

## 现金持有、产权结构与现金价值\*

王彦超<sup>1</sup> 林斌<sup>2</sup> 杨德明<sup>3</sup>

### 摘要

现金持有会降低现金的边际价值，弱法律环境下的股权集中可以改善现金的边际价值。基于产权和委托代理理论，本文就现金持有量、股权结构对现金价值的影响进行了理论分析，并以我国上市公司1999年至2005年的数据为样本，分别检验了非流通股股权集中度和流通股股权集中度对现金的边际价值的影响，及不同产权性质下，企业现金持有的现金边际价值差异。发现，过多持有现金会导致企业内部现金的边际价值减少，同时，集中的股权结构可以改善现金的边际价值；产权性质方面，同等条件下，相比其他类型的企业，地方政府所属企业的现金边际价值最低；在改善现金的边际价值方面，对于中央所属企业，非流通股治理效果明显，而民营经济，则流通股治理效果显著。

关键词：现金持有、产权结构、现金价值

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<sup>1</sup> 王彦超：讲师，博士，现任教于中央财经大学会计学院。通讯地址：北京市海淀区学院南路39号中央财经大学会计学院，邮编：100081。电话：158 1063 8068。E-mail: aeroant@126.com。

<sup>2</sup> 林斌：教授，博士，博士生导师，现任中山大学管理学院会计系主任、MPAcc教育中心主任，同时兼任中国会计学会理事、财政部企业内部控制标准委员会咨询专家组成员、广东审计学会副秘书长等。

<sup>3</sup> 杨德明：博士，讲师，华南理工大学工商管理学院，广州。

## 一、引言

如何决定企业内部现金的最佳持有量是财务学领域尚未解决的十大财务难题之一（Brealey and Myers, 1996）。现金持有行为属于企业重要融资行为问题，它综合反映了公司的整体战略，并与产权结构、公司治理密切相关。持有大量现金及其等价物会对企业价值产生哪些影响？国外学者对此主要有两种观点：其一，认为管理者在公司内部聚集大量现金只是为了满足自己的私利，在公司内部积累大量现金后管理者会将现金浪费掉，因此，公司持有大量现金对公司来说是一个价值毁灭而不是一个价值增长的行为（Jensen, 1986; Harford, 1999）。另一种观点认为，由于从公司外部筹资需要大量的成本，而在公司内部积累现金可以免于从外部市场筹集资金的成本，因此持有大量现金是一个能够提高公司价值的行为，与股东的利益也是一致的（Faulkender and Wang, 2006）。本文旨在研究现金持有的经济后果，即现金持有是否会导致现金的边际价值降低，以及股权结构能否改善持有现金的边际价值？

关于现金持有政策的研究，大部分集中在现金持有的决定因素方面，主要研究成果归纳如下：(1) 公司规模与现金持有负相关。以公司资产的账面价值的自然对数作为公司从外部筹集资金难度的代理变量，通过对美国和英国上市公司研究表明，公司资产的规模和公司的现金持有量显著负相关（Opler *et al.*, 1999; Ozkan *et al.*, 2004）；(2) 投资机会与现金持有正相关。公司拥有大量盈利的投资机会意味着公司一旦现金不足，将会失去很好的投资项目，也就意味着公司现金不足的机会成本比较大。因此，这类公司会持有较多的现金（Ozkan *et al.*, 2004; Opler *et al.*, 1999）；(3) 现金周转速度与现金持有负相关。拥有较短的现金周转期的公司出现现金不足的机率比较低，相应地，这些公司可能会持有比较少的现金（Kim *et al.*, 1998）；(4) 现金流量的波动率与现金持有正相关。如果公司的现金流入和现金流出波动比较大，则意味着公司将不得不持有较多的现金来应对未来现金流的不确定性（Ozkan *et al.*, 2004; Opler *et al.*, 1999）；(5) 公司透明度与现金持有显著负相关。在信息不对称的情况下，当公司现金不足的时候，即使面临具有较大盈利能力的项目，由于外部融资成本太大导致公司管理当局可能会选择放弃。因此，持有现金以预防这种情形的出现是会提高公司价值的，而且越是信息不对称严重的公司越愿意持有较多的现金（Opler *et al.*, 1999）。

然而，关于现金持有的市场价值研究则比较少见，最新的文献是Dittmar and Mahrt-Smith (2007)、Faulkender and Wang (2006) 及王彦超和林斌（2008）的研究，他们分别从法律保护和公司治理角度研究了现金持有的经济后果和治理效果，研究认为公司治理可以改善现金持有的价值。由于公司治理环境直接受到企业产权结构的影响，企业产权安排是最根本的影响因素，因此，本文着重研究产权结构对现金持有价值的影响。

作为对弱法律保护的一种反映，集中的所有权更能保护股东的利益。投资者保护较差的国家，外部筹资成本较高，导致股权结构比较集中，同时，大股东为了降低对管理层的监督成本需要更多的股权，以实行控制权（Shleifer and Vishny, 1997; La Porta *et al.*, 1998）。股权集中度可以改善公司治理机制，大股东的监督机制有利于提高公司价值（Xu and Wang, 1999; La Porta *et al.*, 1998; Shleifer and Vishny, 1986；孙永祥等，1999）。由于2005年股改之前，我国还存在股权分置问题，非流通股和流通股在公司治理方面可能存在差异，非流通股作为残缺的产权在改善公司治理方面可能没有流通股更有效率。产权性质方面，即不同级别政府掌握的国家股，其行为特征可能存在差异（刘芍佳等，2003；夏立军等，2005）。就我国而言，中央政府更可能起到“帮助之手”的作用，在法律法规尚不完善的情况下，中央政府控股可以减少不必要的法律纠纷，充分发挥政府协调经济的功能。由于分权化改革不够彻底，缺乏对地方政府权利法律界定，致使地方政府滥用职权，过多干预地方经济发展，人为制造地方市场分割，并为了政绩及狭隘的地方经济发展，而相互争夺资源。地方政府干预会降低企业的效率，地方政府更可能起到“掠夺之手”的作用。

通过借鉴Dittmar and Mahrt-Smith（2007）、Faulkender and Wang（2006）及王彦超和林斌（2008）的研究方法，本文选取了1999年至2005年这7年所有在上海证券交易所和深圳交易所进行交易的A股公司，5564个观测值为研究对象。研究表明：过多持有现金导致现金的边际价值降低，平均来看，每增加1元现金持有量，边际价值损失为0.0707元；同时，集中的股权可以改善现金的边际价值，经过区分流通股股权集中和非流通股集中度，我们发现结果依然成立，就流通股的治理功能而言，股权集中度每变化10%，每1元现金持有的边际价值可以提高0.336元，而非流通股则可以提高0.1492；地方政府所属企业，现金的边际价值最低。具体来说，对于现金持有量占企业价值为10%的企业，如果是民营企业，每增加1元的现金持有量，其现金的边际价值为0.5613元；如果是地方所属企业，则为0.3263；中央所属企业与民营企业的现金边际价值没有显著性区别。

作为进一步分析，我们还发现，非流通股在中央政府所属企业中治理效果显著；流通股在民营经济中治理效果显著。

可能的贡献：(1) 从非流通股和流通股视角区分股东的治理机制，丰富了股权治理领域的研究。(2) 加深了对股权结构与企业价值之间关系的认识，通过考察股权结构与现金价值的关系，使我们更清晰的理解股权结构对公司价值的传导机制；(3) 丰富了国内外关于现金价值和股权结构领域的研究；(4) 由于国内鲜见此类研究，本文为国内对企业现金价值方面的研究提供了参考；(5) 从产权的相关理论分析了现金的边际价值，也丰富了产权理论方面的研究。

本文其他部分安排如下，第二部分是制度背景与理论分析；第三部分是研究设计；第四部分实证结果及分析；最后是全文总结。

## 二、制度背景与理论分析

由于超额现金是满足正常投资和交易需求后多余的那部分现金，在完美市场和信息对称的条件下，持有现金不具有机会成本和代理成本，因此，企业持有多少现金并不会带来不良经济后果。现实经济环境普遍存在着机会成本和代理成本，在融资约束普遍存在的条件下，企业存在一个最优现金持有规模。当企业内部现金持有超过正常需求后，超额现金的边际价值如何？下面，我们把超额现金的可能处理方式分为几类，然后分别论述其对边际价值的影响。<sup>4</sup>

首先，企业可以选择把超额部分的现金保留在企业内部。这样可以减少未来融资的成本。但是，内部持有多余的现金会增加机会成本，这不利于股东财富最大化。更重要的是，企业内部存在超额的不受约束的自由现金时，管理层的逆向选择行为和道德风险倾向会增加。内部可自由支配资源的增加加重了股东和管理层、大股东和中小股东的代理冲突。超额部分的现金在权益市场会给予较高的折价，即每增加持有1元的现金，其市场边际价值小于1元，假设折扣率为 $t$ ，那么超额持有部分的现金价值，权益市场给予的定价为 $1 \times (1 - t)$ 元。而，折扣率 $t$ 则视企业内部的代理问题而定，对于代理冲突较严重的企业，权益市场给予的折扣率 $t$ 会较高，折扣率 $t$ 会随着企业代理成本的降低而减小。

其次，企业可以把超额部分的现金分配给股东。为了尽量减少代理问题导致的权益市场对所持现金的折价率 $t$ ，企业可以选择把超额部分的现金通过现金股利或股票回购的方式返回给股东。在现实的市场环境下，企业的现金股利政策尽管不会增加股东财富，但至少可以减少利益被侵害的可能性。事实上，已有研究表明，如果企业内部存在自由现金或超额现金时，如果不分配给股东，那么企业的内部人或管理层会倾向于寻求“控制权私利”（Easterbrook, 1984; Jensen, 1986; Fluck, 1998a, 1998b; Myers, 1998）。所以，通过减少企业内部对超额现金的持有量可以减少代理成本，从而维护企业内部所持现金的价值。然而，现金股利的发放是受到投资者保护环境制约的，对于投资者保护较发达的国家，其发放现金股利的比例比较多，而且具有一定的持续性；在投资者保护较弱的国家，现金股利的发放比例较少，而且缺乏持续性（La Porta *et al.*, 2000）。

我国属于弱投资者保护国家，目前的现金股利政策难以保持一定的连续性。发放现金股利往往带有政策性动机，如配股条件的限制等，甚至可能会成为大股东掏空上市公司的工具和渠道。企业内部持有超额现金时，发放现金股利尽管具有保持所持现金价值的一面，但股利发放时的税率 $i$ ，会使得单位现金

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<sup>4</sup> 这里有一个假定，由于超额持有的现金是满足正常投资后的那部分现金，所以，持有正常范围内的现金，未来项目的期望回报率会使得每1元的价值会大于1元，而超额部分的现金价值，缺乏投资项目的支持，所以这部分的价值每1元不会超过1元。

持有量的价值小于1，即权益市场对企业内部超额持有现金的定价不会超过 $1 \times (1 - i)$ 。

再次，企业可以把超额部分的现金分配给债权人。通过把超额部分现金偿还债务，可以减少企业的违反债务契约的风险，提高企业进一步进行债务融资的能力，从而容易吸引到更多的债权人投资，最终表现在增加现有债权人的利益。但是，把超额现金偿还给债权人，并不会受到权益市场的欢迎，即权益投资者不会给予这部分现金较高的定价，甚至会被低估（Faulkender and Wang, 2006）。

最后，企业可以把超额资金进行投资。在给定企业成长率和投资机会的条件下，由于超额现金是在满足正常的投资机会后的盈余资金，继续投资已经超过最优投资规模，即属于过度投资。过度投资不但难以为股东创造价值，甚至会损害现有资金的价值。如果企业不是把这部分资金用来进一步投资，那么内部人可以用超额部分的现金来改善办公条件或经理薪酬。然而，由于企业已经是最优投资规模，额外的薪酬补贴或进一步优越的办公条件，没有根据管理层的创造的价值量来制定，这损害了股东的价值，最终会被权益市场给予较高的折价。综上所述，本文预期企业超额持有现金会随着所持比例增加，而边际价值会递减。

我国是转型经济国家，缺乏完善的投资者保护和市场机制制度，内部和外部治理机制效率低下，委托代理问题比较严重。约束、监督和激励机制无法有效控制管理层的代理成本，尤其是当企业内部持有大量现金时，容易损害现金的边际价值。由于分散的股东存在“搭便车”心理致使分散的股东对管理层的监督成为一个难题（青木昌彦等，1995）。股权分散的企业，缺乏对管理层的有效约束，从而对现金持有的价值侵害更为严重。控股股东直接参与经营或者通过几个主要股东对管理层监管以替代不健全的外部监督机制，降低企业代理成本。股权集中使得股东利益和管理层利益趋于一致，对所持有现金的非理性投资和非生产性消费等行为得到有效纠正，从而随着现金持有量的增加，使得企业所持有现金的边际价值增加。

股权集中对企业的监督具有复杂的动机，一般分为两种效应，即协同效应（Alignment Effects）和壕沟效应（Entrenchment Effects）。在股权相对分散时，大股东侵占中小股东利益的动机随着持股比例的提高而增大，从而对中小股东的侵占程度也随之提高，产生壕沟效应（La Porta *et al.*, 1999）；但随着股权进一步集中，大股东在上市公司占的利益很大，通过对中小股东利益侵占所获得的比例降低，这时第一大股东的侵占行为就会减弱，形成协同效应。

另一方面，所有权性质在对企业监督，改善企业现金价值方面可能存在差异。已有大量文献研究了中央和地方政府对企业的干预行为，政府干预制约了企业的发展（李增泉等，2004；夏立军等，2005；陈冬华等，2005）。政府对企业直接干预直接导致国有企业管理层缺乏控制权激励，在缺乏现金流权的同

时还缺乏控制权激励。在缺乏有效的激励机制的前提下，管理层的代理问题和道德风险增加，企业经营效率低下，这也是国有产权普遍缺乏效率的一个原因。

随着政府分权化改革和国有企业改革的逐步完成，中央和地方政府对企业的干预出现了差异。就中央政府所属企业而言，由于中央国企本身受到了更为严格的监督（Xu, 2004），比如，来自审计署的审计等，因此中央国企中其经理的机会主义行为可能受到了更多的约束。由于中央国企管理层大多为政府官员，还受到党内纪检委的严格审查。同样是政府所属企业，中央国企管理层面临着更为严格的监督，而且其重大经营决策和投资项目选择等问题要经过上级主管部门的审批，这就减少了管理层的过度投资等非理性投资的可能，也约束了管理层的非生产性消费的空间。当企业内部持有大量现金时，更会引起上级和监管部门的重视，所以管理层针对现金资产谋取私人利益的机会减少，这有利于降低企业所持现金的代理成本。

分权化改革增大了地方政府的权力，但分权化改革决不是导致各行政区相互恶性竞争以至产生“诸侯经济”的根源，根本问题在于，分权模式尚未从行政分权向经济分权转变，地方政府权力没有从法律意义上加以限制，从而导致地方政府对企业的干预完全是出于狭隘的地方经济建设，而忽略了整个全国经济发展的大局（杨灿明，2000）。地方政府管辖内的国有企业成为地方政府获得政绩的筹码，出于对政绩和晋升的渴望，地方政府不可避免的会加强对行政区内的企业进行行政干预。正是分权化改革的不彻底性，使得地方政府的权力得到膨胀，过多的干预地方企业尤其是国有企业的经营活动，降低了对国有企业管理层的控制权激励。地方国企对其控制的上市公司所进行的监督可能更为松散（Xu, 2004；陈冬华，2002），其原因主要是，在分权化改革中，地方政府是中央政府的代理人，同时，地方政府也在一定程度上需要依赖地方国有企业的支持，因此更可能容忍地方国有企业管理层的机会主义行为。正是地方国有企业缺乏激励机制和有效的约束机制，使得管理层的代理成本和经营效率降低。这也是地方国企业绩要低于中央国企的原因所在（Xu, 2004；夏立军和方轶强，2005）。当企业内部持有大量现金时，管理层有动机且有条件通过过度投资谋取私利以补偿薪酬契约的不足（辛清泉等，2007）。鉴于管理层非理性投资机会和非生产性消费空间加大，企业内部所持现金的价值必然受到侵害。

