

## 机构投资者传递信息角色分析<sup>1</sup>

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### 摘要

本文探讨了机构投资者持股能否增加股票价格的信息含量。研究发现，机构投资者入主的上市公司，其当期股票价格和未来一年盈利水平显著正相关，意味着股价能够反映更多的未来信息。进一步研究发现，机构投资者的这种信息优势主要集中在公司的个体信息，而不是行业信息层面。本研究系统地展示了机构投资者加速市场信息流动的作用，对当前关于中国机构投资者角色的讨论具有较强的借鉴意义。

关键词：机构投资者、股价信息含量、信息传递

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## 一、引言

为寻求中国资本市场的长远发展，证券监管当局于1997至1998年前后提出了“超常规发展机构投资者”的思路。在此后短短几年的时间里，我国机构投资者发展迅速，初步形成了以证券投资基金为主，保险资金、合格境外机构投资者(QFII)、社保基金、企业年金等其他机构投资者相结合的多元化发展格局。与此同时，机构投资者在中国股票市场上的角色问题也备受各方关注。其中的焦点问题之一，就是机构投资者是否加速了资本市场上的信息流动，一些观点认为机构投资者所拥有的信息优势能够增加股票价格的信息含量；而另一些则认为中国市场机制的不健全可能导致机构投资者为了追求超额利润进行不正当交易，从而影响了其信息传播功能的正常发挥。本文试图对这一问题进行探讨。

机构投资者之所以能够加速资本市场的信息流动，一个非常重要的原因在于，相对于普通中小投资者，机构投资者有很多优势，有利于他们更及时准确地获得并预测上市公司的相关信息。第一，机构投资者拥有大量专业人士对上市公司进行全面系统地研究。这些专业人士受过系统职业训练，研究分析能力强，并且集中精力于一个或几个行业的研究。所以相对于一般中小投资者而言，他们能够对公开信息进行更精确细致的研究。第二，机构投资者持有上市公司的股份较多，有更多的机会与上市公司管理层进行交流。因此，除了更及时地获得公开信息，机构投资者也能从管理层那里获得一些中小投资者不能得到的非公开信息。第三，机构投资者规模较大，资金雄厚。他们会利用这些资源从更多的渠道获得更多的相关信息。比如，机构投资者会大量购买历史数据(万德、巨灵)，并对其进行系统分析。另外，他们也能够更及时地从投资银行等研究机构获得分析师报告。基于上述信息优势，机构投资者能够更有效地进行价值分析，加速市场上的信息流动，降低投资风险。

但是，我国股票市场还处在发展的初期阶段，市场监管机制并不健全。在这样的市场环境中，机构投资队伍还能否履行信息传播的职能呢？首先，机构投资者是逐利机构，他们可以利用资金优势操纵股价，导致股价暴涨暴跌，然后利用散户跟

风心理，从中渔利。其次，由于职业声誉和机构激励机制等因素的影响，机构投资者进行投资时可能存在“羊群效应”行为，即忽视个体信息，而盲目从众。机构投资者的这些行为往往与信息导航、稳定市场的职责背道而驰。

在本文中，我们选用上市公司前十大股东中的基金公司和证券公司作为机构投资者，据以探讨机构投资者的信息优势，评价他们能否更及时准确地获悉上市公司的未来经营状况并根据此信息进行投资。本文用价格先导(Price Leading)，即股价反映未来信息的程度来衡量这种优势。如果相对于其他中小投资者，机构投资者具有信息优势，并且利用这些信息进行理性交易，那么机构投资者就能加速股票市场信息流动，其持股公司的股价就能更快地反映公司的未来盈利状况。这种价格先导的现象应该越强。

我们以2000到2006年A股市场非金融类上市公司数据为依据，探讨了机构投资者持股对上市公司价格先导效果的影响。经验研究结果表明，机构投资者入主（亦即，进入前十大股东名录）的上市公司，其当期股票价格和未来一年的盈利水平更相关。这说明，机构投资者相对于其他中小投资者而言，确实有信息优势，并且利用这些信息进行股票交易。把公司的盈利信息分为行业整体信息和公司个体信息后，我们发现机构投资者的这种信息优势主要体现在公司个体信息层面。

