergers according to the M&A classification of Fan and Goyal (2006). If we define the merger as vertical when the vertical relatedness coefficient V_{ij} between the acquiring company and the target company exceeds 1 per cent, then the vertical relatedness coefficients of 31.3 per cent of the sample are less than 1 per cent. Likewise, if we define the merger as vertical when the vertical relatedness coefficient V_{ij} between the acquiring company and the target company exceeds 5 per cent, then the vertical relatedness coefficients of 55.7 per cent of the sample are less than 5 per cent. Compared with the sample of Fan and Goyal (2006), a larger proportion of the merger sample has a higher vertical relatedness, which may be related to the Chinese emerging and transitional market environment characterised by market failure and weak contract enforcement.

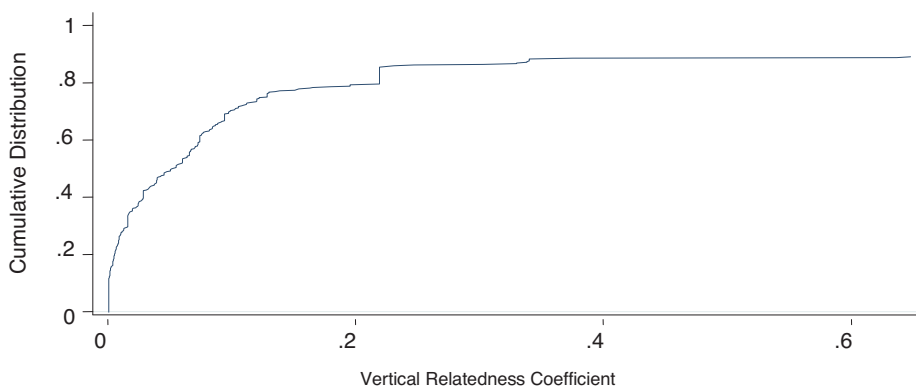


Figure 1 Cumulative Probability Distribution of Vertical Relatedness Coefficients between Merging Companies

3.3 Research Design

To test the impact of vertical relations on the wealth effects of mergers, this study follows the designs by Fan and Goyal (2006), Kedia *et al.* (2008), and Shenoy (2009) and selects firm size, transaction size, leverage, growth, market concentration of products,

and industry regulation as the control variables of the regression model, which is as follows:

$$\begin{aligned}
 CARs_{i,t} = & \lambda_0 + \lambda_1 PVC_{i,t} + \lambda_2 PHC_{i,t} + \lambda_3 VHC_{i,t} + \lambda_4 MB_{i,t-1} + \lambda_5 SIZE_{i,t-1} \\
 & + \lambda_6 VOL_{i,t} + \lambda_7 LEV_{i,t-1} + \lambda_8 HERFS_{i,t-1} + \lambda_9 IDIOS_{i,t} + \lambda_{10} AHI_{i,t-1} \\
 & + \lambda_{11} LGOV_{i,t} + \lambda_{12} CGOV_{i,t} + \lambda_{13} ROA_{i,t-1} + \lambda_{14} REG_{i,t} \\
 & + \lambda_{15} LPROTECT + \lambda_{16} YEAR + \lambda_{i,t}
 \end{aligned} \tag{1}$$

In Model (1), CARs are the abnormal returns of the acquirers during the announcement period, measured as the wealth effects of mergers (Lafontaine and Slade, 2007). Following Fan and Goyal (2006), Kedia *et al.* (2008), and Shenoy (2009), we define the wealth effects of mergers as the CARs of acquirers for the windows of [-1, +1], [-2, +2], [-5, +5], and [-10, +10] trading days around the first announcement day, which are measured by the market model, where the β parameters are estimated over the [-180,-30] event window relative to the first announcement day.

Consistent with the classification scheme used by McGuckin *et al.* (1991), Fan and Goyal (2006), Kedia *et al.* (2008), and Shenoy (2009), we define a merger as vertically related if the vertical relatedness coefficient (V_{ij}) exceeds 1 per cent or 5 per cent, after referring to the cumulative probability distribution of the vertical relatedness between the acquiring and target companies in Figure 1. Following this classification, we identify pure vertical mergers (*PVC*) as those mergers between firms belonging to different IO industries but exhibiting a vertical relatedness over the 1 per cent or 5 per cent cut-off point. The variable *PVC* will take a value of 1 if the merged firms are vertically related but belong to different IO industries. We identify pure horizontal mergers (*PHC*) as those mergers that take place between firms in the same IO industry but exhibiting a vertical relatedness less than the 1 per cent or 5 per cent cut-off point. The variable *PHC* will take a value of 1 if the merged firms are vertically unrelated and in the same IO industry. We classify mergers between firms in the same IO industry that also have a vertical relatedness over the 1 per cent or 5 per cent cut-off point as mixed vertical-and-horizontal mergers (*VHC*). The variable *VHC* will take a value of 1 if the merged firms are vertically related and belong to the same IO industry. Finally, we classify merger samples other than *PVC*, *PHC*, or *VHC* as conglomerate mergers.