对于非国有产权下的企业，股东对企业拥有企业的契约性控制权和剩余索取权。这必然会激励股东要么直接参与经营，要么会对管理层进行更加积极的监督。公司内部监督弥补了市场缺乏有效监督的不足，从而降低管理层的代理成本。出于股东利益最大化的考虑，即使企业内部持有大量现金，股东会寻求现金价值最大化的途径。

既然股权集中的监督效果如此复杂，那么股权集中对企业内部持有现金的边际价值影响如何？股权性质的不同是否会影响现金的边际价值？

### 三、研究设计

#### (一) 样本选择与数据来源

本文选取了1999年至2005年这7年所有在上海证券交易所和深圳交易所进行交易的A股公司，剔除了金融行业的上市公司。由于我们要计算现金持有量、净资产、盈利变化及利息变化的年度之间的变化值，所以，实际计算区间为1998年至2005年。一些当年IPO的公司被排除在研究样本外。此外，我们按照均值和5倍标准差对主要研究变量进行处理，超过均值±5倍标准差范围外的数据被剔除。经过我们按照上述标准剔除、合并数据后，得到最终计算样本为5564个观测值。本文所有财务数据来自CSMAR数据库和Wind金融数据库，股权集中度及股东详细资料数据均来自CCER色诺芬数据库。

#### (二) 模型设计

我们在设计模型时，主要参考了Dittmar and Mahrt-Smith (2007)、Faulkender and Wang (2006)及王彦超和林斌(2008)的模型。由于我国上市公司的研发费用等方面数据的可获得性及可靠性，我们在设计模型时，进行了适当的修改。本文所选模型如下：

$$V_{i,t} = \beta_0 + \beta_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_2 \frac{\Delta E_{i,t}}{M_{i,t-1}} + \beta_3 \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \beta_4 \frac{\Delta I_{i,t}}{M_{i,t-1}} + \beta_5 \frac{C_{i,t-1}}{M_{i,t-1}} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} \\ + \beta_6 OWNERSHIP_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_7 \frac{C_{i,t-1}}{M_{i,t-1}} + \beta_8 LEV_{i,t} + FIXED\_EFFECTS + \varepsilon_{i,t} \quad (1)$$

$V_{i,t}$ 是因变量，主要用来考察现金的价值效应。价值效应应该从一个较长期间来反映，在计算 $V_{i,t}$ 时，如果采用年度超额报酬率替代会存在很多问题。因为，这种方法假设所有公司的期望回报率都为市场报酬率，每家企业的报酬率超过市场回报率则视为超额收益，即假定企业的风险系数相等。事实上，每家企业的市场风险存在很大差异，当假定所有上市公司风险水平相等时，就会低估那些风险系数大于1的企业，高估那些风险系数低于1的企业，最终导致，超额回报率估计出现偏差。针对传统资本资产定价模型的缺陷，Fama and French (1993)构建了三因素模型，即通过企业规模和BM(账面价值与市场价值比值)划分投资组合，在计算企业收益时，控制企业规模和成长机会等因素。本文在衡量 $V_{i,t}$ 时采用Fama-French方法，同时在后文我们也提供了采用年度超额报酬率的计算结果。

$\Delta C_{i,t}$ 是第 $t$ 期的现金及其等价物平减第 $t-1$ 期的现金及其等价物的变化额； $\Delta E_{i,t}$ 是第 $t$ 期的净收益平减第 $t-1$ 期的净收益的变化额； $\Delta NA_{i,t}$ 是第 $t$ 期的净资产平减第 $t-1$ 期的净资产的变化额，其中净资产是扣除现金及其等价物后的净资产； $\Delta I_{i,t}$ 是第 $t$ 期的利息费用平减第 $t-1$ 期的利息费用后的变化额； $LEV_{i,t}$ 是第 $t$ 期的资

产负债率用来控制，资本结构对因变量 $V_{i,t}$ 的影响； $C_{i,t}$ 是第 $t$ 期的现金及其等价物； $FIXED\_EFFECTS_{i,t}$ 是分别控制了年度、地区、行业等变量； $OWNERSHIP_{i,t}$ 是我们在考察股权结构时分别代入不同测量指标的变量。

如模型(1)所示，我们对于一些绝对量统一除以 $M_{i,t-1}$ ， $M_{i,t-1}$ 是上一年度权益价值，等于收盘价×总股本，所选股票在4月30日为交易日的人民币收盘价（不复权）与截止当日公司总股数的乘积。这样主要是为了消除可能的异方差性，另一方面也有利于我们进一步对现金价值进行讨论。

如果单独的把 $\frac{\Delta C_{i,t}}{M_{i,t-1}}$ 加入模型，我们预期系数 $\beta_1$ 为正，毕竟企业现金的增加减少了抗风险能力，也说明由于得到了现金的支撑，企业的业绩更为可靠，市场给与的定价较高。单独把 $\frac{C_{i,t-1}}{M_{i,t-1}}$ 加入模型，我们预期系数 $\beta_7$ 也为正，高现金持有量的企业其价值也比较高，而且，预示着第 $t$ 期的投资项目能够得到资金保障，因此减少了投资不足的可能。但是，如果上一期现金存量已经比较丰富，而当期现金继续增加，那么，这会带来企业现金价值的减少。根据前述假设，我们预期 $\frac{C_{i,t-1}}{M_{i,t-1}} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ 的系数 $\beta_5$ 为负，表示上一期现金存量的较多时，而当期现金又不断增加时，现金的价值边际递减。这里假设上一期现金持有规模为最优持有量，则随着现金的增加，现金价值减少。

为了验证股权结构对现金价值的影响，我们设置了交叉项 $OWNERSHIP_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ ，我们预期当 $\Delta C_{i,t} > 0$ 时，系数 $\beta_6$ 为正。 $OWNERSHIP_{i,t}$ 我们采取Herfindahl指数衡量股权集中度：为了考察流通股股东对现金价值的影响，用CG1表示流通股前5大股东的股权集中度；CG2表示非流通前5大股东的股权集中度。

参照徐莉萍等（2006）的研究，根据所有权的实际行使主体，我们把上市公司大股东的股权性质分为三种类型，中央直属国有企业（SOECG）、地方所属国有企业（SOELG）和私有产权（PRIVATE）。<sup>5</sup>为了考察不同产权性质对现金价值的影响，我们在模型(1)的基础上，构建模型(2)如下：

<sup>5</sup> 参照徐莉萍等（2006）的研究，本文删除了由高校或金融机构控股的公司、全流通股公司以及无法识别控股股东的公司。需要指出的是，这里的国有资产管理机构都是地方所属的，目前还没有中央一级国有资产管理机构直接持有上市公司股份的现象。故我们把国有资产管理机构控制的企业计入地方所属国有企业（SOELG）类型。上述数据的获取系通过各年度公司年报手工收集整理而成。



$$\begin{aligned}
 V_{i,t} = & \beta_0 + \beta_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_2 \frac{\Delta E_{i,t}}{M_{i,t-1}} + \beta_3 \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \beta_4 \frac{\Delta I_{i,t}}{M_{i,t-1}} + \beta_5 \frac{C_{i,t-1}}{M_{i,t-1}} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} \\
 & + \beta_6 SOECG_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_7 SOELG_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_8 \frac{C_{i,t-1}}{M_{i,t-1}} + \beta_9 LEV_{i,t} \\
 & + FIXED\_EFFECTS + \varepsilon_{i,t}
 \end{aligned} \tag{2}$$

以私有产权控股的企业为基准点，如果  $SOECG_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$  的系数为正，说明相对私有产权控股的企业，中央直属国有企业（*SOECG*）增加现金持有量可以增加其现金价值。如果  $SOELG_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$  的系数为正，说明相对私有产权控制的企业，地方所属国有企业（*SOELG*）增加现金持有量可以增加其现金价值。

主要变量定义汇总如下：

**表1** 变量定义

$V_{i,t}$	第 <i>i</i> 个公司， <i>t</i> 年度的Fama-French方法计算的回报率。
$\Delta C_{i,t}$	第 <i>t</i> 期的现金及其等价物平减第 <i>t</i> -1期的现金及其等价物的变化额。
$M_{i,t-1}$	上一年度权益价值的比率。
$\Delta E_{i,t}$	第 <i>t</i> 期的净收益平减第 <i>t</i> -1期的净收益的变化额。
$\Delta NA_{i,t}$	第 <i>t</i> 期的净资产平减第 <i>t</i> -1期的净资产的变化额，其中净资产是扣除现金及其等价物后的净资产。
$\Delta I_{i,t}$	第 <i>t</i> 期的利息费用平减第 <i>t</i> -1期的利息费用后的变化额。
$LEV_{i,t}$	第 <i>t</i> 期的资产负债率。
$C_{i,t}$	第 <i>t</i> 期的现金及其等价物。
$OWNERSHIP_{i,t}$	股权结构变量。采取Herfindahl指数计算方法衡量股权集中度，分别代入 <i>CG1</i> 和 <i>CG2</i> 。
<i>CG1</i>	前5大流通股东持股比例的平方和。
<i>CG2</i>	前5大非流通股股东持股比例的平方和。
$SOECG_{i,t}$	中央直属国有企业。
$SOELG_{i,t}$	地方所属国有企业。
$FIXED\_EFFECTS_{i,t}$	地区虚拟变量； 行业虚拟变量，行业按证监会的分类标准（除制造业继续划分为小类外，其他行业以大类为准），共有20个行业虚拟量； 年度虚拟变量。

## 四、实证结果

### (一) 主要变量的描述性统计结果

表2是按照产权性质和地区差异分别对主要变量进行描述性统计的结果。此外，我们还对样本进行了细分，当 $\Delta C_{i,t} > 0$ 时，定义样本类别为1；类别all是所有样本。

A栏是按照产权性质把样本分为三类所作的描述性统计。就 $\Delta C_{i,t}$ 而言，中央直属企业、地方所属企业和民营企业差别不大。从全部样本（类别all）的均值来看，中央直属企业、地方所属企业和民营企业的 $\Delta C_{i,t}$ 的均值分别为0.0077、0.0063和0.005，而对应的全部样本的中位数则分别为0.0022、0.0025和0.0026。三类企业的均值普遍高于中位数，且我们已对主要变量 $\Delta C_{i,t}$ 进行了极值处理，说明 $\Delta C_{i,t}$ 属于右偏的正态分布。中央所属企业右偏更多，民营企业右偏最小。就上一期的现金存量 $C_{i,t-1}$ 来看，三类企业略有差别。从全部样本（类别all）的均值来看，中央直属企业、地方所属企业和民营企业 $C_{i,t-1}$ 的均值分别为0.118、0.1065和0.1078，而相应的全部样本的中位数则分别为0.0808、0.0753和0.0723。平均而言，中央直属企业的现金存量略多于地方所属企业和民营企业的现金存量。对于股权集中度指标，较其他两类企业，中央直属企业具有较高的股权集中度。如，A栏中中央直属、地方直属和民营企业全部样本（类别all）的CG2的均值（中位数）分别为0.2644（0.2645）、0.2586（0.2399）和0.1781（0.1338）；CG1的均值（中位数）分别为0.0069（0.0002）、0.0039（0.0001）和0.0024（0.0001）。

B栏是按照地区把样本分为三类所作的描述性统计。参照《中国市场化指数-各地区市场化相对进程报告》（樊纲、王小鲁，2007）提供的各地区（自治区、直辖市）市场化进程衡量市场发达程度。我们按照市场化程度指数把样本分为三类：地区1（市场化程度较低）、地区2（市场化程度一般）、地区3（市场化程度较高）。就 $\Delta C_{i,t}$ 而言，地区差异较大，从全部样本（类别all）的均值来看，地区2和地区1分别为0.0103、0.0013，地区2几乎是地区1的8倍，地区3的均值为0.0069也大于地区1的均值。从 $\Delta C_{i,t}$ 的均值和中位数来看，地区2多于地区1和地区3。就上一期的现金存量 $C_{i,t-1}$ 来看，从地区1到地区3均值（中位数）依次递增，分别为0.1029（0.0725）、0.1071（0.0729）和0.1165（0.0803）。就股权集中度来说，相比其他两个地区，地区3具有较低的股权集中度，地区3整体样本（类别all）CG2的均值（中位数）为0.2238（0.1794），对应的地区1和地区2的值分别为0.2392（0.2098）、0.2536（0.2287）。

表3中A栏和C栏分别是全样本主要变量的描述性统计和各分类标准下的子样本数。B栏报告了主要变量的Spearman相关系数。 $\Delta C_{i,t}$ 和 $\Delta E_{i,t}$ 都与 $V_{i,t}$ 显著正相关， $V_{i,t}$ 与 $C_{i,t-1}$ 的相关系数微弱相关。这表明当期盈余增加或者现金增加，市场对企业给予了积极评价，增加了企业的 $V_{i,t}$ 。 $\Delta C_{i,t}$ 和 $\Delta E_{i,t}$ 的相关系数显著表明盈余

表2 主要变量分类描述性统计

A: 按产权性质分类下的主要变量均值和中位数		$V_{it}$	$\Delta C_{it}$	$\Delta E_{it}$	$C_{it-1}$	CGI	CG2
类别	均值 (中位数)	均值 (中位数)	均值 (中位数)	均值 (中位数)	均值 (中位数)	均值 (中位数)	均值 (中位数)
中央	1	-0.016 (-0.105)	0.0482 (0.0231)	0.0033 (0.0019)	0.0987 (0.0637)	0.0076 (0.0002)	0.2643 (0.2550)
	all	-0.033 (-0.106)	0.0077 (0.0022)	-0.0001 (0.0013)	0.1180 (0.0808)	0.0069 (0.0002)	0.2644 (0.2645)
地方	1	-0.063 (-0.111)	0.0425 (0.0262)	0.0041 (0.0016)	0.0909 (0.0598)	0.0038 (0.0001)	0.2599 (0.2421)
	all	-0.066 (-0.116)	0.0063 (0.0025)	0.0008 (0.0009)	0.1065 (0.0753)	0.0039 (0.0001)	0.2586 (0.2399)
民营	1	-0.037 (-0.098)	0.0466 (0.0280)	0.0058 (0.0029)	0.0857 (0.0536)	0.0028 (0.0001)	0.1780 (0.1367)
	all	-0.068 (-0.119)	0.0050 (0.0026)	0.0009 (0.0015)	0.1078 (0.0723)	0.0024 (0.0001)	0.1781 (0.1338)