机构投资者是我国资本市场上一股重要的力量，是金融体系的重要组成部分。国内现有的研究主要从财务业绩、收益波动率、盈余质量和关联交易等角度来探讨机构投资者的作用。比如，肖星和王琨(2005)，胡大春和金赛男(2007)，李刚和张海燕(2007)，王琨和肖星(2005)等。但目前为止，笔者没有发现关于机构投资者是否增加股票信息含量的研究。本文的研究具有较强的现实意义，尤其是近期A股市场大幅波动，机构投资者被指操纵股价，制造泡沫。<sup>4</sup> 本研究系统地展示了机构投资者加速市场信息流动的作用。虽然本文不能排除机构投资者的某些非理性行为，但是总体来看，发展机构投资者对改善股票市场的信息环境是具有积极意义的。

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<sup>4</sup> 自2007年9月份开始，新基金的发行被暂停两个多月。

本文后续内容的结构安排如下：第二节为文献回顾与理论分析；而具体的模型构建在第三节；第四节介绍样本选取及描述性统计；第五节为实证分析；第六节为稳健性检验；最后一部分是全文的总结。

## 二、文献回顾与理论分析

美国学者曾对机构投资者的信息优势做过大量研究。Lev (1988)指出，机构投资者拥有比个人投资者更多的资源，因此他们能够获得更多有价值的信息。Walther (1997)发现，相对于简单的随机预测模型，机构投资者更倾向于利用分析师的盈利预测信息。Bartov *et al.* (2000)的研究得出类似的结论，他们发现，机构投资者持股比例较高的公司股价的非正常现象(Anomalies)显著低于机构投资少的公司。El-Gazzar (1998)发现机构投资者持有上市公司的股份越多，该公司盈余公告日股票市场的反应越小。这说明机构投资者拥有财务报告之外的其它信息来源，或者他们在盈余公告日前已经获得了相关信息。近期的研究也有类似的发现，Jiambalvo *et al.* (2002) 提出机构投资者可以利用非盈余信息（比如年底未发货定单等）来预测公司未来利润，从而加大当前股价对未来盈余的反映水平。Ayers and Freeman (2003)研究发现，股票分析师跟踪较多和机构投资者持股较高的公司，其股票价格信息含量更高。Ali *et al.* (2004)检验了机构投资者对上市公司持有头寸的变化和该公司未来一个季度盈余公告日的超额收益。他们发现二者有很显著的正相关关系。另外，Ke and Petroni (2004) 发现机构投资者能够有效预测连续的利润增长何时结束，并在此之前减少持仓量。这些结果表明，美国的机构投资者确实能够更加准确地预测公司未来盈利能力，并利用这一信息进行股票交易。总之，现有研究基本都证实了美国的机构投资者拥有更广阔的信息来源，能够更及时准确地预测公司的未来盈利状况，并且能够利用该信息优势进行股票交易。

我国的股市尚不够成熟，机构投资者的发展刚刚起步。机构投资者是否有信息优势，以及是否能够理性地利用信息进行交易都是问题。一些机构投资者对上市公司的重点投资和股价拔高，可能并不是出于对其投资价值的认可，而是为了从二级

市场的炒作中牟利。由于机构投资者拥有大量的资金，他们可以通过对倒、抬抬股价，或者与上市公司联手炒作来操纵股价。

如果机构投资者能够及时准确地预测公司未来盈利能力，并据此进行交易，我们应该观测到机构投资者入主公司的股票价格能够包含更多的关于公司未来盈利状况的信息。相反，如果机构投资者纯粹为了短期利益，人为地抬高或打压股价，公司的股票价格则不能够反映公司未来盈利状况。综合以上分析，我们提出如下假设：

**假设1：机构投资者入主的上市公司，其股票价格更能够反映公司未来盈利状况。**

上市公司的盈利信息可以分为行业(板块)整体信息和公司个体信息。机构投资者的信息优势在这两个信息层面都有可能体现。机构投资者可以凭借雄厚资金及专业人员等优势多方位获得上市公司的行业及个体信息。所以，我们也把总的盈利信息分为两类，并提出如下假设：