According to existing literature, the characteristics of firms and M&A transactions will influence the wealth effects of mergers. Thus, in view of the actual conditions of the merger activities of Chinese listed firms, we use control variables as follows: the characteristics of firms include firm size (*SIZE*), debt levels (*LEV*), growth (*GROWTH*), market concentration of products (*AHI*), heterogeneous expectations (*IDIOS*), ownership balance (*HERFS*), return on assets (*ROA*), local government-controlled (*LGOV*), and central government-controlled (*CGOV*), while the characteristics of M&A transactions include trading size (*VOL*), industry regulation (*REG*), and merger year (*YEAR*).

The larger the firm size, the more likely the acquiring company will be over-

confident (Roll, 1986), and the easier it will be to pay an M&A premium (Moeller *et al.*, 2004). According to the free cash flow hypothesis, if the acquirer has a large sum of cash flow and a low leverage level, it will be able to pay a premium more easily (Jensen, 1986). Corporate growth will influence the performance of mergers, and the pursuit of growth will drive firms to implement strategic mergers; aimless expansion, however, will destroy firm value. Thus, the better the corporate governance of the acquirer, the more value-creating mergers it will choose (Servaes, 1991). The ability of the acquirer to influence its target will also vary with different merger sizes, which in turn will influence the wealth effects gained by the acquirer (Fuller *et al.*, 2002). If the M&A transaction between the acquirer and the target is considered a vertical merger, then this merger may change the acquirer's market power and market share and will create value in an uncompetitive market (Kedia *et al.*, 2008; Shenoy, 2009). Hence, we add the Herfindahl index (*AHI*) of the acquirer's industry to reflect the competition level of its product market, and we expect the sign to be positive. In addition, the nature of the property rights of the ultimate controller will influence the motive and the ability of the acquirer, and will further influence the wealth effects of the merger. In this paper we thus introduce two types of property rights nature – local government-controlled and central government-controlled – to test their impact on the wealth effects of mergers.

At the same time, the acquirer's stock performance is not only related to the firm's decision-making behaviour, but also has an important linkage to investor confidence and expectations. Under the condition that the arbitrage mechanism is restricted, the heterogeneous expectations of investors will result in over-estimating the acquirer's stock price owing to *ex ante* information asymmetry. Because there is a lag in market reaction to a wrong stock price, it takes time for the price to resume reflecting the fundamentals. And because losses of long-term investors may be caused by previous wrong pricing, their heterogeneous expectations (*IDIOS*) may negatively affect the CARs of the acquirer within a certain number of trading days before and after the announcement day (Lai *et al.*, 2006).

Also, since governmental regulation changes the difference between market transaction costs and internal organisational costs, causing firms to evade such regulation through mergers, it thus affects firm boundaries. Empirical evidence already indicates that such regulation is an influential factor in firm boundaries (Chen and Huang, 2006; Li and Tang, 2010). So we regard whether the target company belongs to a regulated industry (coal, steel, oil, gas, water supply, metals, aviation, power, railway, postal, and telecommunications) as a proxy for government regulation policy (*REG*) (Fan *et al.*, 2009).

Owing to the implementation of new accounting standards, ownership structure reform, and the revision and implementation of the Corporation Law, Securities Law, and Measures for the Administration of the Takeover of Listed Companies, the year 2006 is the turning point of capital markets in China (CSRC, 2008). *YEAR* thus takes the value of 1 if the merger event took place between 2007 and 2008, and otherwise 0.

Table 2 Variable Definitions

| Variable | Variable definition | Expectation |
|-----------------|--|-------------|
| <i>CARs</i> | Cumulative abnormal returns of the acquirer for windows around the first announcement day | |
| <i>VC</i> | Takes the value of 1 if the merged firms are vertically related at the 1 per cent or 5 per cent cut-off point, and otherwise 0 | + |
| <i>PVC</i> | Takes the value of 1 if the merged firms are vertically related with V_{ij} higher than the 1 per cent or 5 per cent cut-off point but belong to different IO industries, and otherwise 0 | + |
| <i>PHC</i> | Takes the value of 1 if the merged firms are vertically unrelated with V_{ij} lower than the 1 per cent or 5 per cent cut-off point and belong to the same IO industry, and otherwise 0 | + |
| <i>VHC</i> | Takes the value of 1 if the merged firms are vertically related with V_{ij} higher than the 1 per cent or 5 per cent cut-off point and belong to the same IO industry, and otherwise 0 | + |
| <i>LPROTECT</i> | Index for lower regional property protection, which takes the value of 1 if the minimums of both the property protection indices of the acquirer and the target are under the 40th percentile (0.45), and otherwise 0. The property protection indices are taken from the investment environment data of 120 cities in China investigated by the World Bank. | + |
| <i>SIZE</i> | The natural logarithm of the acquirer's total assets one year before the merger | - |
| <i>LEV</i> | The leverage ratio of the acquirer one year before the merger | + |
| <i>GROWTH</i> | The market-book ratio of the acquirer one year before the merger | + |
| <i>AHI</i> | The industry Herfindahl index of the acquirer computed according to the three-tier classification provided in the <i>Guidelines on Industry Classification of Listed Companies</i> issued by the China Securities Regulatory Commission | + |
| <i>IDIOS</i> | The square of regression residuals from 180 trading days before to 30 trading days before the first announcement of the merger computed by the market model | - |
| <i>HERFS</i> | The sum of squares of proportions of shares held by the five largest shareholders | + |