表2 续

B：按地区分类下的主要变量均值和中位数									
地区1	1	-0.059	0.0418	0.0045	0.0846	0.0034	0.2448		
	all	(-0.116)	(0.0265)	(0.0013)	(0.0516)	(0.0001)	(0.2164)		
		-0.071	0.0013	-0.0002	0.1029	0.0037	0.2392		
		(-0.128)	(0.0006)	(0.0001)	(0.0725)	(0.0001)	(0.2098)		
地区2	1	-0.053	0.0477	0.0036	0.0891	0.0042	0.2507		
	all	(-0.109)	(0.0269)	(0.0019)	(0.0565)	(0.0001)	(0.2258)		
		-0.066	0.0103	0.0009	0.1071	0.0039	0.2536		
		(-0.114)	(0.0046)	(0.0012)	(0.0729)	(0.0001)	(0.2287)		
地区3	1	-0.035	0.0437	0.0053	0.0986	0.0050	0.2228		
	all	(-0.094)	(0.0255)	(0.0028)	(0.0678)	(0.0002)	(0.1798)		
		-0.046	0.0069	0.0014	0.1165	0.0045	0.2238		
		(-0.102)	(0.0026)	(0.0018)	(0.0803)	(0.0001)	(0.1794)		

表3 主要变量描述性统计及相关系数

A栏：全样本主要变量均值和中位数											
变量	$V_{it}$	$\Delta C_{it}$	$\Delta E_{it}$	$C_{it-1}$	CGI	CG2	均值 (中位数)	均值 (中位数)	均值 (中位数)	均值 (中位数)	
类别	1	all	1	all	1	all	0.0445 (-0.107)	0.0044 (0.0019)	0.0909 (0.0586)	0.0042 (0.0001)	0.2395 (0.2131)
							0.0062 (-0.115)	0.0007 (0.0010)	0.1088 (0.0753)	0.0040 (0.0001)	0.2390 (0.2107)
B栏：全样本主要变量相关系数											
变量	$V_{it}$	$\Delta C_{it}$	$\Delta E_{it}$	$C_{it-1}$	CGI	CG2					
$V_{it}$	1										
$\Delta C_{it}$		1					0.137***				
$\Delta E_{it}$			1				0.359***	0.003			
$C_{it-1}$				1			0.121	-0.265***			
CGI					1		1	-0.033**			
CG2						1		1			
									1		
										1	
											1
C栏：样本观测值分布情况											
			all						正		
产权性质	中央		913						450		
	地方		3230						1754		
	民营		1409						767		
地区差异	地区1		1852						946		
	地区2		1877						1054		
	地区3		1835						999		
合计			5564						2999		

注：\*\*\*、\*\*、\*分别表示显著性水平0.001、0.01、0.10。

的增加，与现金持有量的增加存在一定的正相关关系。 $C_{i,t-1}$ 与 $\Delta E_{i,t}$ 和 $\Delta C_{i,t}$ 均显著负相关。说明上一期现金储备越多，下一期盈余增加程度减少，伴随着现金持有量增幅降低。整体来看，股权集中度指标与 $V_{i,t}$ 相关，这也符合我们的理论分析。表3中B栏显示，流通股股权集中度与非流通股股权集中度的Spearman相关系数不显著，说明整体的股权集中不一定意味着流通股的股权集中。

所以，在分析股权集中度对公司价值及现金的价值的的作用时，分别考察非流通股股权集中和流通股的股权集中的影响是有必要的。

## (二)回归结果

### 1、现金持有、股权集中与现金价值

由于1999年至2005年期间我国上市公司普遍存在股权分置现象，在考察股权集中度时，我们分别从流通股股权集中度和非流通股股权集中度两个角度考察。表4报告了模型(1)以流通股股权集中度为解释变量的回归结果。表4第1列全样本的回归结果显示，如果企业没有现金持有量，且流通股股权集中度为0，则每增加1元的现金持有量，其边际价值为0.429元。如果现金持有量和流通股股权集中度都选择平均值（参表3-A栏描述性统计数据），那么每增加1元的现金持有量，其边际价值约为0.361786（= 0.429 + (-0.707 \* 0.1088) + (2.427 \* 0.004)）。尽管流通股股权集中度的提高，能够增加单位现金持有量的边际价值，但不足以弥补由于过多现金储备造成的现金持有量边际价值减少额。

具体来看， $\Delta C_{i,t} \times C_{i,t-1} / M_{i,t-1}^2$ 的系数为-0.707且在0.001水平上显著，经济上说明，假定其他因素不变，现金持有量占公司市场价值的比例为5%的公司如果将这一比例增加到15%，那么其每增加1元现金的边际价值损失大概为0.0707元。也就是说，如果没有引入股东治理因素，现金持有量占企业市场价值的比例为5%的公司，现金持有量每增加1元，其市场价值为0.39365（= 0.429 + (-0.707 \* 5%）），如果现金持有量占企业市场价值的比例增加到15%，现金持有量每增加1元，其市场价值为0.32295（= 0.429 + (-0.707 \* 15%））。这与我们的假设一致，说明增加现金持有量降低了单位现金持有量的价值。

为了考察所有权结构对现金持有量价值的影响，表4第1列全样本的回归结果中交叉项 $\Delta C_{i,t} \times CGI / M_{i,t-1}$ 的系数为2.427且在0.05水平上显著。经济上说明，流通股股权集中度从4%增加到14%，每增加1元现金的边际价值升值大概为0.2427元。即，假定其他条件不变，流通股股权集中度为4%的公司，现金持有量每增加1元，其市场价值为0.52608（= 0.429 + (2.427 \* 4%）），而流通股股权集中度为14%的公司，现金持有量每增加1元，其市场价值为0.76878（= 0.429 + (2.427 \* 14%））。表4第2列是没有控制股权因素CGI本身对现金价值影响的回归结果，结果表明，流通股股权集中度从4%增加到14%，每增加1元现金的边际价值升值大概为0.3360元。由此可见，如果不控制股权因素CGI本身对现金价值的

表4 流通股股权集中度为解释变量 (Fama-French)

	all		$\Delta C_{it} > 0$	
Intercept	-0.087*** (<0.0001)	-0.073*** (0.000)	-0.084** (0.003)	-0.071* (0.012)
$\Delta C_{it}/M_{i,t-1}$	0.429*** (<0.0001)	0.414*** (<0.0001)	0.536*** (<0.0001)	0.467*** (<0.0001)
$\Delta E_{it}/M_{i,t-1}$	1.207*** (<0.0001)	1.222*** (<0.0001)	1.308*** (<0.0001)	1.313*** (<0.0001)
$\Delta NA_{it}/M_{i,t-1}$	0.132*** (<0.0001)	0.134*** (<0.0001)	0.139*** (<0.0001)	0.137*** (<0.0001)
$\Delta I_{it}/M_{i,t-1}$	0.009 (0.937)	0.008 (0.939)	-0.002 (0.991)	0.001 (0.997)
$\Delta C_{it} \times C_{i,t-1}/M_{i,t-1}^2$	-0.707*** (<0.0001)	-0.743*** (<0.0001)	-0.626** (0.009)	-0.847*** (0.000)
<i>CGI</i>	0.344*** (<0.0001)		0.337** (0.003)	
$CGI \times \Delta C_{it}/M_{i,t-1}$	2.427** (0.008)	3.360*** (0.000)	2.206* (0.073)	4.930*** (<0.0001)
$\Delta C_{it}/M_{i,t-1}$	-0.031 (0.468)	-0.029 (0.496)	-0.085 (0.234)	-0.065 (0.366)
$LEV_{it}$	-0.104*** (<0.0001)	-0.108*** (<0.0001)	-0.118*** (0.001)	-0.122*** (0.000)
<i>FIXED_EFFECTS</i>	yes	yes	yes	yes
<b>Adj R-Sq</b>	0.096	0.091	0.101	0.099
<b>F Value</b>	23.610***	23.290***	13.930***	14.080***
n	5564	5564	2999	2999

注：\*\*\*、\*\*、\*分别表示显著性水平0.001、0.01、0.10。

影响，则会高估*CGI*对现金价值的边际效果，高估额平均为0.0933 (= 0.3360 - 0.2427) 元。

我们研究的是现金持有量的代理和治理问题，对于当期减少现金持有量 ( $\Delta C_{it} < 0$ ) 的企业，这种增加现金持有量带来的问题可能不如当期增加现金持有量 ( $\Delta C_{it} > 0$ ) 的企业严重。为了增加研究的准确性和可靠性，我们下一步的主要研究对象为  $\Delta C_{it} > 0$  组。表4第3列的回归结果显示， $\Delta C_{it} \times C_{i,t-1}/M_{i,t-1}^2$  的系数为-0.626且在0.01水平上显著，该系数小于第1列对应的回归系数-0.707。 $\Delta C_{it} \times CGI/M_{i,t-1}$  的系数为2.206且在0.1水平上显著。

整体而言，表4的回归结果支持我们的研究假设，即过多持有现金导致单位现金价值降低，同时，从流通股角度来看，增加流通股的股权集中度有利于提高单位现金的价值。

表5报告了非流通股股权集中度对现金价值影响的回归结果。表5第1列的回归结果显示，如果企业没有现金持有量，且股权结构高度分散，则每增加1元的现金持有量，其边际价值为0.411元。交叉项 $\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$ 的系数为-0.524且在0.01水平上显著，经济上说明，假定其他因素不变，相比现金持有量占公司市场价值的比例为0%的公司，现金持有量占公司市场价值的比例为10%的公司，每增加1元现金持有量的边际价值损失大概为0.0524元。即，如果不考虑股权结

表5 非流通股股权集中度为解释变量（Fama-French）

	all		$\Delta C_{i,t} > 0$	
Intercept	-0.091*** (<0.0001)	-0.074*** (0.000)	-0.060* (0.048)	-0.062* (0.029)
$\Delta C_{i,t}/M_{i,t-1}$	0.411** (0.002)	0.382** (0.003)	0.196 (0.327)	0.213 (0.232)
$\Delta E_{i,t}/M_{i,t-1}$	1.219*** (<0.0001)	1.221*** (<0.0001)	1.335*** (<0.0001)	1.336*** (<0.0001)
$\Delta NA_{i,t}/M_{i,t-1}$	0.137*** (<0.0001)	0.138*** (<0.0001)	0.151*** (<0.0001)	0.151*** (<0.0001)
$\Delta I_{i,t}/M_{i,t-1}$	0.009 (0.932)	0.009 (0.932)	0.005 (0.976)	0.004 (0.980)
$\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$	-0.524** (0.002)	-0.518** (0.002)	-0.225 (0.317)	-0.233 (0.291)
CG2	0.083** (0.003)		-0.009 (0.842)	
CG2 × $\Delta C_{i,t}/M_{i,t-1}$	0.341 (0.379)	0.462 (0.230)	1.492* (0.012)	1.427** (0.004)
$\Delta C_{i,t}/M_{i,t-1}$	-0.014 (0.734)	-0.011 (0.803)	-0.098 (0.168)	-0.098 (0.170)
LEV <sub>i,t</sub>	-0.101*** (<0.0001)	-0.107*** (<0.0001)	-0.126*** (0.000)	-0.125*** (0.000)
FIXED_EFFECTS	yes	yes	yes	yes
Adj R-Sq	0.091	0.089	0.095	0.095
F Value	22.230***	22.740***	13.080***	13.610***
n	5564	5564	2999	2999

注：\*\*\*、\*\*、\*分别表示显著性水平0.001、0.01、0.10。



构因素，现金持有量占企业市场价值的比例为0%的公司，现金持有量每增加1元，其市场价值为0.411（ $= 0.411 + (-0.524 * 0\%)$ ），而现金持有量占企业市场价值的比例为10%的公司，现金持有量每增加1元，其市场价值为0.3586（ $= 0.411 + (-0.524 * 10\%)$ ）。这与表4第1列回归结果类似，支持我们的假设，说明增加现金持有量降低了单位现金持有量的价值。

表5第1列全样本的回归结果中交叉项 $\Delta C_{i,t} \times CG2/M_{i,t-1}$ 的系数为0.341，在0.05水平上未通过显著性检验。这与是否加入CG2的结果类似，如表5第2列的回归结果所示。就全样本的回归结果看，非流通股股权结构不如流通股股权结构对现金价值的影响显著。同样，我们也分别按照 $\Delta C_{i,t} > 0$ 和 $\Delta C_{i,t} < 0$ 把样本分为两组。表5第3列所示， $\Delta C_{i,t} > 0$ 组回归结果中， $\Delta C_{i,t} \times CG2/M_{i,t-1}$ 的系数为1.492，在0.05水平上显著。与表4对应的系数2.206相比，二者相差0.714。经济上说明，股权集中度增加10%，每增加1元现金的边际价值升值相差大概为0.0714元。

表4和表5的实证结果基本上支持我们的研究假设，但由于股权分置的存在使得流通股的股权集中和非流通股的股权集中在改善现金价值方面存在差异。

## 2、现金持有、股权性质与现金价值

除了股权集中度，股权性质也可能会影响现金价值。表6第1到第2列报告了模型(2)的回归结果。与表4、表5的结果类似， $\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$ 的系数为-0.657且非常显著，在 $\Delta C_{i,t} > 0$ 组的回归结果中，系数为-0.617且在0.01水平上显著。这与本文前面的分析类似，这里不作赘述。表6第1列中 $\Delta C_{i,t}$ 的系数为0.627，且在0.001水平上显著，经济上说明，假定企业现金持有量为0，其它条件相同，那么民营企业（PRIVATE）每增加现金持有量1元，现金的边际价值增加0.627元。交叉项 $\Delta C_{i,t} \times SOELG_{i,t}/M_{i,t-1}$ 的系数为-0.235且通过0.05显著水平检验。经济上说明，相对民营企业（PRIVATE），假设其它条件相同，每增加1元，地方所属企业（SOELG）的现金价值降低0.235元，即假定企业现金持有量为0，则每增加现金持有量1元，地方所属企业的现金边际价值为0.420元（ $= 0.627 + (-0.235)$ ）。

交叉项 $\Delta C_{i,t} \times SOECG_{i,t}/M_{i,t-1}$ 的系数为0.097（但没有通过显著性检验），表明没有发现民营企业（PRIVATE）与中央所属企业的边际现金价值存在显著差异。对于现金持有量占企业价值为10%的企业，如果是民营企业，每增加1元的现金持有量，其现金的边际价值为0.5613元（ $= 0.627 + (-0.657 * 10\%)$ ）；如果是地方所属企业，则为0.3263元（ $= 0.627 + (-0.657 * 10\%) + (-0.235)$ ）。

## 3、股权性质、股权集中与现金价值

由于股权性质和股权集中度都对现金价值存在影响，那么股权性质和股权集中对现金价值的交叉影响如何？在我国，不同产权性质的企业行为可能存在很大差异，不同产权性质的企业即使保持相同的股权集中度，其对现金价值的影响也可能不同。作为进一步分析，我们按照前文终极控股人的分类方法把上