**假设2：机构投资者入主的上市公司，其股票价格更能够反映公司未来行业盈利状况及公司个体盈利状况。**

### 三、研究模型构建

本文用股价反映未来盈余的程度来代表其信息含量，并藉此研究机构投资者在股票市场中的角色，即其能否利用相对于其他中小投资者的信息优势进行交易。参考Ayers and Freeman (2003)的方法，本文用如下模型(1)来检验机构投资者的信息优势：

$$\begin{aligned}
 CAR_{i,t} = & \alpha_0 + \sum_{\tau=1}^1 [\lambda_{\tau} \Delta E_{i,t+\tau}] + \alpha_1 IO_{i,t} + \sum_{\tau=1}^1 [\beta_{\tau} IO_{i,t} \Delta E_{i,t+\tau}] + \alpha_3 SZ_{i,t} \\
 & + \sum_{\tau=1}^1 [\theta_{\tau} SZ_{i,t} \Delta E_{i,t+\tau}] + FIXED + \varepsilon_{i,t}
 \end{aligned} \quad (1)$$

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其中，

$CAR_{i,t}$  是截止于12月31日的一个年度的累计超额收益率，是持有期回报率与同期市场指数收益率的差异。<sup>5</sup> 持有期回报率是在考虑现金红利再投资的情况下，持有该股票获得的回报率。在上海证券交易所上市的公司，以上证A股指数作为市场指数，深圳证券交易所上市的公司，则以深证A股指数作为市场指数；

$\Delta E_{i,t}$  是第 $t$ 年的会计盈余变化，计算为第 $t$ 年的税后净利润减去第 $t-1$ 年的税后净利润，再除以第 $t-1$ 年末的流通股市值；<sup>6</sup>

$IO_{i,t}$  是机构投资者持股哑变量，前十大股东中存在机构投资者时取值为1，否则为0；

$SZ_{i,t}$  是公司规模变量，取值为 $SZ\_DM_{i,t}$ 与 $IO_{i,t}$ 回归的残差。亦即，将 $SZ\_DM_{i,t}$ 作为因变量， $IO_{i,t}$ 作为自变量，该回归的残差就是每家公司的 $SZ_{i,t}$ 。其中， $SZ\_DM_{i,t}$ 是公司规模哑变量，计算方式如下：将同一行业内全部公司的 $t-1$ 年末的流通股市值从高到低分成10组，位于最高(最低)3组的公司，其 $SZ\_DM_{i,t}$ 取值为1(-1)，其它组别的公司， $SZ\_DM_{i,t}$ 取值为0；

$FIXED$  是年度控制哑变量。

公式(1)中未来盈余变化(脚注为 $t+1$ )和当期盈余变化(脚注为 $t$ )的系数估计值，就可以解释相关的假设。未来盈余变化的系数( $\lambda_{t+1}$ )代表第 $t$ 年公司的股价对 $t+1$ 年盈余变化的预测情况。如果股价预测信息的能力随着机构投资者的加入而增加，交叉项目 $IO_{i,t} \times \Delta E_{i,t+1}$ 的系数( $\beta_{t+1}$ )应该显著为正。模型中当期盈余变化的引入，主要是控制盈余本身的信息含量。而上一期盈余变化的引入，主要是控制盈余信息公布后的价格漂移(post-earnings-announcement drift)。

<sup>5</sup> 我们也选取了截止于4月30日的一个年度的累计超额收益率，计算结果相同。

<sup>6</sup> 根据匿名评审的建议，本文除了用流通股市值作为分母外，我们也采用了资产总额作为分母。结果与本文结论一致，详见本文第六部分稳健性检验。

因为同行业公司的股价波动趋势和盈余特性可能会有一些类似之处，所以机构投资者对股价信息含量的增强或者衰减作用可能是针对行业板块而不是公司个体。这种情况下，有必要区分行业总体信息和调整行业水平后的公司个体信息。本文用如下的模型(2)来判断机构投资者关注的到底是哪一类信息：

$$\begin{aligned}
 CAR_{i,t} = & \alpha_0 + \sum_{\tau=1}^1 [\lambda_{\tau} (\Delta E_{i,t+\tau} - \Delta IAE_{i,t+\tau})] + \sum_{\tau=1}^1 [\delta_{\tau} \Delta IAE_{i,t+\tau}] + \alpha_1 IQ_{i,t} \\
 & + \sum_{\tau=1}^1 [\beta_{\tau} IO_{i,t} (\Delta E_{i,t+\tau} - \Delta IAE_{i,t+\tau})] + \sum_{\tau=1}^1 [\gamma_{\tau} IO_{i,t} \Delta IAE_{i,t+\tau}] + \alpha_3 SZ_{i,t} \\
 & + \sum_{\tau=1}^1 [\theta_{\tau} SZ_{i,t} (\Delta E_{i,t+\tau} - \Delta IAE_{i,t+\tau})] + \sum_{\tau=1}^1 [\varphi_{\tau} SZ_{i,t} \Delta IAE_{i,t+\tau}] + FIXED + \varepsilon_{i,t}
 \end{aligned} \quad (2)$$