| Variable | Variable definition | Expectation |
|-------------|---|-------------|
| <i>ROA</i> | Return on assets of the acquirer one year before the merger | + |
| <i>VOL</i> | The shareholding proportion acquired from the target company | + |
| <i>LGOV</i> | Takes the value of 1 when the acquiring firm is controlled by the local government, and otherwise 0 | - |
| <i>CGOV</i> | Takes the value of 1 when the acquiring firm is controlled by the central government, and otherwise 0 | - |
| <i>REG</i> | Takes the value of 1 when the target firm belongs to an industry regulated by the government (coal, steel, oil, gas, water supply, metals, aviation, power, railway, etc.), and otherwise 0 | + |
| <i>YEAR</i> | Takes the value of 1 when the merger takes place in 2007 or 2008, and otherwise 0 | + |

IV. Empirical Results and Analysis

4.1 Descriptive Statistics

Table 3 presents the descriptive statistics. For the first announcement window of [-1, +1], [-2, +2], [-5, +5], and [-10, +10] trading days around the first announcement day published by the successful acquirer, the mean values of the CARs gained by the acquirer are 0.009, 0.011, 0.010, and 0.006, respectively. This indicates that a listed firm's acquisition of a non-listed firm leads to positive CARs in China, which is consistent with the findings of Li and Chen (2002), and is the same as the conclusions of Fuller *et al.* (2002), Moeller *et al.* (2004), and Faccio *et al.* (2006), who study listed firms' acquisition of non-listed firms in the US. Taking mergers with a vertical relatedness coefficient exceeding 1 per cent (5 per cent) between the acquiring and target companies as the classifying standard, we find that vertical mergers account for 68.7 per cent (44.30 per cent) of the full sample, fully horizontal mergers 2.12 per cent (7.69 per cent), fully vertical mergers 39.26 per cent (20.42 per cent), and mixed vertical-and-horizontal mergers 29.44 per cent (23.87 per cent). This means that compared with a developed market with effective legal and financial systems, vertical mergers in China tend to be pervasive in its emerging and transitional market characterised by market failure and weak contract enforcement since this kind of merger can save transaction costs for upstream and downstream industries. At the same time, the tests by group on the acquirers' wealth effects show that the mean CARs of vertical mergers are higher than those of the full sample. Moreover, after subdividing the samples by merger type, we find that the wealth effects of mixed vertical-and-horizontal mergers are larger than those of the other merger types. Panel C of Table 3 provides the Spearman correlation coefficient matrix, which shows that the acquirers experience, on average, a positive and

significant abnormal return at least at the 1 per cent level in the CAR[-1, +1], CAR[-2, +2], CAR[-5, +5], and CAR[-10, +10] windows of the first merger announcement, and their correlation coefficient is at least 0.406. This is positively related to mixed vertical mergers at least at the 5 per cent significance level. In addition, 46.7 per cent of merging firms are controlled by local governments, and 18 per cent by the central government, so the latter number of samples are fewer than the former number of samples. The average (median) of transaction size (*VOL*) is 56 per cent (51 per cent), meaning that acquirers are likely to become controlling shareholders through vertical mergers.

Table 3 Wealth Effects of the Sample Mergers by Type and Spearman Correlation Coefficients

| | Full sample | Vertical mergers | Pure vertical mergers | Pure horizontal mergers | Mixed vertical-horizontal mergers | Conglomerate mergers |
|--|-------------|------------------|-----------------------|-------------------------|-----------------------------------|----------------------|
| Panel A: 1% critical point | | | | | | |
| CAR[-1,+1] | 0.009*** | 0.012*** | 0.006** | 0.003* | 0.017*** | 0.002 |
| CAR[-2,+2] | 0.011*** | 0.015*** | 0.008* | 0.031 | 0.026*** | 0.000 |
| CAR[-5,+5] | 0.010** | 0.016*** | 0.010 | 0.053 | 0.030*** | -0.008 |
| CAR[-10,+10] | 0.006* | 0.014* | 0.003 | 0.084* | 0.038*** | -0.017* |
| <i>V</i> | 0.068 | 0.096 | 0.078 | 0.023 | 0.120 | 0.004 |
| N | 377 | 259 | 148 | 8 | 111 | 110 |
| Panel B: 5% critical point | | | | | | |
| CAR[-1,+1] | 0.009*** | 0.019*** | 0.015*** | 0.002 | 0.021*** | 0.001 |
| CAR[-2,+2] | 0.011*** | 0.024*** | 0.016** | 0.010 | 0.031*** | -0.001 |
| CAR[-5,+5] | 0.010** | 0.023*** | 0.011 | 0.028** | 0.033*** | -0.004 |
| CAR[-10,+10] | 0.006* | 0.019** | 0.004 | 0.051* | 0.039*** | -0.012* |
| <i>V</i> | 0.068 | 0.135 | 0.126 | 0.022 | 0.143 | 0.013 |
| N | 377 | 167 | 77 | 29 | 90 | 181 |
| Panel C: Spearman coefficients of main variables | | | | | | |
| | CAR[-1,+1] | CAR[-2,+2] | CAR[-5,+5] | CAR[-10,+10] | <i>PVC</i> | <i>PHC</i> |
| CAR[-1,+1] | 1.000*** | | | | | |
| CAR[-2,+2] | 0.822*** | 1.000 | | | | |
| CAR[-5,+5] | 0.572*** | 0.699*** | 1.000 | | | |
| CAR[-10,+10] | 0.406*** | 0.514*** | 0.747*** | 1.000 | | |
| <i>PVC</i> | -0.014 | -0.050 | -0.043 | -0.078 | 1.000 | |
| <i>PHC</i> | -0.020 | 0.046 | 0.078 | 0.100* | -0.118** | 1.000 |
| <i>VHC</i> | 0.130** | 0.148*** | 0.158*** | 0.181*** | -0.519*** | -0.095* |