表6 股权性质与流通股比例回归结果

	Fama-French		BHAR	
	all	$\Delta C_{i,t}$	all	$\Delta C_{i,t}$
<b>Intercept</b>	-0.074*** (0.000)	-0.068* (0.016)	0.121*** (<0.0001)	0.137*** (<0.0001)
$\Delta C_{i,t}/M_{i,t-1}$	0.627*** (<0.0001)	0.643*** (0.000)	0.852*** (<0.0001)	0.843*** (<0.0001)
$\Delta E_{i,t}/M_{i,t-1}$	1.221*** (<0.0001)	1.347*** (<0.0001)	1.430*** (<0.0001)	1.690*** (<0.0001)
$\Delta NA_{i,t}/M_{i,t-1}$	0.133*** (<0.0001)	0.134*** (<0.0001)	0.092*** (0.001)	0.071* (0.067)
$\Delta I_{i,t}/M_{i,t-1}$	0.008 (0.943)	-0.001 (0.995)	0.010 (0.938)	-0.001 (0.997)
$\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$	-0.657*** (0.000)	-0.617** (0.007)	-0.744*** (0.000)	-0.863*** (0.001)
$\Delta C_{i,t} \times SOECG_{i,t}/M_{i,t-1}$	0.097 (0.549)	0.284 (0.198)	-0.181 (0.328)	0.144 (0.573)
$\Delta C_{i,t} \times SOELG_{i,t}/M_{i,t-1}$	-0.235* (0.070)	-0.133 (0.466)	-0.432** (0.004)	-0.358* (0.089)
$C_{i,t-1}/M_{i,t-1}$	-0.014 (0.743)	-0.072 (0.316)	0.227*** (<0.0001)	0.201* (0.016)
$LEV_{i,t}$	-0.107*** (<0.0001)	-0.124*** (0.000)	-0.078** (0.004)	-0.081* (0.044)
<i>FIXED_EFFECTS</i>	yes	yes	yes	yes
<b>Adj R-Sq</b>	0.090	0.094	0.086	0.081
<b>F Value</b>	22.080***	12.930***	20.970***	11.180***
n	5564	2999	5564	2999

注：\*\*\*、\*\*、\*分别表示显著性水平0.001、0.01、0.10。

市公司分为三组：中央所属企业（SOECG）、地方所属企业（SOELG）和民营企业（PRIVATE）。回归结果详见表7。<sup>6</sup>

<sup>6</sup> 限于篇幅，我们没有列示流通股股权集中为解释变量 $\Delta C_{i,t} > 0$ 组、非流通股股权集中度为解释变量全样本和 $\Delta C_{i,t} > 0$ 的结果。省略的三张表的大致结果为：流通股股权集中为解释变量 $\Delta C_{i,t} > 0$ 组样本的回归结果与表7的结果基本类似；SOECG组中全样本回归结果显示，交叉项 $\Delta C_{i,t} \times CG2/M_{i,t-1}$ 的系数为2.024，且在0.05水平上显著，相应的系数在SOELG组和PRIVATE组的回归结果中均没有通过显著性检验，无论控制股权因素（CG2）与否，结果都类似。

表7 流通股股权集中为解释变量 (Fama-French)

	SOECG		SOELG		PRIVATE	
	all	all	all	all	all	all
Intercept	-0.052 (0.422)	-0.046 (0.477)	-0.119*** (<0.0001)	-0.102*** (0.000)	-0.048 (0.198)	-0.035 (0.339)
$\Delta C_{i,t}/M_{i,t-1}$	0.616** (0.003)	0.612** (0.003)	0.292* (0.025)	0.247* (0.058)	0.501* (0.011)	0.453* (0.022)
$\Delta E_{i,t}/M_{i,t-1}$	1.265*** (<0.0001)	1.277*** (<0.0001)	1.124*** (<0.0001)	1.134*** (<0.0001)	1.243*** (<0.0001)	1.260*** (<0.0001)
$\Delta NA_{i,t}/M_{i,t-1}$	0.065 (0.232)	0.065 (0.232)	0.196*** (<0.0001)	0.200*** (<0.0001)	0.095* (0.058)	0.094* (0.061)
$\Delta I_{i,t}/M_{i,t-1}$	-1.658 (0.347)	-1.748 (0.321)	0.025 (0.814)	0.026 (0.810)	-0.401 (0.783)	-0.345 (0.813)
$\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$	-0.443 (0.181)	-0.469 (0.157)	-0.635* (0.043)	-0.587* (0.062)	-0.740 (0.135)	-0.684 (0.168)
CGI	0.212 (0.157)		0.340*** (<0.0001)		0.385** (0.008)	
$CGI \times \Delta C_{i,t}/M_{i,t-1}$	-0.062 (0.979)	0.260 (0.911)	2.530* (0.044)	3.688** (0.003)	4.524* (0.046)	6.040** (0.006)
$\Delta C_{i,t}/M_{i,t-1}$	-0.024 (0.823)	-0.012 (0.908)	-0.038 (0.504)	-0.041 (0.471)	-0.031 (0.716)	-0.027 (0.749)
LEV <sub>i,t</sub>	-0.028 (0.688)	-0.025 (0.717)	-0.140*** (<0.0001)	-0.147*** (<0.0001)	-0.053 (0.225)	-0.055 (0.216)
FIXED_EFFECTS	yes	yes	yes	yes	yes	yes
Adj R-Sq	0.078	0.077	0.111	0.106	0.083	0.079
F Value	3.980***	4.060***	16.450***	16.370***	5.910***	5.840***
n	913	913	3230	3230	1409	1409

注：\*\*\*、\*\*、\*分别表示显著性水平0.001、0.01、0.10。

表7报告了流通股股权集中为解释变量的回归结果。SOECG组中全样本的回归结果显示，交叉项 $\Delta C_{i,t} \times CGI/M_{i,t-1}$ 的系数没有通过显著性检验。SOELG组的全样本回归结果中，无论控制股权因素CGI本身影响与否，其交叉项 $\Delta C_{i,t} \times CGI/M_{i,t-1}$ 的系数都在0.05水平上通过显著性检验。PRIVATE组中全样本的交叉项 $\Delta C_{i,t} \times CGI/M_{i,t-1}$ 的回归系数为4.524（控制CGI），且通过了显著性检验。流通股股权集中度在改善现金价值方面，地方所属企业相对中央所属企业存在比较优势，民营经济相对中央所属企业和地方所属企业更具优势。结合描述性统计

的结果显示（见表2），中央所属企业的非流通股股权集中度均值（中位数）为0.2644（0.2645），地方所属企业的非流通股股权集中度均值（中位数）为0.2586（0.2399），非流通股股权集中度相对较低的是民营经济，其均值（中位数）为0.1781（0.1338）。中央所属企业的股权大部分集中在非流通股中，导致集中的流通股的监督治理作用受到影响。而民营经济的非流通股没有像中央所属企业那么集中，所以，集中的流通股在一定程度上可以改善现金价值。政府干预也会影响到流通股的这种治理作用，对于中央所属企业，他们承担着国家、社会等责任，其股权不但不能充分分散，而且在经营决策方面面临着更多的国家政策和法律法规条例等的限制。中央所属企业体现的是国家战略发展需要，受到来自外部市场的约束较小。民营经济相对中央和地方所属企业，其面临的额外法律法规和条例的约束较小，在企业经营和觉得方面更能够体现市场行为。

通过比较上述结果，我们发现，无论哪种集中的股权结构，地方所属企业均表现出了不太敏感的一面，由于地方政府面临着复杂的动机，所以非流通的股权越集中不但不能改善现金价值，反而会造成市场对代理问题的担忧。股权集中度分为流通股股权集中和非流通股股权集中，不同的股权集中对上市公司的治理作用可能不同，而在不同控制权性质的企业中，不同的股权集中度又各有不同。具体而言，中央所属企业主要靠非流通的大股东来监督企业，而在地方所属和民营企业中，集中的流通股在监督企业方面有一定的作用。

### （三）稳健性检验

本文还选择超额回报率（ $BHAR_{i,t}$ ）为 $V_{i,t}$ 的替代变量作为补充检验。 $BHAR_{i,t}$ 有两种算法，市场调整与行业年度调整。本文选择市场调整法来计算 $BHAR_{i,t}$ 。此外，由于我国披露年报的时间主要集中在5月之前，为了尽可能及时、完整地吸收企业年报的信息，我们选择上年度4月30日到次年5月1日这个阶段的全年个股市场报酬率计算 $BHAR_{i,t}$ 。

$$BHAR_{i,t} = \left\{ \prod_{j=1}^{12} (R_{i,t,j} + 1) - 1 \right\} - \left\{ \prod_{j=1}^{12} (RM_{i,t,j} + 1) - 1 \right\}$$
，其中 $R_{i,t,j}$ 是第*i*个企业在*t*年*j*月的考虑现金股利再投资的个股市场报酬率， $RM_{i,t,j}$ 为第*i*个企业在*t*年*j*月对应的市场报酬率。估算结果见表8和表9，<sup>7</sup>这与Fama-French（1993）方法计算 $V_{i,t}$ 的回归结果相比，没有实质性区别。

<sup>7</sup> 限于篇幅，本文没有列示非流通股股权集中度为解释变量、不同产权性质下流通股股权集中度为解释变量 $\Delta C_{i,t} > 0$ 组、不同产权性质下流通股股权集中度为解释变量的全样本和 $\Delta C_{i,t} > 0$ 组回归结果。上述结果与Fama-French（1993）方法计算 $V_{i,t}$ 的回归结果相比，没有实质性区别。

表8 流通股股权集中度为解释变量 (BHAR)

	all		$\Delta C_{it} > 0$	
Intercept	0.114*** (<0.0001)	0.123*** (<0.0001)	0.132*** (<0.0001)	0.137*** (<0.0001)
$\Delta C_{it}/M_{i,t-1}$	0.537*** (<0.0001)	0.528*** (<0.0001)	0.574*** (<0.0001)	0.557*** (<0.0001)
$\Delta E_{it}/M_{i,t-1}$	1.425*** (<0.0001)	1.435*** (<0.0001)	1.660*** (<0.0001)	1.661*** (<0.0001)
$\Delta NA_{it}/M_{i,t-1}$	0.090*** (0.001)	0.090*** (0.001)	0.077* (0.045)	0.075* (0.051)
$\Delta I_{it}/M_{i,t-1}$	0.012 (0.927)	0.011 (0.932)	0.001 (0.994)	0.000 (0.998)
$\Delta C_{it} \times C_{i,t-1}/M_{i,t-1}^2$	-0.795*** (<0.0001)	-0.820*** (<0.0001)	-0.927*** (0.001)	-0.984*** (0.000)
CGI	0.211** (0.004)		0.089 (0.497)	
$CGI \times \Delta C_{it}/M_{i,t-1}$	1.596 (0.131)	2.185* (0.035)	2.895* (0.084)	3.616** (0.006)
$\Delta C_{it}/M_{i,t-1}$	0.213*** (<0.0001)	0.211*** (<0.0001)	0.196* (0.019)	0.196* (0.018)
LEV <sub>it</sub>	-0.076** (0.005)	-0.079** (0.003)	-0.078* (0.054)	-0.081* (0.045)
FIXED_EFFECTS	yes	yes	yes	yes
Adj R-Sq	0.086	0.085	0.082	0.082
F Value	21.130***	21.700***	11.250***	11.770***
n	5564	5564	2999	2999

注：\*\*\*、\*\*、\*分别表示显著性水平0.001、0.01、0.10。

#### (四) 本文局限性

企业的现金持有量既可能是以往事项引起的结果，也可能对未来事项产生影响。例如，企业现金相对上年减少，可能是因为当年的现金流入少、现金股利发放多，也可能是因为管理层滥用现金多、过度投资耗用现金多。这种相对上年的减少又可能导致以后年度公司的投资不足或管理层可滥用资金的减少。即，基于不同现金持有动机下的现金持有量变化及其对现金价值的影响需要进一步研究。

本文主要研究了现金持有量、股权结构、股权性质三者对企业价值的影响，但无论是企业的现金持有量还是股权结构都是内生的。企业现金持有量的

表9 流通股股权集中度为解释变量 (BHAR) (分股权性质)

	SOECG		SOELG		PRIVATE	
	all	all	all	all	all	all
Intercept	0.075 (0.280)	0.079 (0.259)	0.051* (0.089)	0.057* (0.055)	0.311*** (<0.0001)	0.326*** (<0.0001)
$\Delta C_{i,t}/M_{i,t-1}$	0.699** (0.002)	0.697** (0.002)	0.172 (0.222)	0.157 (0.264)	0.941*** (0.000)	0.883*** (0.001)
$\Delta E_{i,t}/M_{i,t-1}$	1.515*** (<0.0001)	1.522*** (<0.0001)	1.315*** (<0.0001)	1.319*** (<0.0001)	1.370*** (<0.0001)	1.391*** (<0.0001)
$\Delta NA_{i,t}/M_{i,t-1}$	0.028 (0.633)	0.028 (0.634)	0.147*** (<0.0001)	0.149*** (<0.0001)	0.146* (0.029)	0.145* (0.030)
$\Delta I_{i,t}/M_{i,t-1}$	-1.648 (0.383)	-1.697 (0.369)	0.056 (0.625)	0.056 (0.624)	-5.229*** (0.007)	-5.162** (0.008)
$\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$	-1.157*** (0.001)	-1.171*** (0.001)	-0.007 (0.984)	0.009 (0.978)	-1.430* (0.029)	-1.363* (0.038)
CGI	0.116 (0.471)		0.115 (0.204)		0.461* (0.016)	
$CGI \times \Delta C_{i,t}/M_{i,t-1}$	3.053 (0.223)	3.229 (0.195)	1.523 (0.263)	1.914 (0.149)	3.514 (0.241)	5.330* (0.067)
$\Delta C_{i,t}/M_{i,t-1}$	0.248* (0.033)	0.254* (0.028)	0.216*** (0.001)	0.215*** (0.001)	0.230* (0.040)	0.234* (0.037)
$LEV_{i,t}$	-0.026 (0.719)	-0.025 (0.735)	-0.106** (0.002)	-0.108*** (0.001)	-0.019 (0.747)	-0.020 (0.729)
FIXED_EFFECTS	yes	yes	yes	yes	yes	yes
Adj R-Sq	0.084	0.0841	0.087	0.0866	0.120	0.1172
F Value	4.200***	4.35***	12.790***	13.24***	8.400***	8.48***
n	913	913	3230	3230	1409	1409

注：\*\*\*、\*\*、\*分别表示显著性水平0.001、0.01、0.10。

影响因素可能包括公司规模、财务杠杆、投资机会、外部融资难易程度、公司治理结构、企业集团结构、企业性质、企业外部市场环境、企业政治关系等等，而这些因素很可能也是和企业价值相关的。在不考虑这些因素的情况下得出的结论会存在着内生性问题，可能会影响结果的可靠性。<sup>8</sup>

<sup>8</sup> 我们对内生性问题的相关探索。首先根据Opler *et al.* (1999) 和Faleye (2004) 等模型构造工具变量去估计 $\Delta C$ ；其次，围绕这个模型，通过加入内部市场等因素，或增加或减少该模型中的变量，得出来的估计值，带入模型，均很难得出理想结果。

## 五、结论

本文的实证结果表明, 现金持有量的增加会导致边际市场价值的降低, 这是由于代理问题导致的。集中的股权结构在一定程度上可以减少市场对这种代理问题的担忧, 从而可以提升现金持有量的边际市场价值, 集中的流通股在这方面更加明显。从股权性质上来看, 相对中央所属企业和民营企业, 地方政府所属企业增加现金持有量导致的边际市场价值贡献最低。平均来看, 每增加1元现金持有量, 现金的边际市场价值最高的是民营企业, 最低的是地方政府所属企业。我们还发现, 不同股权性质下的企业, 股权集中度在改善现金价值方面具有差异。具体来说, 集中的非流通股股权更能改善中央所属企业的现金价值; 集中的流通股股权在改善地方政府所属企业和民营企业的现金价值方面具有优势, 但在民营企业中, 这种优势更加明显。

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## CASH HOLDINGS, OWNERSHIP STRUCTURE, AND THE VALUE OF CASH HOLDINGS<sup>1</sup>

Yanchao Wang,<sup>2</sup> Bin Lin,<sup>3</sup> and Deming Yang<sup>4</sup>

### ABSTRACT

Based on the property right theory of firms, and in view of the special institutional settings in China, this paper analyses the interactive effects of cash holdings and ownership structure on cash value. Using the data on Chinese listed companies between 1999 and 2005, we investigate the governance effect of various shareholders when not all the shares of listed corporations are tradable. The results show that excess cash holdings lead to a decrease in cash value; ownership concentration mitigates the agency cost of cash, and thus improves cash value; the marginal value of cash is lowest for local government-owned firms when compared with other firms; the concentration of ownership in non-tradable shares has an effect on the marginal value of cash for central government-owned firms, while the concentration of ownership in tradable shares can improve the marginal value of cash for private firms.