其中， $\Delta IAE_{i,t}$  是第  $t$  年的  $i$  公司所属行业会计盈余变化的平均值。<sup>7</sup> 公司盈余变化与行业平均值的差额  $(\Delta E_{i,t+1} - \Delta IAE_{i,t+1})$  就是经行业调整的公司个体的未来盈余变化。其他变量与模型(1)相同。如果机构投资者关注的是公司个体，而不是整个行业，那么交叉项目  $IO_{i,t} \times (\Delta E_{i,t+1} - \Delta IAE_{i,t+1})$  的系数  $(\beta_{t+1})$  的估计值应该显著为正。

#### 四、样本选取及描述性统计

我们选取2000年到2006年所有A股非金融类上市公司为研究对象，其中机构投资者持股数据手工收集于公司年报，其他数据来源于万得数据库。尽管证券市场的第一只基金发行于1998年，但至2000年才有大样本的机构投资者持股数据，因此我们的样本从2000年开始。样本数据的年度分布情况如表1所示。从表1可以看出，在全部8333个公司-年样本数据中，4738个样本的前十大股东中含有机构投资者，占A股上市公司将近60%。这说明机构投资者的影响非常广泛，已经成为资本市场一股重要的力量。从时间序列角度看，机构投资者持股从2000年的1.237%上升到2006年的3.016%，持股占流通股比例也从2000年的3.711%稳步上升至6.295%。随着时间的推移，机构投资者的股份逐渐增加，说明机构投资者的角色日趋重要。

<sup>7</sup> 按照中国证监会的行业分类标准，全部A股上市公司被划分成13个行业。

表1 机构投资者持股情况

年度	样本总量	机构投资者持股样本数量	机构投资者持股样本占总样本的比例 (%)	机构投资者持股比例 (%)		机构投资者持股占流通股比例 (%)	
				中位数	均值	中位数	均值
2000	923	550	59.59	0.232	1.237	0.674	3.711
2001	1074	673	62.66	0.254	1.168	0.743	3.425
2002	1128	818	72.52	0.601	1.620	1.852	4.797
2003	1178	628	53.31	0.090	1.346	0.230	4.159
2004	1241	638	51.41	0.100	1.830	0.265	5.268
2005	1350	651	48.22	0.000	2.097	0.000	5.372
2006	1439	780	54.20	0.490	3.016	0.000	6.295
样本总体	8333 <sup>8</sup>	4738	56.86	0.250	1.830	0.621	4.825

表2列示了机构投资者持股和不持股公司相关变量的描述性统计结果。从该表可见，机构投资者持股公司的累计超额收益率(CAR)显著高于其它公司，说明机构投资者选择股票收益率较高的公司作为投资对象。在公司规模方面( $MV_{t-1}$ )，机构投资者多选择市值比较大的上市公司作为投资对象。在会计收益率的变化方面( $\Delta E_{t-1}$ ,  $\Delta E_t$ ,  $\Delta E_{t+1}$ )，机构投资者持股公司的会计业绩中位数均显著高于其他公司。均值方面，只有 $\Delta E_{t+1}$ 的分布有所不同，这主要是由于个别极端值的影响。总体上来说，机构投资者投资对象普遍具有较好的利润增长势头。

<sup>8</sup> 为了尽可能获得更多的样本，我们只是在各回归分析中删掉了相关变量缺失的观察值。因此，各个模型中的观察值数会有所不同。表1中样本总量为全部样本数。



表2 其它相关变量的描述性统计

变量	机构投资者持股公司		其他公司		中位数差	均值差异
	中位数	均值	中位数	均值	异检验 (Z test)	检验 (T test)
$CAR_t$	-0.027	0.049	-0.132	-0.157	21.74***	19.44***
$MV_{t-1}$	90728	123478	48517	66597	37.21***	22.71***
$\Delta E_{t-1}$	0.004	0.014	-0.003	-0.010	11.65***	3.45***
$\Delta E_t$	0.005	0.015	0.000	0.012	9.46***	0.35
$\Delta E_{t+1}$	0.003	0.012	0.001	0.029	2.25**	1.63*