Note: The table reports the wealth effects of the sample mergers by type and Spearman correlation coefficients. Variables are defined in Table 2. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

4.2 Regression Analysis

We regard $CAR[-1,+1]$ as the tabulated dependent variable, and examine the wealth effects of different M&A types by using Model (1) with common least-square regression analysis. Then we obtain the regression coefficient of every variable. First, we run the heteroscedastic tests of White (1980) on all regression models and find that all results reject the null hypothesis that heteroscedasticity exists, showing that the test model has no heteroscedastic problem. We then look at the variance inflation factor (VIF) values of all independent variables in the model and find that these are less than 5, indicating that the model has no substantial multicollinearity problems. In sum, the specification of the test model is reasonable.

4.2.1 Analysis of Hypothesis 1

Models (1) and (2) in Panel A of Table 4 show that in the full sample regression, when a vertical merger is defined as a merger with the vertical relatedness coefficients of the acquiring and target firms exceeding 1 per cent, the regression coefficients of the vertical mergers (*VC*) are significantly positive. Moreover, when we further subdivide merger types according to whether the acquiring and target companies belong to the same industry, the regression coefficients of mixed vertical-and-horizontal mergers (*VHC*) are significantly positive. Meanwhile, Models (1) and (2) in Panel B of Table 4 also show that when a vertical merger is defined as a merger with the vertical relatedness coefficients of the acquiring and target firms exceeding 5 per cent, the regression coefficients of the vertical mergers (*VC*), mixed vertical-and-horizontal mergers (*VHC*), and pure vertical mergers (*PVC*) are all significantly positive, meaning that compared with other merger types, vertical mergers will obtain CARs of at least 3.17 per cent. Moreover, horizontal mergers with strong vertical relations will obtain CARs of at least 6.03 per cent, meaning that the closer the vertical relation between the transaction parties, the more significant the merger's wealth effects. We also divide samples according to the ownership type of the ultimate controller, and find that only when the acquiring firms are privately controlled are all regression coefficients of the above three types of mergers significantly positive, while those of other types are not. Additionally, the regression coefficients of the interaction terms between the group of low regional property protection and the three types of mergers are all positive and differ significantly from zero at least at the 10 per cent level, meaning that the wealth effects of vertical mergers between upstream and downstream industries may exist mainly in private listed firms, thereby supporting H1. The results thus show that in present-day China, where laws and regulations are imperfect, law enforcement is poor, and social trust inefficient, vertical integration serves as a substitute mechanism for protecting valuable relationship-specific investment from opportunism, preventing potential holdups for each party to the transaction, saving high transaction costs, stabilising production and supply relations between upstream and downstream industries, and somewhat alleviating local protectionism (Fan *et al.*, 2009;

Acemoglu *et al.*, 2009).⁵ Meanwhile, compared with acquirers under the control of local and central governments, privately controlled firms may face weaker property rights protection and contract enforcement, and thus will be more willing to protect and promote *ex ante* incentives for relationship-specific investments, prevent potential holdups, save high transaction costs, and avoid excessive regulatory burdens and political intervention through vertical mergers between upstream and downstream industries (Fan *et al.*, 2009; Acemoglu *et al.*, 2009). This could accordingly improve the performance of privately controlled firms with higher vertical relations.

4.2.2 Analysis of Hypothesis 2

Because property protection in different regions is relatively stable in different years, we also use the property protection index of 120 Chinese cities reported by the World Bank as a proxy for local property protection; this allows us to measure the degree of protection with respect to a city rather than a province. The World Bank computes this index using investigative data on the investment environment in these 120 cities.

We define samples where the minimum property protection indices of the locations of the acquiring and target firms are below the 40th percentile (0.45) as the group of low regional property protection.⁶ If merger samples belong to this group, the index takes the value of 1, and otherwise 0. We then use the interaction terms between the property protection index and the proxy variables (*VC*, *VHC*, *PVC*, and *PHC*) of merger types to test the above theoretical hypothesis. Models (1) and (2) in Panel A of Table 5 show that the regression coefficients of interaction terms between the group of lower regional property protection and vertical mergers (*VC*), mixed vertical-and-horizontal mergers (*VHC*), and pure vertical mergers (*PVC*) are all positive and significantly distant from zero at least at the 10 per cent level. This means that the wealth effects of

5 Of course, the merger samples may be selectively biased. Because the choice model of Heckman (1979) depends on a specific function to estimate indirectly the treatment effect for the choice of a vertical merger, it also requires an efficient instrumental variable; otherwise, the estimate will be biased. But it is hard to find such a variable in reality, and at the same time find a match model based on properties but not dependent on a specific function, in order to estimate directly the treatment effect for choice of a vertical merger (Li and Prabhala, 2007). Therefore, in this paper we use propensity-score matching models to find samples matched with vertical merger samples in order to regress and analyse our model specifications. In addition, we also use the difference-in-difference model to regress and analyse these same specifications, taking the mean return on total assets (pretax profits / total assets) two years before and after the vertical merger as a dependent variable. These results support the conclusion that the vertical relatedness between transaction parties is positively related to the wealth effects of the merger.