*Key words:* Cash Holdings, Ownership Structure, Cash Value

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<sup>2</sup> PhD, School of Accountancy, Central University of Finance and Economics, Beijing.

<sup>3</sup> PhD, Professor, School of Business, Sun Yat-sen University, Guangzhou.

<sup>4</sup> PhD, South China University of Technology, Guangzhou.

## I. INTRODUCTION

How to determine the optimal level of cash holdings is one of the top 10 unresolved financial problems (Brealey and Myers, 1996). Cash holdings are considered important in financing because these reflect a company's comprehensive strategy and are closely related to both ownership structure and corporate governance. What effects do large holdings of cash and its equivalents have on firm value? Western scholars have two main opinions. First, managers maintain a large amount of cash reserves in the company only to satisfy their own interests. When large amounts of cash are accumulated in the firm, cash will be wasted by the managers; therefore, a company's holding excess cash leads to value destruction rather than value creation (Jensen, 1986; Harford, 1999). Second, because a company bears high financing costs when it raises funds on the external market, holding cash can increase the value of the company and is thus aligned with shareholders' interests (Faulkender and Wang, 2006). This paper aims to study the economic consequences of holding cash, that is, whether cash holdings will lead to a lower marginal value of cash, as well as whether the ownership structure can improve the marginal value of cash holdings.

With regard to policy on cash holdings, researchers have concentrated mostly on their determinant factors. The main conclusions are summarised as follows: (1) Firm size is correlated negatively with cash holdings. By using the natural logarithm of the book value of a firm to indicate ability to access the external market, research shows that the asset size of a company is significantly and negatively correlated with the company's level of cash holdings in the United States and the United Kingdom (Opler *et al.*, 1999; Ozkan *et al.*, 2004). (2) Investment opportunities and cash holdings are related positively. When a company has a large number of profitable investment opportunities, it will lose a very good investment opportunity if it is short of cash; that is to say, less cash holdings lead to higher opportunity costs. As a result, such a company will hold more internal cash (Ozkan *et al.*, 2004; Opler *et al.*, 1999). (3) Cash turnover rate and cash holdings are negatively correlated. A company keeps a relatively short period of cash flows; because normal cash liquidity lowers the probability of a cash shortage, such a company may accordingly hold less cash (Kim *et al.*, 1998). (4) The volatility of cash flows and cash holdings are correlated positively. If both the cash inflows and outflows of the company become more volatile, the company will have to hold more cash to deal with any uncertain cash demand in the future (Ozkan *et al.*, 2004; Opler *et al.*, 1999). (5) Corporate transparency and cash holdings are significantly and negatively correlated. Since information is asymmetrical, management may choose to give up a particular project because of huge external financing costs when the company is short of cash, even if the project has great profitability. Therefore, cash holdings can prevent such a situation and thus increase the value of the company—the more serious the information asymmetry is, the more cash companies will hold (Opler *et al.*, 1999).

However, the effect of cash holdings on the value of cash is seldom studied, except in some new literature, such as Dittmar and Mahrt-Smith (2007), Faulkender and

Wang (2006), and Lin and Wang (2008). As far as investor protection and corporate governance are concerned, these studies indicate that the latter can improve the value of cash holdings. Since the corporate governance environment is directly affected by the ownership structure, the most fundamental factor is the property rights arrangement of a firm. Hence, this paper analyses the value of cash holdings in terms of ownership structure.

Because legal protection is weak, ownership concentration can protect the interests of shareholders. In markets where investor protection is weak, the cost of external financing is higher; consequently, to reduce the cost of supervision, major shareholders need more equity to apply control, making the ownership structure more concentrated (Shleifer and Vishny, 1997; La Porta *et al.*, 1998). Ownership concentration can improve the corporate governance mechanism in transitional economies, and the major shareholders can help improve the value of a company (Xu and Wang, 1999; La Porta *et al.*, 1998; Shleifer and Vishny, 1986; Sun, 1999). Before 2005, because of the split-share structure system implemented in China, the governance effect of non-tradable shares may differ from that of tradable shares. Having incomplete property rights, non-tradable shares may be less efficient than tradable shares in terms of corporate governance. Since the nature of property rights is determined by the level of government control, the governance effects probably differ among state-owned shares (Liu *et al.*, 2003; Xia *et al.*, 2005). In China, the central government is more likely to play the role of a “helping hand”. As a shareholder, the central government can help reduce unnecessary legal disputes when the laws and regulations are imperfect, and can fully coordinate economic issues. Since the reform and decentralisation have not been fully implemented, the lack of laws restricting the authority of the local governments has resulted in their abuse of power, such as too much intervention in local economic development and man-made local market segmentation. In particular, they compete with one another for resources at all costs for the sake of local political achievements and economic development. Because local government intervention would reduce the efficiency of the enterprises they control, local governments are more likely to play the role of a “grabbing hand”.

Following Dittmar and Mahrt-Smith (2007), Faulkender and Wang (2006), and Lin and Wang (2008), we select firms listed on the Shanghai and Shenzhen stock exchanges during the 7 years between 1999 and 2005 and obtain 5564 observations for the study. The results show that holding too much cash leads to a lower marginal value of cash holdings; on average, the marginal value decreases by 0.0707 renminbi for every 1 renminbi increase in cash holdings. Meanwhile, ownership concentration can improve the marginal value of cash; our results still hold after distinguishing the type of concentration in terms of share tradability. When ownership concentration increases by 10 per cent, the marginal value of every 1 renminbi in cash holdings increases by 0.336 renminbi for tradable shares, and by 0.1492 renminbi for non-tradable shares; under the same conditions, the marginal value of every 1 renminbi in cash holdings is the lowest for local government-owned enterprises. Specifically, for companies where cash holdings account for 10 per cent of the enterprise

value, each additional 1 renminbi in cash holdings gives a marginal value of cash of 0.5613 renminbi if they are privately owned, and 0.3263 renminbi if they are local government owned. There is no significant difference in the marginal value of cash between central government-owned enterprises and private enterprises.

With further analyses, we find that the governance effect of non-tradable shares is significant in central government-owned enterprises, while the governance effect of tradable shares is significant in private enterprises.

This paper makes the following contributions: (1) We develop the research on shareholder governance from the perspective of distinguishing between non-tradable and tradable shares; (2) this study helps to investigate the relationship between ownership structure and firm value, by which we can understand more clearly the effect of the shareholding structure on firm value; (3) this study enriches both Chinese and Western literature on the value of cash holdings and ownership structure; (4) since research on the value of cash holdings is rare in China, this paper provides a reference; and (5) we analyse the marginal value of cash holdings according to property theory and enrich the literature on the theory of property rights.

The remaining parts of this paper are arranged as follows. Section II presents the theoretical background and analysis; Section III describes the research design; Section IV explains the empirical findings and analysis; and the final section concludes the paper.

## II. BACKGROUND AND THEORETICAL ANALYSIS

Excess cash means surplus that exceeds the normal requirements of investment and trading in a firm. With perfect symmetry of information, holding cash (even excess cash) has no opportunity or agency costs. A company's level of cash holdings will not bring any economic consequences. But in reality both opportunity and agency costs exist, and under financial constraints, a firm has an optimal level of cash holdings.

When internal cash holdings exceed normal demand, what is the marginal value of excess cash? We divide possible ways of disposing of excess cash into several types, and then analyse their respective effects on the marginal value.<sup>5</sup>

First, enterprises can retain excess cash internally to reduce the cost of financing in the future. But holding excess cash will increase the opportunity cost, which is not conducive to maximising shareholder wealth. More importantly, accumulating a large amount of unrestricted free cash in the firm will augment adverse selection and moral hazards. The increase in internal free cash will intensify conflict between

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<sup>5</sup> Herewith is an assumption that because excess cash exceeds the normal investment demand, the expected return rate of future projects will make the market value of 1 renminbi greater than the book value of 1 renminbi for the normal portion of cash holdings. As the value of excess cash lacks support from good investment projects, the market value of each 1 renminbi will not be more than the book value of 1 renminbi for the excess portion of cash holdings.

shareholders and management as well as between minority shareholders and major shareholders. The equity market will give a company with excess cash a higher discount; that is, the marginal market value of the company will be less than 1 renminbi with each additional 1 renminbi in cash holdings. If the discount rate is  $t$ , then the value of excess cash will be priced as  $1 \times (1 - t)$  renminbi. As the discount rate  $t$  is in direct proportion to the internal agency problem, the more serious the conflict is in the firm, the higher the discount rate  $t$  will be.

Second, part of the excess cash could be distributed to shareholders. To minimise the agency problem caused by accumulated cash, companies can choose to distribute some of the excess cash to the shareholders through cash dividends or stock repurchase. In reality, the cash dividend policy will not increase the wealth of shareholders, but at least it can mitigate benefit expropriation. In fact, if the cash is not distributed, management will be more inclined to seek “self-control” (Easterbrook, 1984; Jensen, 1986; Fluck, 1998a, 1998b; Myers, 1998). Therefore, agency costs can be reduced by distributing internal excess cash to protect firm value. However, the cash dividend policy depends on the investor protection environment, because for countries providing investors with strong protection, the ratio of cash dividend payment is usually higher, and continuity is often maintained in those payments; whereas, for countries providing investors with weak protection, the ratio of cash dividend payment is relatively low, and the payments lack continuity (La Porta *et al.*, 2000).

Investor protection is rather weak in China. It is difficult for cash dividend payments to maintain a certain degree of continuity. Cash dividends are often motivated by policies such as the restrictive conditions for rights offerings, and may even become the tool and channel for benefit expropriation by major shareholders. The distribution of excess cash by cash dividend payments can maintain the value of cash holdings, but the cash value of every dividend payment is less than the book value of 1 renminbi when the tax rate is  $i$ . Therefore, the price for excess cash holdings will not exceed  $1 \times (1 - i)$  in the equity market.

Third, firms can distribute the excess cash to creditors. By repaying debts, the firm can reduce the risk of breaching the debt contract, and thus improve its ability to finance debt so as to attract more investments from creditors, thereby increasing the benefit for existing creditors. But using excess cash to repay creditors will not be welcomed by the equity market; in other words, this portion of excess cash will not be given a higher price, but may even be underestimated (Faulkender and Wang, 2006).

Finally, firms can continue to invest by using excess cash. Given the business growth rate and investment opportunities, excess cash is surplus after taking normal investment opportunities; any further investment means that the optimal size of investment is exceeded, resulting in over-investment. Over-investment not only fails to create value for shareholders, but also damages the value of existing cash. If that part of excess cash is not used for further investment, insiders or management can use it to improve work conditions or managers' remuneration. But because the firm has reached the optimal size of investment, additional remuneration or improvement

of work conditions is not decided on the basis of value creation by management, and this undermines shareholder value, so the equity market will price the excess cash at a higher discount.

To sum up, we expect that the marginal value of excess cash will decrease as the proportion of excess cash holdings increases.

As a transitional economy, China lacks proper systems of investor protection and market mechanisms. In addition, with inefficient internal and external governance mechanisms, the principal-agent problem is more serious in China. The systems of constraint, supervision, and incentive cannot effectively reduce the agency costs; in particular, when large amounts of cash are held by the enterprise, the marginal value of the cash is easily damaged. Owing to “free-rider” motivation arising from the existence of dispersed shareholders, these shareholders fail to effectively oversee managers on account of the trade-off between input and output (Aoki, 1995). If the managers of a firm with dispersed equity are not constrained effectively, they could easily use excess cash abusively. The direct involvement of major shareholders in operations or management can replace the external supervisory mechanism to reduce agency costs. Aligning the interests of shareholders with those of managers controls irrational investment and non-productive consumption. Under these conditions, the marginal value of cash holdings will increase as cash holdings increase.

Concentrated ownership is like a double-edged sword regarding its supervisory effects, which are divided into two types: the alignment effect and the entrenchment effect. When shareholders are relatively dispersed, the risk of benefit expropriation is positively correlated with the proportion of shares held by the controlling shareholders. This is called the entrenchment effect (La Porta *et al.*, 1999). But with further concentration of ownership, major shareholders will possess most of the interests in the listed company, and the risk of benefit expropriation will be negatively correlated with the proportion of shares held by the controlling shareholders. This is called the alignment effect.

On the other hand, different shareholders usually have different effects on firm supervision and the value improvement of cash holdings. In China, many studies of government intervention in business show that both central and local government intervention has constrained the development of enterprises (Li *et al.*, 2004; Xia *et al.*, 2005; Chen *et al.*, 2005). The government directly intervenes in state-owned firms, resulting in management that lacks incentives for control and for cash flow rights. In the absence of an effective incentive mechanism, business efficiency fails to increase while agency problems and moral hazards become prevalent, which is one of the reasons that state-owned enterprises (SOEs) are generally inefficient.

With the development of decentralisation and SOE reform, intervention by the central and local governments has come in different forms. Central government-owned enterprises (central SOEs) are now more strictly monitored (Xu, 2004); for example, they are now audited by the state auditing administration, and managers may face more constraints on opportunistic behaviour. Since the managers of central SOEs are mostly government officials, they are also overseen by central

commissions for the disciplinary inspection of the CPC. These enterprises are constrained more stringently, and their major decision-makings and operations of investment projects and other issues must be examined and approved by higher authorities. In this way, over-investment and other irrational investment by managers can be reduced and non-productive consumption be limited. When these enterprises hold large amounts of cash, higher authorities will pay more attention to them; therefore, managers are less likely to seek private interests because agency costs are under control.

Although the decentralisation reform has increased the power of local governments, it is by no means the fundamental cause of the malicious competition between the various administrative regions, which has resulted in “enclave economies” within China. The fundamental reason is that the decentralisation of administrative power has failed to transform into the decentralisation of economic power. The power of local governments is not restricted at the legal level, leading to their intervention in regional economies out of consideration for local economic development, rather than out of overall consideration for national economic development (Yang, 2000). SOEs within the jurisdiction of local governments have become bargaining chips by which the local governments try to achieve political goals. To enhance performance and fulfil career aspirations, local governments will inevitably strengthen administrative intervention in enterprises within their regions. Hence, the incomplete decentralisation reform has led to the expansion of the power of local governments, which in turn has led to excessive intervention in local enterprises, especially SOEs. As a result, the SOEs lack incentives for control rights. SOEs controlled by the local government (local SOEs) may be under loose supervision (Xu, 2004; Chen, 2002) mainly because during the decentralisation reform, while the local government has been an agent of the central government, it has also to a certain extent had to rely on support from local SOEs; therefore, it is more likely to tolerate the opportunistic behaviour of local SOEs that lack an effective incentive and restraint mechanism. As a result, both agency costs and operational efficiency decrease. This is also why the performance of local SOEs is lower than that of central SOEs (Xu, 2004; Xia and Fang, 2005). When the enterprise holds a large amount of cash, managers are motivated to seek additional compensation through over-investment owing to inadequacies in remuneration contracts (Xin *et al.*, 2007). Because of the increase in irrational and non-productive investment opportunities for managers, the value of cash holdings diminishes.