注： $CAR_t$ 为累计超额收益率； $MV_{t-1}$ 表示在 $t-1$ 年末全部流通股市值，单位是人民币万元； $\Delta E_{t-1}$ ， $\Delta E_t$ ， $\Delta E_{t+1}$ 分别为第 $t-1$ ， $t$ ， $t+1$ 年的会计盈余变化。我们采用Wilcoxon rank-sum test来检验中位数的差异，报告的是Z值。采用t检验来测试均值的差异，报告的是t值。\*\*\*，\*\*和\*分别表示在0.01，0.05和0.10的水平下显著。

## 五、研究结果及分析

### (一) 总体盈余信息

表3列示了机构投资者价格先导作用的研究结果。表3的栏(2)显示，机构投资者哑变量与未来盈余变化的交叉项目 $IO_{it} \times \Delta E_{it+1}$ 的系数( $\beta_{t+1}$ )显著为正，说明机构投资者入主公司的股价信息含量较高，与假设1相一致。栏(3)和栏(4)揭示了控制规模后的结果，虽然 $\beta_{t+1}$ 的显著性降低，但仍在10%水平显著，因此本文的结论基本不变。

表3 机构投资者的信息优势—总体盈余

	(1)	(2)	(3)	(4)
$\Delta E_{t-1}$	0.153*** (4.97)	0.104*** (3.41)	0.149*** (4.79)	0.090*** (3.19)
$\Delta E_t$	0.166*** (4.71)	0.091*** (3.05)	0.250*** (6.39)	0.154*** (3.93)
$\Delta E_{t+1}$	0.016* (1.56)	-0.012 (-1.17)	0.029*** (2.83)	-0.005 (-0.48)
$IO$		0.083*** (10.25)		0.073*** (9.38)
$IO \times \Delta E_{t-1}$		0.036 (0.60)		0.054 (0.95)
$IO \times \Delta E_t$		0.332*** (2.89)		0.297*** (2.85)
$IO \times \Delta E_{t+1}$		0.101*** (2.95)		0.108*** (3.24)
$SZ$			-0.035*** (-5.47)	-0.033*** (-5.25)
$SZ \times \Delta E_{t-1}$			0.032 (0.66)	0.001 (0.04)
$SZ \times \Delta E_t$			0.207*** (4.72)	0.141*** (2.85)
$SZ \times \Delta E_{t+1}$			0.056*** (4.31)	0.041** (2.47)
Year dummies	yes	yes	yes	yes
Adj-R <sup>2</sup>	.124	.157	.139	.165
观察值数	6128	6128	6128	6128

注： $IO$ 为机构投资者持股哑变量，前十大股东中存在机构投资者时取值为1，否则为0； $SZ$ 是公司规模变量，具体定义参照模型(1)；其它变量定义同表2。回归中调整了异方差和公司个体差异的影响；<sup>9</sup> 自变量中包含了截距，但没有报告相应的估值。系数右边括号内为 $t$ 统计量的值；\*\*\*，\*\*和\*分别表示在0.01，0.05和0.10的水平下显著。

## (二) 行业盈余信息和公司个体盈余信息

表4列示了机构投资者价格先导作用在行业和个体信息上的表现。表4的栏(5)显示，机构投资者哑变量与未来行业盈余变化的交叉项目 $IO_{i,t} \times \Delta IAE_{i,t+1}$ 的系数不显著，说明机构投资者入主公司并没有增加股价反映未来行业信息的程度。而机构投资者哑变量与未来公司个体盈余变化的交叉项目 $IO_{i,t} \times (\Delta E_{i,t+1} - \Delta IAE_{i,t+1})$ 的系数仍

<sup>9</sup> 本文没有汇报使用Fama-MacBeth方法所得实证结果。根据Peterson (2009)，Fama-MacBeth适合于时间序列较长的数据。对于年度较短的panel data，控制不同公司在同一年度的clustering effect，并在模型中引入年度哑变量，就可有效地减少估计误差。本文中的分析均采用此方法。