6 About 15 per cent of the regions where merger samples are located were not included in the World Bank (2006) survey of 120 cities. Thus, to increase the sample size, we use the mean value of cities that have data in the same province to replace the other cities. One sample has neither regional survey data nor the provincial average, namely the Lhasa area samples (600773). But because Lhasa city belongs to the Central Western region of China, it is reasonable to consider it to be within the lower local property protection group. In fact, if we define this group with a critical value of 30 per cent or 50 per cent, the result remains qualitatively unchanged. When the degree of local property protection is defined according to the development of market intermediary organisations and the legal system environment as found in the *China Marketisation Index – A Report of Marketisation of China for 2006*, our conclusion remains unchanged in general, with only the significance coefficient declining slightly.

vertical mergers between upstream and downstream industries will increase in relation to the degree of decrease in local property protection where both transaction parties are located, thus supporting H2.⁷ Therefore, under an environment with imperfect laws and regulations, poor law enforcement, and inefficient social trust, vertical integration serves as a substitute mechanism to protect valuable relationship-specific investments from opportunism, save high transaction costs, and avoid excessive regulatory burdens and political intervention.

In addition, the regression results of the control variables in Tables 4 and 5 show that the regression coefficients of the yearly dummy variable *YEAR* are positive and significantly distant from zero. This means that as the infrastructure of capital markets improves, such as accounting standards and laws and regulations in capital market supervision, the external governance environment of the merger activities of listed firms also improves and strengthens, thus increasing the wealth effect of mergers. Moreover, *AHI*, which represents the product market concentration of the acquiring firms, is not significantly negative, meaning that the acquirers' wealth effects do not come from the enhancement of market power. But although we have added control variables commonly used in the literature in our model specification, these variables are insignificant, which needs further examination.

4.3 Robustness Test

To make our results more robust, we conduct sensitivity tests on the results in Tables 4 and 5. First, we use the CARs of acquirers for windows of [-2, +2], [-5, +5], and [-10, +10] trading days around the first announcement day as dependent variables to again estimate Model (1) using ordinary least squares (OLS). Second, if managers have private information about potential synergies of the merger activity, the OLS estimate will be biased (Eckbo *et al.*, 1990); thus, we use the maximum-likelihood estimate (MLE) procedure, which is based on the methodology in Eckbo *et al.* (1990). And third, since we define the vertical relatedness coefficient by the acquirer's prime industry, but in fact there may also be a vertical relation between the acquirer's secondary industry and the target company (Fan and Goyal, 2006), we combine the primary industry with the secondary industry of the acquirer to define the vertical relatedness between the two transaction parties. To do so, we take the vertical relatedness coefficient of 1 per cent or 5 per cent as the critical point to judge whether a vertical relation exists, and then run the estimation using OLS once again. In a word, the results of these sensitivity tests suggest that all important conclusions are qualitatively unchanged.

7 When we use the difference in the average returns on total assets (pretax profits / total assets) two years before and after the vertical merger announcement as the dependent variable, we find that although the regression coefficients of the tested variables of Hypothesis 2 conform to our expectations, they are not significant.

Table 4 Vertical Relations and M&A Performance**Panel A:** 1% critical point of vertical coefficients