For private enterprises, shareholders have the right of both contractual control and residual claim, which encourages them either to directly become involved in operations or to oversee managers more actively. Internal supervision can make up for the lack of effective market supervision so as to reduce agency costs. To maximise their interests, shareholders will seek to maximise the value of cash even if the enterprise holds a lot of cash.

Since the governance effect of ownership concentration is complex, what effect does ownership concentration have on the value of cash holdings? What effect do different types of shareholders have on the marginal value of cash?



### III. RESEARCH DESIGN

#### 3.1. Sample Selection

We select all A-share companies listed on the Shanghai Stock Exchange and Shenzhen Stock Exchange between 1999 and 2005, excluding the financial sector. Because we have to calculate the changes in cash holdings, net assets, profits, and interest for different years, the actual calculation range is from 1998 to 2005. We exclude some companies launching IPOs within the current year. After eliminating extreme values, we obtain the final 5564 sample observations. In this paper, all financial data are sourced from the CSMAR and Wind financial databases, and the data of shareholders from the CCER database.

#### 3.2. Model Design

We design the model mainly by reference to Dittmar and Mahrt-Smith (2007), Faulkender and Wang (2006), and Wang and Lin (2008). We design the basic model based on the availability and reliability of the research data as follows:

$$V_{i,t} = \beta_0 + \beta_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_2 \frac{\Delta E_{i,t}}{M_{i,t-1}} + \beta_3 \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \beta_4 \frac{\Delta I_{i,t}}{M_{i,t-1}} + \beta_5 \frac{C_{i,t-1}}{M_{i,t-1}} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} \\ + \beta_6 OWNERSHIP_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_7 \frac{C_{i,t-1}}{M_{i,t-1}} + \beta_8 LEV_{i,t} + FIXED\_EFFECTS_{i,t} + \varepsilon_{i,t} \quad (1)$$

The dependent variable  $V_{i,t}$  is used mainly to test the value of cash. Effects on value should be calculated based on a longer period of time, but although we could choose BHAR (the buy-and-hold abnormal return), quite a number of problems with it exist. This method assumes that all companies expect the same return rate to be the market return; excess return is defined as the difference between the market return and individual firm return, assuming that the risk factor is the same for all companies. In fact, market risks vary widely between firms; assuming that all listed companies have the same level of risk underestimates the risk of the firm whose risk is greater than the market average and overestimates that of the firm whose risk is less than the market average. This will eventually lead to a deviation of the estimated BHAR. In light of the defects of the traditional capital asset pricing model, Fama and French (1993) have built a three-factor model, by which firms are classified into different portfolios based on firm size and BM (the ratio of book value to market value). Returns are calculated after controlling for firm size and growth opportunities. We use the Fama-French approach to measure  $V_{i,t}$ , but also provide the results based on BHAR in later sections.

$\Delta C_{i,t}$  is the difference in cash and its equivalents between periods  $t$  and  $t - 1$ ;  $\Delta E_{i,t}$  is the change in net earnings between periods  $t$  and  $t - 1$ ;  $\Delta NA_{i,t}$  is the change in net assets between periods  $t$  and  $t - 1$ , where net assets are assets excluding cash and its equivalents;  $\Delta I_{i,t}$  is the change in interest between periods  $t$  and  $t - 1$ ;  $LEV_{i,t}$  is the ratio of assets to liability in period  $t$  to control for the effect of capital structure on  $V_{i,t}$ ;  $C_{i,t}$  is cash and its equivalents in period  $t$ ;  $FIXED\_EFFECTS_{i,t}$  is used to

control for other effects, such as variables of year, region, and industry; and  $OWNERSHIP_{i,t}$  indicates the shareholding structure under study.

As Model (1) shows, some variables are divided by  $M_{i,t-1}$ , which is the value of equity in year  $t - 1$  and equal to the closing price on 30 April multiplied by the total equity of the selected stock. This is to eliminate possible heteroscedasticity and to facilitate further discussion on the cash value.

If only  $\frac{\Delta C_{i,t}}{M_{i,t-1}}$  is added into the model, we expect  $\beta_1$  to be positive; the increase in corporate cash can help to resist risks, and because accrued income is supported by cash flows, the market gives a higher price. As for  $\frac{C_{i,t-1}}{M_{i,t-1}}$ , we also expect the coefficient  $\beta_1$  to be positive for the same reason. But if the company has already held plenty of cash, and the current cash holdings continue to increase, its cash value will decrease. According to the hypothesis described above, we expect the coefficient  $\beta_5$  to be negative, which means a decline in the marginal value of cash, based on the assumption that for the optimal size of cash holdings, the value of cash decreases gradually along with the increase in cash.

To verify the effect of ownership structure on the cash value, we set up a cross-term  $OWNERSHIP_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ , and expect that when  $\Delta C_{i,t} > 0$ , the coefficient  $\beta_6$  will be positive. We use the Herfindahl index to measure ownership concentration:  $CG1$  indicates the concentration of the top five holders of tradable shares;  $CG2$  indicates the concentration of the top five holders of non-tradable shares.

Following Xu (2006), we divide the major shareholders of listed companies into three types: the central SOEs ( $SOECG$ ), the local SOEs ( $SOELG$ ), and the private shareholders ( $PRIVATE$ ).<sup>6</sup> To study the effect of property nature on cash value, we construct Model (2) on the basis of Model (1) as follows:

$$\begin{aligned}
 V_{i,t} = & \beta_0 + \beta_1 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_2 \frac{\Delta E_{i,t}}{M_{i,t-1}} + \beta_3 \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \beta_4 \frac{\Delta I_{i,t}}{M_{i,t-1}} + \beta_5 \frac{C_{i,t-1}}{M_{i,t-1}} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} \\
 & + \beta_6 SOECG_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_7 SOELG_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \beta_8 \frac{C_{i,t-1}}{M_{i,t-1}} + \beta_9 LEV_{i,t} \\
 & + FIXED\_EFFECTS + \varepsilon_{i,t}
 \end{aligned} \tag{2}$$

<sup>6</sup> Following Xu (2006), we exclude firms in the financial industry, firms with full circulation of equity, and firms with unidentified controlling shareholders. The state-owned asset management organisations used herein are all owned by local governments because to date there are no state-owned asset management organisations directly owned at the central level. Therefore, we classify an enterprise controlled by the state-owned asset management organisation as a local SOE ( $SOELG$ ). The data are collected from annual reports by hand.

**Table 1** Definitions of Variables

$V_{i,t}$	The rate of return of company $i$ for year $t$ calculated by the Fama-French method.
$\Delta C_{i,t}$	The change in cash and its equivalents between years $t$ and $t - 1$ .
$M_{i,t-1}$	The market value of equity in year $t - 1$ .
$\Delta E_{i,t}$	The change in net earnings between years $t$ and $t - 1$ .
$\Delta NA_{i,t}$	The change in net assets between years $t$ and $t - 1$ .
$\Delta I_{i,t}$	The change in interest between years $t$ and $t - 1$ .
$LEV_{i,t}$	The asset-liability ratio in year $t$ .
$C_{i,t}$	Cash and its equivalents in year $t$ .
$OWNERSHIP_{i,t}$	Ownership structure variables.
$CG1$	The sum of the square of shareholding proportions of the top five holders of tradable shares.
$CG2$	The sum of the square of shareholding proportions of the top five holders of non-tradable shares.
$SOECG_{i,t}$	Central SOEs.
$SOELG_{i,t}$	Local SOEs.
$FIXED\_EFFECTS_{i,t}$	Respective control variables for region, industry, and year.

With private enterprises used as the benchmark, a positive coefficient of  $SOECG_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$  means that cash value improves in central SOEs (*SOECG*) when compared with private enterprises. Similarly, a positive coefficient of  $SOELG_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$  means that cash value increases with cash holdings in local SOEs (*SOELG*). Table 1 summarises the definitions of the main variables.

## IV. EMPIRICAL RESULTS

### 4.1. Descriptive Statistics of the Main Variables

Table 2 shows the descriptive statistics of the main variables for various regions and according to the nature of property rights. In addition, we divide the sample into sub-samples; when  $\Delta C_{i,t} > 0$ , the sub-sample is defined as Sample 1; Sample *all* is the total sample.

In Panel A, we further divide Sample *all* into three groups based on the nature of property rights, and provide descriptive statistics respectively for all three groups. Overall,  $\Delta C_{i,t}$  does not vary much between central SOEs, local SOEs, and private enterprises. For Sample *all*, the means of  $\Delta C_{i,t}$  for central SOEs, local SOEs, and private enterprises are 0.0077, 0.0063, and 0.005, respectively, while the corresponding medians are 0.0022, 0.0025, and 0.0026, respectively. The means of  $\Delta C_{i,t}$  are generally higher than the corresponding medians. Although we have dealt with the extreme values for the main variables,  $\Delta C_{i,t}$  still shows a right deviation of normal distribution. For  $C_{i,t-1}$ , there is a slight difference between the three types

**Table 2** Descriptive Statistics of the Main Variables (1)

		Panel A: Means (medians) of main variables according to nature of property rights											
		$V_{i,t}$		$\Delta C_{i,t}$		$\Delta E_{i,t}$		$C_{i,t-1}$		$CGI$		$CG2$	
Type		Mean	(median)	Mean	(median)	Mean	(median)	Mean	(median)	Mean	(median)	Mean	(median)
Central	1	-0.016		0.0482		0.0033		0.0987		0.0076		0.2643	
	<i>all</i>	(-0.105)		(0.0231)		(0.0019)		(0.0637)		(0.0002)		(0.2550)	
Local	1	-0.033		0.0077		-0.0001		0.1180		0.0069		0.2644	
	<i>all</i>	(-0.106)		(0.0022)		(0.0013)		(0.0808)		(0.0002)		(0.2645)	
Private	1	-0.063		0.0425		0.0041		0.0909		0.0038		0.2599	
	<i>all</i>	(-0.111)		(0.0262)		(0.0016)		(0.0598)		(0.0001)		(0.2421)	
Region 1	1	-0.066		0.0063		0.0008		0.1065		0.0039		0.2586	
	<i>all</i>	(-0.116)		(0.0025)		(0.0009)		(0.0753)		(0.0001)		(0.2399)	
Region 2	1	-0.037		0.0466		0.0058		0.0857		0.0028		0.1780	
	<i>all</i>	(-0.098)		(0.0280)		(0.0029)		(0.0536)		(0.0001)		(0.1367)	
Region 3	1	-0.068		0.0050		0.0009		0.1078		0.0024		0.1781	
	<i>all</i>	(-0.119)		(0.0026)		(0.0015)		(0.0723)		(0.0001)		(0.1338)	

  

		Panel B: Means (medians) of main variables according to regions											
		$V_{i,t}$		$\Delta C_{i,t}$		$\Delta E_{i,t}$		$C_{i,t-1}$		$CGI$		$CG2$	
Type		Mean	(median)	Mean	(median)	Mean	(median)	Mean	(median)	Mean	(median)	Mean	(median)
Region 1	1	-0.059		0.0418		0.0045		0.0846		0.0034		0.2448	
	<i>all</i>	(-0.116)		(0.0265)		(0.0013)		(0.0516)		(0.0001)		(0.2164)	
Region 2	1	-0.071		0.0013		-0.0002		0.1029		0.0037		0.2392	
	<i>all</i>	(-0.128)		(0.0006)		(0.0001)		(0.0725)		(0.0001)		(0.2098)	
Region 3	1	-0.053		0.0477		0.0036		0.0891		0.0042		0.2507	
	<i>all</i>	(-0.109)		(0.0269)		(0.0019)		(0.0565)		(0.0001)		(0.2258)	
Region 3	1	-0.066		0.0103		0.0009		0.1071		0.0039		0.2536	
	<i>all</i>	(-0.114)		(0.0046)		(0.0012)		(0.0729)		(0.0001)		(0.2287)	
Region 3	1	-0.035		0.0437		0.0053		0.0986		0.0050		0.2228	
	<i>all</i>	(-0.094)		(0.0255)		(0.0028)		(0.0678)		(0.0002)		(0.1798)	
Region 3	1	-0.046		0.0069		0.0014		0.1165		0.0045		0.2238	
	<i>all</i>	(-0.102)		(0.0026)		(0.0018)		(0.0803)		(0.0001)		(0.1794)	

of enterprises. For Sample *all*, the means of  $C_{i,t-1}$  for central SOEs, local SOEs, and private enterprises are 0.118, 0.1065, and 0.1078, respectively, while the corresponding medians are 0.0808, 0.0753, and 0.0723, respectively. On average, the  $C_{i,t-1}$  of central SOEs is higher than that of local SOEs and private enterprises. Compared with other types of enterprises, central SOEs have a high degree of ownership concentration. As Panel A shows, the means (medians) of  $CG2$  for central SOEs, local SOEs, and private enterprises (Sample *all*) are 0.2644 (0.2645), 0.2586 (0.2399), and 0.1781 (0.1338), respectively; the means (medians) of  $CG1$  are 0.0069 (0.0002), 0.0039 (0.0001), and 0.0024 (0.0001), respectively.

In Panel B, we divide Sample *all* into three groups based on regions and provide descriptive statistics respectively for the three groups. According to the China Marketisation Index prepared by Fan and Wang (2007), Sample *all* is divided into three categories: region 1 (a lower degree of marketisation), region 2 (a general degree of marketisation), and region 3 (a higher degree of marketisation). On the whole,  $\Delta C_{i,t}$  varies remarkably between regions. For Sample *all*, the means of  $\Delta C_{i,t}$  for regions 2 and 1 are 0.0103 and 0.0013, respectively; the former value is almost eight times the latter value. The mean (0.0069) for region 3 is higher than that for region 1. The mean and median of  $\Delta C_{i,t}$  for region 2 are the highest among the three regions. The means (medians) of  $C_{i,t-1}$  for regions 1 to 3 are 0.1029 (0.0725), 0.1071 (0.0729), and 0.1165 (0.0803), respectively, showing a gradual increasing trend. The degree of ownership concentration in region 3 is lower than that in the other two regions; for Sample *all*, the mean (median) of  $CG2$  is 0.2238 (0.1794) for region 3, while the means (medians) of  $CG2$  for regions 1 and 2 are 0.2392 (0.2098) and 0.2536 (0.2287), respectively.

Panels A and C of Table 3 respectively present the descriptive statistics of the main variables and sizes of the sub-samples under different classification criteria. Panel B reports the Spearman correlation coefficients of the main variables.  $\Delta C_{i,t}$  and  $\Delta E_{i,t}$  are significantly and positively correlated with  $V_{i,t}$ , but  $C_{i,t-1}$  and  $V_{i,t}$  are weakly correlated. This shows that a current-year increase in surplus or in cash improves firm value.  $\Delta E_{i,t}$  is positively correlated with  $\Delta C_{i,t}$ , which indicates a significant increase in earnings with an increase in cash holdings.  $C_{i,t-1}$  is negatively correlated with both  $\Delta E_{i,t}$  and  $\Delta C_{i,t}$ , indicating that more cash reserves in the previous year leads to a lower rate of increase in cash holdings in the following year. Overall, the indicators of ownership concentration are consistent with our theoretical analysis. Panel B of Table 3 shows that the correlation between the ownership concentration of tradable shares and that of non-tradable shares is insignificant, which indicates that the effects of tradable and non-tradable shares on the value of cash holdings may differ. Therefore, it is necessary that we analyse the effects of ownership concentration on cash value from the perspectives of both tradable and non-tradable shares.