然显著为正。因此，我们认为相对于行业整体来讲，机构投资者更关注公司个体的未来盈利水平，选择潜力较好的股票，从而加速了公司个体未来信息在当前市场中的反映。

表4 机构投资者的信息优势—行业盈余和公司个体盈余

	(1)	(2)	(3)	(4)	(5)
$\Delta E_{t-1} - \Delta IAE_{t-1}$	0.148*** (4.89)	0.102*** (3.38)	0.103*** (3.38)	0.090*** (3.19)	0.088*** (3.11)
$\Delta E_t - \Delta IAE_t$	0.162*** (4.65)	0.090*** (3.01)	0.090*** (3.03)	0.153*** (3.93)	0.152*** (3.89)
$\Delta E_{t+1} - \Delta IAE_{t+1}$	0.015 (1.39)	-0.013 (-1.26)	-0.013 (-1.24)	-0.006 (-0.55)	-0.006 (-0.57)
$\Delta IAE_{t-1}$	0.889** (2.38)		-0.153 (-0.36)		-0.149 (-0.33)
$\Delta IAE_t$	0.911** (2.44)		0.763 (1.64)		0.655 (1.42)
$\Delta IAE_{t+1}$	0.470 (1.33)		1.085*** (2.66)		0.983** (2.33)
<i>IO</i>		0.087*** (11.07)	0.096*** (7.20)	0.081*** (10.08)	0.090*** (4.99)
<i>IO</i> × ( $\Delta E_{t-1} - \Delta IAE_{t-1}$ )		0.030 (0.51)	0.032 (0.55)	0.050 (0.89)	0.051 (0.91)
<i>IO</i> × ( $\Delta E_t - \Delta IAE_t$ )		0.329*** (2.86)	0.327*** (2.85)	0.295*** (2.83)	0.293*** (2.81)
<i>IO</i> × ( $\Delta E_{t+1} - \Delta IAE_{t+1}$ )		0.100*** (2.92)	0.098*** (2.88)	0.107*** (3.22)	0.106*** (3.18)
<i>IO</i> × $\Delta IAE_{t-1}$			1.063 (1.52)		1.037 (1.49)
<i>IO</i> × $\Delta IAE_t$			0.032 (0.05)		-0.138 (-0.19)
<i>IO</i> × $\Delta IAE_{t+1}$			-0.882 (-1.35)		-0.557 (-0.85)
<i>SZ</i>				-0.030*** (-4.55)	-0.038*** (-2.69)
<i>SZ</i> × ( $\Delta E_{t-1} - \Delta IAE_{t-1}$ )				0.002 (0.05)	-0.003 (-0.07)
<i>SZ</i> × ( $\Delta E_t - \Delta IAE_t$ )				0.140*** (2.86)	0.138*** (2.79)
<i>SZ</i> × ( $\Delta E_{t+1} - \Delta IAE_{t+1}$ )				0.040** (2.46)	0.039** (2.38)
<i>SZ</i> × $\Delta IAE_{t-1}$					-0.124 (-0.22)
<i>SZ</i> × $\Delta IAE_t$					-0.087 (-0.15)
<i>SZ</i> × $\Delta IAE_{t+1}$					0.533 (1.01)
Year dummies	yes	yes	yes	yes	yes
Adj-R <sup>2</sup>	.127	.156	.159	.164	.167
观察值数	6128	6128	6128	6128	6128

注： $\Delta IAE_{i,t}$ 是第t年的i公司所属行业会计盈余变化的平均值；其它变量定义同表2和表3。回归中调整了异方差和公司个体差异的影响；自变量中包含了截距，但没有报告相应的估值。系数右边括号内为t统计量的值；\*\*\*，\*\*和\*分别表示在0.01，0.05和0.10的水平下显著。

## 六、稳健性检验<sup>10</sup>

### (一) 机构投资者信息优势的内在性检验

机构投资者的价格先导作用有可能不是由于其传递信息的角色，而是源自机构投资者有意去选择信息质量高的公司进行投资。或者说，机构投资者有意选择那些股价能够反映未来盈余的公司进行投资。这样一来，我们的研究结果就不能说明机构投资者的信息传递作用。针对该内生性问题，我们选用以下样本来分析模型(1)。我们选择两组公司，一组是机构投资者从未持有的公司，共628个观察值；一组是机构投资者在下一期即将持有的公司(也就是说，机构投资者持有的前一年)，共141个观察值。在我们的样本区间内，这两组公司均不被机构所持有。如果两组样本的信息质量存在显著差异，就说明机构投资者主动选择信息质量好的公司进行投资，内生性问题严重。反之，如果两组样本信息质量没有显著差异，则说明机构投资者的信息传递角色并不完全由内生性因素导致。表5是相应的检验结果，其中， $IO\_bef_t$ 是机构投资者即将持有公司哑变量，当机构在 $t$ 年及以前从未持有该公司，但在 $t+1$ 年首次开始持有时， $IO\_bef_t$ 取值为1，否则为0。