| | Full sample | | Sub-samples | | | | | |
|-------------------------|-------------|---------|---------------------------------|---------|-----------------------------------|---------|--------------------------|---------|
| | (1) | (2) | Local government controlled (3) | | Central government controlled (4) | | Privately controlled (5) | |
| <i>VC</i> | 0.008* | | 0.002 | | 0.003 | | 0.0224** | |
| | (1.90) | | (0.23) | | (0.25) | | (2.55) | |
| <i>PVC</i> | | 0.004 | | 0.001 | | -0.002 | 0.012* | |
| | | (1.63) | | (0.16) | | (-0.19) | (1.83) | |
| <i>PHC</i> | | -0.001 | | 0.033 | | -0.021 | -0.020 | |
| | | (-0.01) | | (0.94) | | (-1.10) | (-0.74) | |
| <i>VHC</i> | | 0.013** | | 0.009 | | 0.005 | 0.030** | |
| | | (2.04) | | (1.23) | | (0.30) | (2.51) | |
| <i>LPROTECT</i> | 0.005 | 0.004 | 0.006 | 0.006 | 0.004 | 0.003 | -0.002 | -0.003 |
| | (0.88) | (0.84) | (0.74) | (0.80) | (0.34) | (0.25) | (-0.17) | (-0.27) |
| <i>IDIOS</i> | -0.252 | -0.238 | -0.114 | -0.067 | -0.339 | -0.390 | -0.374* | -0.325 |
| | (-1.34) | (-1.26) | (-0.33) | (-0.20) | (-1.20) | (-1.30) | (-1.90) | (-1.54) |
| <i>HERFS</i> | -0.003 | -0.006 | 0.009 | -0.004 | 0.023 | 0.024 | -0.031 | -0.031 |
| | (-0.15) | (-0.35) | (0.37) | (-0.18) | (0.56) | (0.58) | (-0.98) | (-0.98) |
| <i>VOL</i> | -0.005 | -0.006 | -0.006 | -0.010 | 0.028 | 0.031 | -0.010 | -0.012 |
| | (-0.60) | (-0.80) | (-0.63) | (-0.98) | (1.46) | (1.60) | (-0.61) | (-0.76) |
| <i>SIZE</i> | -0.006 | -0.007 | -0.007 | -0.008 | -0.019 | -0.019 | -0.008 | -0.004 |
| | (-0.91) | (-0.97) | (-0.72) | (-0.90) | (-1.28) | (-1.23) | (-0.50) | (-0.28) |
| <i>LEV</i> | 0.014 | 0.015 | 0.003 | 0.007 | 0.069* | 0.0732* | 0.014 | 0.014 |
| | (1.09) | (1.16) | (0.15) | (0.35) | (1.86) | (1.86) | (0.62) | (0.61) |
| <i>ROA</i> | 0.025 | 0.024 | 0.039 | 0.045 | 0.065 | 0.0709 | -0.035 | -0.075 |
| | (0.59) | (0.57) | (0.78) | (0.92) | (0.71) | (0.74) | (-0.39) | (-0.84) |
| <i>MB</i> | 0.003 | 0.003 | -0.007 | -0.008 | -0.010 | -0.0113 | 0.008 | 0.011* |
| | (0.68) | (0.65) | (-1.41) | (-1.53) | (-0.90) | (-1.01) | (1.39) | (1.78) |
| <i>LGOV</i> | -0.001 | -0.001 | | | | | | |
| | (-0.13) | (-0.07) | | | | | | |
| <i>CGOV</i> | 0.013* | 0.013* | | | | | | |
| | (1.89) | (1.91) | | | | | | |
| <i>AHI</i> | -0.017 | -0.010 | -0.024 | -0.017 | 0.059* | 0.065* | -0.020 | -0.006 |
| | (-0.90) | (-0.52) | (-1.14) | (-0.84) | (1.81) | (1.78) | (-0.43) | (-0.12) |
| <i>REG</i> | 0.008 | 0.007 | -0.005 | -0.006 | 0.014 | 0.014 | 0.024* | 0.028** |
| | (1.25) | (1.15) | (-0.71) | (-0.72) | (0.95) | (0.96) | (1.81) | (2.08) |
| <i>YEAR</i> | 0.014** | 0.014** | 0.013 | 0.011 | 0.031 | 0.0310 | 0.011 | 0.009 |
| | (2.17) | (2.13) | (1.46) | (1.21) | (1.56) | (1.52) | (1.02) | (0.80) |
| <i>cons</i> | 0.051 | 0.055 | 0.072 | 0.091 | 0.124 | 0.131 | 0.071 | 0.041 |
| | (0.81) | (0.88) | (0.80) | (1.02) | (0.92) | (0.90) | (0.50) | (0.29) |
| Adjusted R ² | 0.034 | 0.034 | -0.032 | -0.025 | 0.057 | 0.043 | 0.088 | 0.112 |
| F | 1.93** | 1.84** | 0.55 | 0.69 | 1.52 | 1.57 | 2.07** | 2.19** |
| N | 377 | 377 | 176 | 176 | 68 | 68 | 133 | 133 |