**Table 3** Descriptive Statistics of the Main Variables (2)

Panel A: Means (medians) of main variables for Sample <i>all</i>						
Variables	$V_{i,t}$	$\Delta C_{i,t}$	$\Delta E_{i,t}$	$C_{i,t-1}$	$CG1$	$CG2$
Type	Mean (median)	Mean (median)	Mean (median)	Mean (median)	Mean (median)	Mean (median)
1	-0.049 (-0.107)	0.0445 (0.0262)	0.0044 (0.0019)	0.0909 (0.0586)	0.0042 (0.0001)	0.2395 (0.2131)
<i>all</i>	-0.061 (-0.115)	0.0062 (0.0025)	0.0007 (0.0010)	0.1088 (0.0753)	0.0040 (0.0001)	0.2390 (0.2107)

  

Panel B: Correlation between main variables for Sample <i>all</i>						
Variables	$V_{i,t}$	$\Delta C_{i,t}$	$\Delta E_{i,t}$	$C_{i,t-1}$	$CG1$	$CG2$
$V_{i,t}$	1	0.137***	0.359***	0.003	0.214***	0.061***
$\Delta C_{i,t}$		1	0.121	-0.265***	0.048***	-0.005
$\Delta E_{i,t}$			1	-0.033**	0.035**	0.023
$C_{i,t-1}$				1	-0.070***	-0.002
$CG1$					1	0.010
$CG2$						1

  

Panel C: Sizes of sub-samples based on different classifications			
		<i>all</i>	Sub-sample
Property rights	Central	913	450
	Local	3230	1754
	Private	1409	767
Different regions	Region 1	1852	946
	Region 2	1877	1054
	Region 3	1835	999
	Total	5564	2999

Note: \*\*\*, \*\*, and \* indicate significance at the 0.001, 0.01, and 0.10 levels, respectively.

## 4.2. Regression Results

### 4.2.1. Cash Holdings, Ownership Structure, and the Value of Cash Holdings

Since Chinese listed companies adopted the split share structure from 1999 to 2005, ownership concentration has been studied from the two perspectives of tradable and non-tradable shares. Table 4 reports the results based on Model (1), in which tradable shares is the explanatory variable for ownership concentration.

The results in the *all* column of Table 4 show that if companies do not hold cash, and the ownership concentration of tradable shares is 0, then the marginal value is 0.429 renminbi for every 1 renminbi of cash holdings. Assuming that the means of cash holdings and ownership concentration are taken (see Panel A in Table 3), then the marginal value is 0.361786 (= 0.429 + (-0.707 \* 0.1088) + (2.427 \* 0.004))

**Table 4** Results for Ownership Concentration of Tradable Shares (Fama-French)

	<i>all</i>		$\Delta C_{i,t} > 0$	
Intercept	-0.087*** (<.0001)	-0.073*** (0.000)	-0.084** (0.003)	-0.071* (0.012)
$\Delta C_{i,t}/M_{i,t-1}$	0.429*** (<.0001)	0.414*** (<.0001)	0.536*** (<.0001)	0.467*** (<.0001)
$\Delta E_{i,t}/M_{i,t-1}$	1.207*** (<.0001)	1.222*** (<.0001)	1.308*** (<.0001)	1.313*** (<.0001)
$\Delta NA_{i,t}/M_{i,t-1}$	0.132*** (<.0001)	0.134*** (<.0001)	0.139*** (<.0001)	0.137*** (<.0001)
$\Delta I_{i,t}/M_{i,t-1}$	0.009 (0.937)	0.008 (0.939)	-0.002 (0.991)	0.001 (0.997)
$\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$	-0.707*** (<.0001)	-0.743*** (<.0001)	-0.626** (0.009)	-0.847*** (0.000)
<i>CGI</i>	0.344*** (<.0001)		0.337** (0.003)	
$CGI \times \Delta C_{i,t}/M_{i,t-1}$	2.427** (0.008)	3.360*** (0.000)	2.206* (0.073)	4.930*** (<.0001)
$\Delta C_{i,t}/M_{i,t-1}$	-0.031 (0.468)	-0.029 (0.496)	-0.085 (0.234)	-0.065 (0.366)
$LEV_{i,t}$	-0.104*** (<.0001)	-0.108*** (<.0001)	-0.118*** (0.001)	-0.122*** (0.000)
<i>FIXED_EFFECTS</i>	yes	yes	yes	Yes
<b>Adj R-Sq</b>	0.096	0.091	0.101	0.099
<b>F Value</b>	23.610***	23.290***	13.930***	14.080***
<b>n</b>	5564	5564	2999	2999

Note: \*\*\*, \*\*, and \* indicate significance at the 0.001, 0.01, and 0.10 levels, respectively.

renminbi for each 1 renminbi of cash holdings. Although an increase in the concentration of tradable shares can improve the value of cash holdings, it is not enough to offset the decrease in marginal value resulting from excessive cash holdings.

Specifically, the coefficient of  $\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$  is  $-0.707$  and is significant at the 0.001 level. The economic implications are that if the ratio of cash holdings to the company's market value increases from 5 per cent to 15 per cent, other things being equal, the marginal value will decrease by 0.0707 renminbi for each 1 renminbi of cash holdings. In other words, if there is no factor of shareholder governance, and if the ratio of cash holdings to market value is 5 per cent, the market value of each 1 renminbi of cash holdings will be 0.39365 ( $= 0.429 + (-0.707 * 5\%)$ ) renminbi. If the ratio of cash holdings to market value is 15 per cent, the market value of each 1 renminbi of cash holdings will be 0.32295 ( $= 0.429 + (-0.707 * 15\%)$ ) renminbi. This is consistent with our hypothesis, that is, increased cash holdings reduce the market value of cash holdings.

To analyse the effect of ownership structure on the value of cash holdings, we introduce the coefficient of  $\Delta C_{i,t} \times CGI/M_{i,t-1}$  into the model; the regression results are shown in the *all* column of Table 4. The coefficient of  $\Delta C_{i,t} \times CGI/M_{i,t-1}$  is 2.427

and is significant at the 0.05 level. The economic implications are that when the degree of ownership concentration increases from 4 per cent to 14 per cent, the value of each 1 renminbi of cash increases by 0.2427 renminbi. In other words, assuming other conditions are unchanged, if the degree of ownership concentration is 4 per cent, the market value of each 1 renminbi of cash holdings will be 0.52608 ( $= 0.429 + (2.427 * 4\%)$ ) renminbi; for a firm whose degree of ownership concentration is 14 per cent, the market value of each 1 renminbi of cash holdings will be 0.76878 ( $= 0.429 + (2.427 * 14\%)$ ) renminbi. The results shown in the right column of Table 4 under *all* do not control for the effect of *CGI* on the value of cash holdings. The results show that when the concentration of tradable shares increases from 4 per cent to 14 per cent, the market value of each 1 renminbi of cash holdings is 0.3360 renminbi. This indicates that if we do not control for the effect of *CGI* on the value of cash, the effect of *CGI* on the improvement of cash value will be overestimated, and the amount overestimated will be 0.0933 ( $= 0.3360 - 0.2427$ ) renminbi.

For further investigation, we divide the total sample into two sub-samples: one defined by  $\Delta C_{i,t} < 0$ , and the other by  $\Delta C_{i,t} > 0$ . To increase the accuracy and reliability of the research, we also study the results for the sub-sample of  $\Delta C_{i,t} > 0$ . According to the regression results in Table 4 in the left column under  $\Delta C_{i,t} > 0$ , the coefficient of  $\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$  is  $-0.626$  and is significant at the 0.01 level, which is less than its corresponding regression coefficient ( $-0.707$ ) in the left column under *all*. The coefficient of  $\Delta C_{i,t} \times CGI/M_{i,t-1}$  is 2.206 and is significant at the 0.1 level.

On the whole, the results in Table 4 support our research hypothesis—holding excess cash leads to a lower value of cash holdings in the firm, while concentrated ownership of tradable shares can improve the value of cash holdings.

Table 5 shows the regression results for the effect of ownership concentration of non-tradable shares on the value of cash. The results in the left column under *all* indicate that if a company does not have any cash holdings, and its ownership structure maintains a high degree of decentralisation, then the marginal value of each 1 renminbi will be 0.411 renminbi. The coefficient of  $\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$  is  $-0.524$  and is significant at the 0.01 level. When the ratio of cash holdings to the company's market value increases from 0 to 10 per cent, other things being equal, the market value of each 1 renminbi of cash holdings will decrease by 0.0524 renminbi. In other words, if we do not consider the ownership structure, and if the ratio of cash holdings to firm value is 0 per cent, then the market value of each 1 renminbi of cash holdings will be 0.411 ( $= 0.411 + (-0.524 * 0\%)$ ) renminbi. When the ratio of cash holdings to firm value is 10 per cent, the market value of each 1 renminbi of cash holdings will be 0.3586 ( $= 0.411 + (-0.524 * 10\%)$ ) renminbi. The results are similar to those in the left column of Table 4 under *all*, and support our hypothesis that an increase in cash holdings reduces their market value.

The coefficient of  $\Delta C_{i,t} \times CG2/M_{i,t-1}$  in the left column under *all* in Table 5 is 0.341 and is significant at the 0.05 level. Whether or not *CG2* is introduced into the model, the regression results are similar, just as the right column shows. As far



**Table 5** Results for Ownership Concentration of Non-tradable Shares (Fama-French)

	<i>all</i>		$\Delta C_{i,t} > 0$	
Intercept	-0.091*** (<.0001)	-0.074*** (0.000)	-0.060* (0.048)	-0.062* (0.029)
$\Delta C_{i,t}/M_{i,t-1}$	0.411** (0.002)	0.382** (0.003)	0.196 (0.327)	0.213 (0.232)
$\Delta E_{i,t}/M_{i,t-1}$	1.219*** (<.0001)	1.221*** (<.0001)	1.335*** (<.0001)	1.336*** (<.0001)
$\Delta NA_{i,t}/M_{i,t-1}$	0.137*** (<.0001)	0.138*** (<.0001)	0.151*** (<.0001)	0.151*** (<.0001)
$\Delta I_{i,t}/M_{i,t-1}$	0.009 (0.932)	0.009 (0.932)	0.005 (0.976)	0.004 (0.980)
$\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$	-0.524** (0.002)	-0.518** (0.002)	-0.225 (0.317)	-0.233 (0.291)
<i>CG2</i>	0.083** (0.003)		-0.009 (0.842)	
<i>CG2</i> $\times$ $\Delta C_{i,t}/M_{i,t-1}$	0.341 (0.379)	0.462 (0.230)	1.492* (0.012)	1.427** (0.004)
$\Delta C_{i,t}/M_{i,t-1}$	-0.014 (0.734)	-0.011 (0.803)	-0.098 (0.168)	-0.098 (0.170)
<i>LEV</i> <sub><i>i,t</i></sub>	-0.101*** (<.0001)	-0.107*** (<.0001)	-0.126*** (0.000)	-0.125*** (0.000)
<i>FIXED_EFFECTS</i>	yes	yes	yes	Yes
<b>Adj R-Sq</b>	0.091	0.089	0.095	0.095
<b>F Value</b>	22.230***	22.740***	13.080***	13.610***
<b>n</b>	5564	5564	2999	2999

Note: \*\*\*, \*\*, and \* indicate significance at the 0.001, 0.01, and 0.10 levels, respectively.

as the total sample is concerned, the effect of non-tradable shares on cash value is less significant than that of tradable shares. Similarly, we divide the total sample into two groups based on whether  $\Delta C_{i,t}$  is greater than 0. The left column under  $\Delta C_{i,t} > 0$  in Table 5 shows that the coefficient of  $\Delta C_{i,t} \times CG2/M_{i,t-1}$  is 1.492 and is significant at the 0.05 level. Compared with the corresponding coefficient (2.206) in Table 4, the difference between the two is 0.714. The economic implications are that if the degree of ownership concentration of tradable shares increases by 10 per cent, the market value of each 1 renminbi of cash holdings will be 0.0714 renminbi more than that for non-tradable shares.

The empirical results in Tables 4 and 5 basically support our hypothesis, but the effects of non-tradable shares and tradable shares on the market value of cash holdings continue to differ.

#### 4.2.2. Cash Holdings, the Nature of Equity, and the Value of Cash Holdings

In addition to the concentration of ownership, the nature of equity may also affect the value of cash. The columns under Fama-French in Table 6 report the regression

**Table 6** Regression Results for Nature of Equity: Fama-French vs. BHAR

	Fama-French		BHAR	
	<i>all</i>	$\Delta C_{i,t}$	<i>all</i>	$\Delta C_{i,t}$
<b>Intercept</b>	-0.074*** (0.000)	-0.068* (0.016)	0.121*** (<.0001)	0.137*** (<.0001)
$\Delta C_{i,t}/M_{i,t-1}$	0.627*** (<.0001)	0.643*** (0.000)	0.852*** (<.0001)	0.843*** (<.0001)
$\Delta E_{i,t}/M_{i,t-1}$	1.221*** (<.0001)	1.347*** (<.0001)	1.430*** (<.0001)	1.690*** (<.0001)
$\Delta NA_{i,t}/M_{i,t-1}$	0.133*** (<.0001)	0.134*** (<.0001)	0.092*** (0.001)	0.071* (0.067)
$\Delta I_{i,t}/M_{i,t-1}$	0.008 (0.943)	-0.001 (0.995)	0.010 (0.938)	-0.001 (0.997)
$\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$	-0.657*** (0.000)	-0.617** (0.007)	-0.744*** (0.000)	-0.863*** (0.001)
$\Delta C_{i,t} \times SOECG_{i,t}/M_{i,t-1}$	0.097 (0.549)	0.284 (0.198)	-0.181 (0.328)	0.144 (0.573)
$\Delta C_{i,t} \times SOELG_{i,t}/M_{i,t-1}$	-0.235* (0.070)	-0.133 (0.466)	-0.432** (0.004)	-0.358* (0.089)
$C_{i,t-1}/M_{i,t-1}$	-0.014 (0.743)	-0.072 (0.316)	0.227*** (<.0001)	0.201* (0.016)
$LEV_{i,t}$	-0.107*** (<.0001)	-0.124*** (0.000)	-0.078** (0.004)	-0.081* (0.044)
<i>FIXED_EFFECTS</i>	yes	yes	yes	Yes
<b>Adj R-Sq</b>	0.090	0.094	0.086	0.081
<b>F Value</b>	22.080***	12.930***	20.970***	11.180***
<b>n</b>	5564	2999	5564	2999

Note: \*\*\*, \*\*, and \* indicate significance at the 0.001, 0.01, and 0.10 levels, respectively.

results of Model (2). Similar to the results in Tables 4 and 5, the coefficient of  $\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$  is  $-0.657$  and is significant at the normal level. For the sub-sample of  $\Delta C_{i,t} > 0$ , the corresponding coefficient is  $-0.617$  and is significant at the 0.01 level, which is similar to the analysis described above. As Table 6 shows, the coefficient of  $\Delta C_{i,t}$  is  $0.627$  and is significant at the 0.001 level. The economic implications are that when the ratio of cash holdings to firm value is assumed to be 0, other things being equal, the market value of each 1 renminbi of cash holdings is  $0.627$  renminbi for private enterprises. The coefficient of the cross-term  $\Delta C_{i,t} \times SOELG_{i,t}/M_{i,t-1}$  is  $-0.235$  and is significant at the 0.05 level. The economic implications are that when compared with private enterprises, other things being equal, the market value of each 1 renminbi in local SOEs decreases by  $0.235$  renminbi. In other words, if the ratio of cash holdings to firm value is assumed to be 0, the market value of each 1 renminbi of cash holdings will be  $0.420 (= 0.627 + (-0.235))$  renminbi for local SOEs.