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<sup>10</sup> 再次感谢匿名评审人和编辑对此部份提出的问题和建议。

表5 机构投资者的信息优势—总体盈余(内生性检验)

	(1)		(2)	
$\Delta E_{t-1}$	0.074***	(2.58)	0.127***	(3.00)
$\Delta E_t$	0.040**	(2.13)	0.068***	(2.58)
$\Delta E_{t+1}$	-0.013	(-0.63)	-0.002	(-0.09)
$IO\_bef_t$	0.042**	(2.06)	0.055***	(2.59)
$IO\_bef_t \times \Delta E_{t-1}$	0.057	(0.37)	-0.036	(-0.24)
$IO\_bef_t \times \Delta E_t$	0.262	(0.98)	0.138	(0.54)
$IO\_bef_t \times \Delta E_{t+1}$	-0.005	(-0.10)	-0.036	(-0.55)
$SZ$			-0.057***	(-3.63)
$SZ \times \Delta E_{t-1}$			0.099**	(2.09)
$SZ \times \Delta E_t$			0.062*	(1.73)
$SZ \times \Delta E_{t+1}$			0.006	(0.15)
Year dummies	yes		yes	
Adj-R <sup>2</sup>	.258		.276	
观察值数	769		769	

注： $IO\_bef_t$ 是机构投资者即将持有公司哑变量，当机构在 $t$ 年及以前从未持有该公司，但在 $t+1$ 年首次开始持有时， $IO\_bef_t$ 取值为1，否则为0；其它变量定义同表2和表3。回归中调整了异方差和公司个体差异的影响；自变量中包含了截距，但没有报告相应的估值。系数右边括号内为 $t$ 统计量的值；\*\*\*，\*\*和\*分别表示在0.01，0.05和0.10的水平下显著。

从表5的栏(1)可见，机构投资者即将持有公司哑变量 $IO\_bef_t$ 与盈余交叉项目， $IO\_bef_t \times \Delta E_{t-1}$ ， $IO\_bef_t \times \Delta E_t$ ， $IO\_bef_t \times \Delta E_{t+1}$ 估计系数均不显著，并且与未来盈余的交叉项目估计系数为负，与表3中披露的显著为正的结果相差很大。栏(2)列示的是控制了样本公司规模后的回归结果，由该栏可见， $IO\_bef_t$ 与盈余交叉项目也都不显著。由此可见，机构投资者选择的样本公司自身特性并不能完全解释其在信息含量上的优势。也就是说，机构投资者入主后，持有公司信息质量的改善，主要源自机构投资者的信息传导作用，而不是公司的自身优势，因此我们的研究结论不受内生性问题的影响。

## (二) 盈余变化的其它衡量方式

模型(1)和(2)中 $\Delta E_{i,t}$ 定义为第 $t$ 年的税后净利润减去第 $t-1$ 年的税后净利润,再除以第 $t-1$ 年末的流通股市值。为检验结果的稳健性,我们也采用 $\Delta ROA_{i,t}$ 来衡量第 $t$ 年的会计盈余变化,即第 $t$ 年的税后净利润减去第 $t-1$ 年的税后净利润,再除以第 $t-1$ 年末的资产总额。类似的,我们将行业平均的 $\Delta ROA_{i,t}$ 计为 $\Delta IAROA_{t-1}$ ,并分析行业盈余和公司个体盈余信息含量上的差异。相应的分析结果请参见如下的表6。

从表6可见,机构投资者持股哑变量 $IO$ 与盈余交叉项目 $IO \times \Delta ROA_{t-1}$ ,  $IO \times \Delta ROA_t$ , 以及 $IO \times \Delta ROA_{t+1}$ 估计系数均显著为正,与表3的结果一致,无法拒绝假设1。类似的,表7中,机构投资者持股哑变量 $IO$ 与公司个体盈余的交叉项目 $IO \times (\Delta ROA_{t-1} - \Delta IAROA_{t-1})$ ,  $IO \times (\Delta ROA_t - \Delta IAROA_t)$ , 以及  $IO \times (\Delta ROA_{t+1} - \Delta IAROA_{t+1})$  估计系数也均显著为正。与表4结果一致,说明机构投资者更加关注公司的个体信息而不是行业信息。

表6 机构投资者的信息优势—总体盈余(其它盈余变化指标)