Panel B: 5% critical point of vertical coefficients

| | Full sample | | Sub-samples | | | | | |
|-----------------|--------------------|---------------------|---------------------------------|-------------------|-----------------------------------|-------------------|--------------------------|-------------------|
| | (1) | (2) | Local government controlled (3) | | Central government controlled (4) | | Privately controlled (5) | |
| <i>VC</i> | 0.015*** (3.36) | | 0.006 (1.13) | | 0.001 (0.02) | | 0.037*** (4.16) | |
| <i>PVC</i> | | 0.0128** (2.20) | 0.00571 (0.76) | | -0.00616 (-0.65) | | 0.033** (2.60) | |
| <i>PHC</i> | | -0.00197 (-0.21) | 0.0171 (1.27) | | -0.008 (-0.34) | | -0.009 (-0.66) | |
| <i>VHC</i> | | 0.017*** (2.88) | 0.011 (1.56) | | 0.006 (0.40) | | 0.037*** (3.10) | |
| <i>LPROTECT</i> | 0.005 (1.02) | 0.005 (1.02) | 0.006 (0.76) | 0.006 (0.78) | 0.004 (0.37) | 0.005 (0.39) | 0.002 (0.23) | 0.002 (0.25) |
| <i>IDIOS</i> | -0.212 (-1.15) | -0.202 (-1.08) | -0.104 (-0.31) | -0.080 (-0.24) | -0.346 (-1.23) | -0.280 (-0.87) | -0.266 (-1.19) | -0.266 (-1.16) |
| <i>HERFS</i> | -0.003 (-0.15) | -0.003 (-0.19) | 0.006 (0.25) | -0.003 (-0.12) | 0.022 (0.52) | 0.020 (0.47) | -0.026 (-0.79) | -0.025 (-0.74) |
| <i>VOL</i> | -0.004 (-0.51) | -0.004 (-0.52) | -0.006 (-0.59) | -0.010 (-0.94) | 0.028 (1.50) | 0.028 (1.55) | -0.006 (-0.41) | -0.006 (-0.40) |
| <i>SIZE</i> | -0.005 (-0.76) | -0.005 (-0.76) | -0.006 (-0.59) | -0.008 (-0.86) | -0.018 (-1.32) | -0.020 (-1.34) | -0.011 (-0.76) | -0.011 (-0.74) |
| <i>LEV</i> | 0.013 (1.03) | 0.014 (1.07) | 0.003 (0.14) | 0.005 (0.27) | 0.069* (1.85) | 0.071* (1.80) | 0.011 (0.55) | 0.014 (0.62) |
| <i>ROA</i> | 0.015 (0.35) | 0.013 (0.31) | 0.038 (0.76) | 0.045 (0.90) | 0.066 (0.73) | 0.056 (0.55) | -0.060 (-0.71) | -0.066 (-0.77) |
| <i>MB</i> | 0.003 (0.73) | 0.003 (0.69) | -0.007 (-1.42) | -0.008 (-1.54) | -0.010 (-0.89) | -0.012 (-1.05) | 0.009 (1.42) | 0.009 (1.39) |
| <i>LGOV</i> | -0.002 (-0.35) | -0.002 (-0.34) | | | | | | |
| <i>CGOV</i> | 0.012* (1.73) | 0.012* (1.76) | | | | | | |
| <i>AHI</i> | -0.016 (-0.88) | -0.014 (-0.77) | -0.023 (-1.10) | -0.017 (-0.85) | 0.058* (1.76) | 0.062* (1.68) | -0.027 (-0.64) | -0.029 (-0.66) |
| <i>REG</i> | 0.007 (1.13) | 0.007 (1.13) | -0.005 (-0.67) | -0.006 (-0.81) | 0.014 (0.96) | 0.016 (1.17) | 0.016 (1.34) | 0.017 (1.36) |
| <i>YEAR</i> | 0.014** (2.15) | 0.014** (2.13) | 0.012 (1.36) | 0.011 (1.32) | 0.031 (1.58) | 0.032 (1.56) | 0.012 (1.08) | 0.013 (1.10) |

| | Full sample | | Sub-samples | | | | | |
|-------------------------|-----------------|-----------------|---------------------------|---------------------------|---------------------------|--------------------------|-----------------|-----------------|
| | (1) | (2) | Local | | Central | | Privately | |
| | | | government controlled (3) | government controlled (4) | government controlled (4) | Privately controlled (5) | | |
| <i>CONS</i> | 0.039 (0.63) | 0.040 (0.64) | 0.059 (0.67) | 0.086 (0.96) | 0.120 (0.92) | 0.140 (1.02) | 0.100 (0.71) | 0.099 (0.69) |
| Adjusted R ² | 0.059 | 0.055 | -0.025 | -0.026 | 0.056 | 0.035 | 0.170 | 0.159 |
| F | 2.69*** | 2.38*** | 0.65 | 0.68 | 1.54 | 1.78* | 3.26*** | 3.02*** |
| N | 377 | 377 | 176 | 176 | 68 | 68 | 133 | 133 |

Note: The table reports OLS regression results. Variables are defined in Table 2. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively, using two-tailed tests. Huber-White robust standard errors are used to control for heteroscedasticity.

Table 5 Property Protection, Vertical Relations, and M&A Performance

Panel A: 1% critical point of vertical coefficients

| | Full sample | | Sub-samples | | | | | |
|-------------------------|-------------------|--------------------|---------------------------|---------------------------|---------------------------|--------------------------|-------------------|-------------------|
| | (1) | (2) | Local | | Central | | Privately | |
| | | | government controlled (3) | government controlled (4) | government controlled (4) | Privately controlled (5) | | |
| <i>VC</i> | 0.002* (1.67) | | 0.007 (0.97) | | 0.004 (1.34) | | 0.0184 (1.82) | |
| <i>VC*LPROTECT</i> | 0.026** (2.25) | | 0.034* (1.96) | | 0.026 (1.06) | | 0.021** (2.20) | |
| <i>PVC</i> | | 0.005 (1.55) | | 0.009 (1.24) | | 0.011 (0.79) | | 0.005* (1.83) |
| <i>PVC*LPROTECT</i> | | 0.037*** (2.97) | | 0.041** (2.15) | | 0.032 (1.25) | | 0.032** (2.36) |
| <i>PHC</i> | | -0.008 (-0.38) | | 0.026 (0.51) | | -0.046 (-1.09) | | -0.044 (-0.75) |
| <i>PHC*LPROTECT</i> | | 0.050 (1.35) | | 0.027 (0.50) | | | | |
| <i>VHC</i> | | 0.010* (1.79) | | 0.002 (0.25) | | -0.003 (-0.19) | | 0.027* (1.91) |
| <i>VHC*LPROTECT</i> | | 0.016* (1.93) | | 0.031 (1.62) | | 0.025 (0.82) | | 0.0171* (1.86) |
| <i>LPROTECT</i> | -0.015 (-1.52) | -0.017 (-1.07) | -0.019 (-1.21) | -0.022 (-1.34) | -0.017 (-0.80) | -0.020 (-0.97) | -0.018 (-1.33) | -0.023 (-1.44) |
| Control | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Adjusted R ² | 0.044 | 0.052 | -0.004 | -0.003 | 0.054 | 0.026 | 0.087 | 0.109 |
| F | 2.16*** | 2.08*** | 0.94 | 0.97 | 1.88* | 1.89* | 1.97** | 2.01** |
| N | 377 | 377 | 176 | 176 | 68 | 68 | 133 | 133 |