The coefficient of the cross-term  $\Delta C_{i,t} \times SOECG_{i,t}/M_{i,t-1}$  is 0.097, but it fails to pass the significance test at the normal level, indicating there is no significant difference in the market value of cash holdings between private enterprises and central SOEs. On the whole, if cash holdings are assumed to account for 10 per cent of firm value, the market value of each 1 renminbi of cash holdings will be 0.5613 ( $= 0.627 + (-0.657 * 10\%)$ ) renminbi for private enterprises, and 0.3263 ( $= 0.627 + (-0.657 * 10\%) + (-0.235)$ ) renminbi for local SOEs.

#### 4.2.3. Nature of Equity, Ownership Concentration, and Value of Cash Holdings

As both the nature of equity and ownership concentration have an impact on the market value of cash holdings, it would be interesting to know the interactive effects of ownership concentration and the nature of equity on the value of cash. In China, even if the ownership concentration is similar among enterprises, its effect on the value of cash may differ because of differences in the nature of equity. For further analyses, we divide all listed companies into three groups in accordance with the classification of ultimate controllers explained in the previous section: central SOEs (*SOECG*), local SOEs (*SOELG*), and private enterprises (*PRIVATE*). Table 7 presents the results.<sup>7</sup>

Table 7 reports the regression results for the concentration of tradable shares as the explanatory variable. The results for the *SOECG* group (the total sample) show that the coefficient of the cross-term  $\Delta C_{i,t} \times CGI/M_{i,t-1}$  fails to pass the significance test at the normal level. For the group of *SOELG* (the total sample), whether or not *CGI* is controlled for, the coefficients of the cross-term  $\Delta C_{i,t} \times CGI/M_{i,t-1}$  all pass the significance test at the 0.05 level. For the group of *PRIVATE* (the total sample), the corresponding cross-term regression coefficient is 4.524 (controlled for *CGI*) and passes the significance test at the normal level. As far as the concentration of tradable shares is concerned, its effect on the improvement of the value of cash holdings is better in private firms than in local SOEs and central SOEs. As indicated together with the descriptive statistics in Table 2, the mean (median) concentration of non-tradable shares is 0.2644 (0.2645) in central SOEs, 0.2586 (0.2399) in local SOEs, and 0.1781 (0.1338) in private enterprises. Since the equity of central SOEs is mostly composed of non-tradable shares, the governance role of tradable shares may be affected. In contrast, the percentage of non-tradable shares in private enterprises is lower than that in central SOEs, and this can, to a certain extent, improve

<sup>7</sup> For simplicity, the following results are not presented: the results for concentration of tradable shares as the explanatory variable (the  $\Delta C_{i,t} > 0$  sub-sample), and the results for concentration of non-tradable shares as the explanatory variable (the total sample and  $\Delta C_{i,t} > 0$  sub-sample). Major findings are that the former results are similar to the results in Table 7; the coefficient of the cross-term  $\Delta C_{i,t} \times CG2/M_{i,t-1}$  is 2.024 and is significant at the 0.05 level for the group of *SOECG* (the total sample); but the corresponding coefficients for the groups of *SOELG* and *PRIVATE* fail to pass the significance test, whether or not *CG2* is controlled for.

Table 7 Results for Tradable Shares under Differences in the Nature of Equity: Fama-French

	SOECG		SOELG		PRIVATE	
	all	all	all	all	all	all
Intercept	-0.052 (0.422)	-0.046 (0.477)	-0.119*** (<.0001)	-0.102*** (0.000)	-0.048 (0.198)	-0.035 (0.339)
$\Delta C_{i,t}/M_{i,t-1}$	0.616*** (0.003)	0.612** (0.003)	0.292* (0.025)	0.247* (0.058)	0.501* (0.011)	0.453* (0.022)
$\Delta E_{i,t}/M_{i,t-1}$	1.265*** (<.0001)	1.277*** (<.0001)	1.124*** (<.0001)	1.134*** (<.0001)	1.243*** (<.0001)	1.260*** (<.0001)
$\Delta NA_{i,t}/M_{i,t-1}$	0.065 (0.232)	0.065 (0.232)	0.196*** (<.0001)	0.200*** (<.0001)	0.095* (0.058)	0.094* (0.061)
$\Delta I_{i,t}/M_{i,t-1}$	-1.658 (0.347)	-1.748 (0.321)	0.025 (0.814)	0.026 (0.810)	-0.401 (0.783)	-0.345 (0.813)
$\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$	-0.443 (0.181)	-0.469 (0.157)	-0.635* (0.043)	-0.587* (0.062)	-0.740 (0.135)	-0.684 (0.168)
CGI	0.212 (0.157)		0.340*** (<.0001)		0.385** (0.008)	
$CGI \times \Delta C_{i,t}/M_{i,t-1}$	-0.062 (0.979)	0.260 (0.911)	2.530* (0.044)	3.688** (0.003)	4.524* (0.046)	6.040** (0.006)
$\Delta C_{i,t}/M_{i,t-1}$	-0.024 (0.823)	-0.012 (0.908)	-0.038 (0.504)	-0.041 (0.471)	-0.031 (0.716)	-0.027 (0.749)
LEV <sub>i,t</sub>	-0.028 (0.688)	-0.025 (0.717)	-0.140*** (<.0001)	-0.147*** (<.0001)	-0.053 (0.225)	-0.055 (0.216)
FIXED_EFFECTS	yes	yes	yes	yes	yes	yes
Adj R-Sq	0.078	0.077	0.111	0.106	0.083	0.079
F Value	3.980***	4.060***	16.450***	16.370***	5.910***	5.840***
n	913	913	3230	3230	1409	1409

Note: \*\*\*, \*\*, and \* indicate significance at the 0.001, 0.01, and 0.10 levels, respectively.

the value of cash. Moreover, government intervention will affect the governance role of shareholders in central SOEs. These SOEs have national and social responsibilities such that their equity structure cannot be fully dispersed, and their managers are more constrained by national policies, laws, and regulations. The operations of central SOEs reflect strategic national development, while the business of private enterprises reflects market behaviour.

By analysing the above results, we find that the value of cash is less sensitive to the ownership structure for local SOEs regardless of the type of ownership concentration; this may indicate that the market is concerned about local government intervention in firms. When ownership concentration is classified into concentration in tradable shares and in non-tradable shares, its effects on cash value differ depending on the nature of equity and the type of ultimate controllers. In particular, central SOEs rely mainly on holders of non-tradable shares to monitor the firm, while in local SOEs and private enterprises, concentration of tradable shares has some effect on overseeing the firm.

### 4.3. Robustness Test

We use  $BHAR_{i,t}$  as the proxy variable of  $V_{i,t}$  to conduct the robustness test.  $BHAR_{i,t}$  has two algorithms: industry-adjusted by year and market-adjusted. We choose the market-adjusted method to calculate  $BHAR_{i,t}$ . In addition, since the disclosure of corporate annual reports in China focuses on data before May every year, we choose the period from 30 April to 1 May of the following year as the period for return calculation so as to timely and completely include the information in corporate annual reports. The calculation formula is as follows:

$$BHAR_{i,t} = \left\{ \prod_{j=1}^{12} (R_{i,t,j} + 1) - 1 \right\} - \left\{ \prod_{j=1}^{12} (RM_{i,t,j} + 1) - 1 \right\},$$

where  $R_{i,t,j}$  is the stock market return for firm  $i$  in month  $j$  of year  $t$  with cash dividends re-invested, and  $RM_{i,t,j}$  is the stock market return for firm  $i$  in month  $j$  of year  $t$ . Tables 8 and 9 present the results,<sup>8</sup> which are similar to the results based on the Fama-French (1993) method.

### 4.4. Limitations and Discussions

Cash holdings may be the result of past issues and may also have an impact on future issues. For example, a decline in cash holdings in the previous year may result from a decrease in cash inflows or excessive payment of cash dividends, and from the abuse or over-investment of managers in the current year. These factors

<sup>8</sup> For simplicity, some results are not presented: the results for concentration of non-tradable shares as the explanatory variable, the results for concentration of tradable shares as the explanatory variable under differences in the nature of equity (the  $\Delta C_{i,t} > 0$  sub-sample), and the results for concentration of non-tradable shares as the explanatory variable under differences in the nature of equity (the total sample and  $\Delta C_{i,t} > 0$  sub-sample). There is no significant difference between these results and the results based on Fama-French (1993).

**Table 8** Results for Tradable Shares: BHAR

	<i>all</i>		$\Delta C_{i,t} > 0$	
Intercept	0.114*** (<.0001)	0.123*** (<.0001)	0.132*** (<.0001)	0.137*** (<.0001)
$\Delta C_{i,t}/M_{i,t-1}$	0.537*** (<.0001)	0.528*** (<.0001)	0.574*** (<.0001)	0.557*** (<.0001)
$\Delta E_{i,t}/M_{i,t-1}$	1.425*** (<.0001)	1.435*** (<.0001)	1.660*** (<.0001)	1.661*** (<.0001)
$\Delta NA_{i,t}/M_{i,t-1}$	0.090*** (0.001)	0.090*** (0.001)	0.077* (0.045)	0.075* (0.051)
$\Delta I_{i,t}/M_{i,t-1}$	0.012 (0.927)	0.011 (0.932)	0.001 (0.994)	0.000 (0.998)
$\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$	-0.795*** (<.0001)	-0.820*** (<.0001)	-0.927*** (0.001)	-0.984*** (0.000)
<i>CGI</i>	0.211** (0.004)		0.089 (0.497)	
<i>CGI</i> $\times$ $\Delta C_{i,t}/M_{i,t-1}$	1.596 (0.131)	2.185* (0.035)	2.895* (0.084)	3.616** (0.006)
$\Delta C_{i,t}/M_{i,t-1}$	0.213*** (<.0001)	0.211*** (<.0001)	0.196* (0.019)	0.196* (0.018)
<i>LEV</i> <sub><i>i,t</i></sub>	-0.076** (0.005)	-0.079** (0.003)	-0.078* (0.054)	-0.081* (0.045)
<i>FIXED_EFFECTS</i>	yes	yes	yes	Yes
<b>Adj R-Sq</b>	0.086	0.085	0.082	0.082
<b>F Value</b>	21.130***	21.700***	11.250***	11.770***
<b>n</b>	5564	5564	2999	2999

Note: \*\*\*, \*\*, and \* indicate significance at the 0.001, 0.01, and 0.10 levels, respectively.

may have complex effects on firm value; therefore, these issues need further study.

Owing to data unavailability, we cannot verify the following alternative hypothesis: in the presence of ownership concentration, the ratio of cash flow rights to control rights may be higher, and thus major shareholders' motivation for expropriation may be weakened, leading to an increase in the value of cash. In any event, this hypothesis does not contradict the conclusion of this paper within the framework of investor protection and corporate governance. This paper provides a preliminary conclusion on the effects of ownership concentration on cash value. Further research may focus on the conditions under which the mechanism of ownership concentration works.

Although this paper studies the effect of cash holdings, equity structure, and the nature of equity on the value of cash holdings, there are some endogenous problems. For example, cash holdings could be affected by firm size, investment opportunities, external financing, governance structure, the nature of the enterprise, external market environment, or business and political relations. These factors may also be related

**Table 9** Results for Tradable Shares under Differences in the Nature of Equity: BHAR

	SOECG		SOELG		PRIVATE	
	<i>all</i>	<i>all</i>	<i>all</i>	<i>all</i>	<i>all</i>	<i>all</i>
Intercept	0.075 (0.280)	0.079 (0.259)	0.051* (0.089)	0.057* (0.055)	0.311*** (<.0001)	0.326*** (<.0001)
$\Delta C_{i,t}/M_{i,t-1}$	0.699** (0.002)	0.697** (0.002)	0.172 (0.222)	0.157 (0.264)	0.941*** (0.000)	0.883*** (0.001)
$\Delta E_{i,t}/M_{i,t-1}$	1.515*** (<.0001)	1.522*** (<.0001)	1.315*** (<.0001)	1.319*** (<.0001)	1.370*** (<.0001)	1.391*** (<.0001)
$\Delta NA_{i,t}/M_{i,t-1}$	0.028 (0.633)	0.028 (0.634)	0.147*** (<.0001)	0.149*** (<.0001)	0.146* (0.029)	0.145* (0.030)
$\Delta I_{i,t}/M_{i,t-1}$	-1.648 (0.383)	-1.697 (0.369)	0.056 (0.625)	0.056 (0.624)	-5.229*** (0.007)	-5.162** (0.008)
$\Delta C_{i,t} \times C_{i,t-1}/M_{i,t-1}^2$	-1.157*** (0.001)	-1.171*** (0.001)	-0.007 (0.984)	0.009 (0.978)	-1.430* (0.029)	-1.363* (0.038)
CGI	0.116 (0.471)	0.115 (0.471)	0.115 (0.204)	0.115 (0.204)	0.461* (0.016)	0.461* (0.016)
$CGI \times \Delta C_{i,t}/M_{i,t-1}$	3.053 (0.223)	3.229 (0.195)	1.523 (0.263)	1.914 (0.149)	3.514 (0.241)	5.330* (0.067)
$\Delta C_{i,t}/M_{i,t-1}$	0.248* (0.033)	0.254* (0.028)	0.216*** (0.001)	0.215*** (0.001)	0.230* (0.040)	0.234* (0.037)
LEV <sub>i,t</sub>	-0.026 (0.719)	-0.025 (0.735)	-0.106** (0.002)	-0.108*** (0.001)	-0.019 (0.747)	-0.020 (0.729)
FIXED_EFFECTS	yes	yes	yes	Yes	yes	yes
Adj R-Sq	0.084	0.0841	0.087	0.0866	0.120	0.1172
F Value	4.200***	4.35***	12.790***	13.24***	8.400***	8.48***
n	913	913	3230	3230	1409	1409

Note: \*\*\*, \*\*, and \* indicate significance at the 0.001, 0.01, and 0.10 levels, respectively.

to firm value. Not considering these factors may affect the reliability of the paper's results.<sup>9</sup>

## V. CONCLUSIONS

The empirical results show that an increase in cash holdings leads to lower market value. Concentrated ownership can, to a certain extent, reduce agency costs, thereby raising the value of cash holdings, especially when ownership is concentrated in tradable shares. From the perspective of the nature of equity, the market value of each 1 renminbi of cash holdings is the lowest in local SOEs when compared with central SOEs and private enterprises. On average, for each 1 renminbi of cash holdings, their marginal value is highest in private enterprises and lowest in local SOEs. We also find that with differences in the nature of equity, the effect of ownership concentration on improving cash value differs between enterprises. The concentration of non-tradable shares can better improve the market value of cash holdings in central SOEs, whereas the concentration of tradable shares has a better effect on enhancing the market value of cash holdings in both private enterprises and local SOEs.

## REFERENCES

Please refer to pp. 23–25.

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<sup>9</sup> As for the endogenous problems, we have made a wide exploration of these. First, following the research of Opler *et al.* (1999) and Faleye (2004), we constructed a series of instrumental variables to estimate  $\Delta C$ . Second, we introduced some other factors in China into this model of cash holdings, such as related transactions and regions. However, we still failed to achieve ideal results.