Panel B: 5% critical point of vertical coefficients

| | Full sample | | Sub-samples | | | | | |
|-------------------------|-------------|---------|---------------------------------|-----------------------------------|--------------------------|----------|----------|---------|
| | (1) | (2) | Local government controlled (3) | Central government controlled (4) | Privately controlled (5) | | | |
| <i>VC</i> | 0.010* | | 0.003 | 0.0121 | 0.029*** | | | |
| | (1.88) | | (0.51) | (1.05) | (2.71) | | | |
| <i>VC*LPROTECT</i> | 0.020** | | 0.011 | 0.0374 | 0.030* | | | |
| | (2.04) | | (0.73) | (1.54) | (1.92) | | | |
| <i>PVC</i> | | 0.004 | -0.001 | 0.014 | 0.017 | | | |
| | | (1.50) | (-0.02) | (1.05) | (1.60) | | | |
| <i>PVC*LPROTECT</i> | | 0.034* | 0.022 | 0.021 | 0.062** | | | |
| | | (2.43) | (1.09) | (0.64) | (2.23) | | | |
| <i>PHC</i> | | -0.001 | 0.009 | 0.007 | -0.016 | | | |
| | | (-0.08) | (0.51) | (0.25) | (-0.99) | | | |
| <i>PHC*LPROTECT</i> | | -0.001 | 0.031 | -0.043 | 0.0266 | | | |
| | | (-0.07) | (1.50) | (-0.95) | (1.09) | | | |
| <i>VHC</i> | | 0.015* | 0.009 | -0.009 | 0.0319** | | | |
| | | (2.11) | (1.06) | (-0.54) | (2.24) | | | |
| <i>VHC*LPROTECT</i> | | 0.009 | 0.008 | 0.041 | 0.0163* | | | |
| | | (0.70) | (0.50) | (1.42) | (1.76) | | | |
| <i>LPROTECT</i> | -0.004 | -0.004 | 0.001 | -0.003 | -0.0161 | -0.00869 | -0.00902 | -0.0135 |
| | (-0.65) | (-0.55) | (0.06) | (-0.29) | (-0.92) | (-0.56) | (-0.87) | (-1.15) |
| Control | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Adjusted R ² | 0.068 | 0.067 | -0.027 | -0.029 | 0.077 | 0.046 | 0.180 | 0.175 |
| F | 2.82*** | 2.41*** | 0.65 | 0.71 | 1.73* | 1.49 | 3.22*** | 2.64*** |
| N | 377 | 377 | 176 | 176 | 68 | 68 | 133 | 133 |

Note: The table reports OLS regression results. Variables are defined in Table 2. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively, using two-tailed tests. Huber-White robust standard errors are used to control for heteroscedasticity.

V. Conclusion

Compared with developed markets that enjoy effective legal and financial systems, China's emerging and transitional market environment is characterised by market failure and weak contract enforcement; therefore, vertical integration should be better able to protect the *ex ante* investment incentives of relationship-specific assets and prevent potential holdups for the transaction parties. Using a sample of domestic mergers with non-related-equity acquirers and private target firms from 1998 to 2008, we find that the closer the vertical relation between M&A transaction parties, the higher the

wealth effects of a merger. Additionally, the wealth effects of vertical mergers increase as regional protection of property rights decreases, but these findings exist only for privately controlled listed acquirers. The results thus indicate that in present-day China, with imperfect laws and regulations, poor law enforcement, and inefficient social trust, vertical integration serves as a substitute mechanism to protect valuable, relationship-specific investments from opportunism, prevent potential holdups for each party of the transaction, save high transaction costs, and avoid excessive regulatory burdens and political intervention, especially for privately controlled listed companies.

In this paper, we discover that vertical mergers between upstream and downstream industries are an efficient way to allocate resources. What exactly, then, is the intrinsic motive driving the wealth effects of vertical mergers of listed firms in China? China's emerging and transitional economic features make the motives for vertical mergers by listed firms more complicated, and they also have more policy implications. Therefore, in future studies we will continue to use commodity flow in IO tables to find competitors to the vertical merging parties, upstream suppliers, and downstream clients, as well as utilise relevant theories such as efficiency, foreclosure, and collusion rationales in reference to the Chinese background, in order to establish systematic motives for the vertical mergers of listed firms in China.

References

Please refer to pp. 19-21.