	(1)		(2)		(3)		(4)	
$\Delta ROA_{t-1}$	0.085*	(1.65)	0.032	(0.93)	0.194**	(2.12)	0.095	(1.46)
$\Delta ROA_t$	0.153***	(2.48)	0.043	(1.32)	0.187**	(2.49)	0.058	(1.46)
$\Delta ROA_{t+1}$	-0.027**	(-2.34)	-0.041***	(-3.64)	-0.015	(-0.89)	-0.033**	(-2.51)
$IO$			0.081***	(9.98)			0.075***	(9.23)
$IO \times \Delta ROA_{t-1}$			0.419***	(2.89)			0.520***	(4.45)
$IO \times \Delta ROA_t$			1.129***	(5.91)			1.136***	(6.06)
$IO \times \Delta ROA_{t+1}$			0.316***	(6.05)			0.307***	(6.07)
$SZ$					-0.044***	(-6.28)	-0.039***	(-5.70)
$SZ \times \Delta ROA_{t-1}$					0.201*	(1.66)	0.117	(1.37)
$SZ \times \Delta ROA_t$					0.128	(1.14)	0.065	(1.14)
$SZ \times \Delta ROA_{t+1}$					0.062**	(2.23)	0.048**	(2.21)
Year dummies	yes		yes		yes		yes	
Adj-R <sup>2</sup>	.086		.131		.095		.138	
观察值数	6607		6607		6592		6592	

注： $\Delta ROA_{i,t}$  为第  $t$  年的税后净利润减去第  $t-1$  年的税后净利润，再除以第  $t-1$  年末的资产总额；其它变量定义同表 2 和表 3。回归中调整了异方差和公司个体差异的影响；自变量中包含了截距，但没有报告相应的估值。系数右边括号内为  $t$  统计量的值；\*\*\*，\*\* 和 \* 分别表示在 0.01，0.05 和 0.10 的水平下显著。

表 7 机构投资者的信息优势—行业盈余和公司个体盈余(其它盈余变化指标)

	(1)	(2)	(3)	(4)	(5)
$\Delta ROA_{i,t} - \Delta AROA_{i,t-1}$	0.082* (1.61)	0.031 (0.92)	0.032 (0.92)	0.131 (1.52)	0.125 (1.50)
$\Delta ROA_t - \Delta AROA_t$	0.150** (2.44)	0.042 (1.30)	0.042 (1.29)	0.077 (1.50)	0.079 (1.57)
$\Delta ROA_{i,t-1} - \Delta AROA_{i,t-1}$	-0.028** (-2.32)	-0.042*** (-3.65)	-0.042*** (-3.68)	-0.020 (-1.20)	-0.019 (-1.20)
$\Delta AROA_{i,t-1}$	0.358 (0.29)		-1.338 (-1.05)		-3.350** (-2.36)
$\Delta AROA_t$	2.893* (1.92)		1.814 (1.45)		2.680* (1.93)
$\Delta AROA_{i,t}$	-0.485 (-0.67)		1.263 (1.29)		2.003** (2.09)
$IO$		0.094*** (11.31)	0.097*** (5.08)	0.112*** (11.67)	0.122*** (4.27)
$IO \times (\Delta ROA_{i,t} - \Delta AROA_{i,t-1})$		0.406*** (2.84)	0.410*** (2.86)	0.434*** (3.09)	0.460*** (3.36)
$IO \times (\Delta ROA_t - \Delta AROA_t)$		1.106*** (5.83)	1.120*** (5.89)	1.082*** (5.66)	1.091*** (5.75)
$IO \times (\Delta ROA_{i,t-1} - \Delta AROA_{i,t-1})$		0.310*** (5.95)	0.312*** (6.02)	0.278*** (5.41)	0.278*** (5.48)
$IO \times \Delta AROA_{i,t-1}$			1.586 (0.68)		6.047** (2.12)
$IO \times \Delta AROA_t$			2.739 (0.90)		-0.147 (-0.06)
$IO \times \Delta AROA_{i,t}$			-2.190 (-1.49)		-3.379 (-1.82)
$SZ$				-0.037*** (-5.26)	-0.047** (-2.16)
$SZ \times (\Delta ROA_{i,t} - \Delta AROA_{i,t-1})$				0.124 (1.43)	0.117 (1.39)
$SZ \times (\Delta ROA_t - \Delta AROA_t)$				0.067 (1.16)	0.071 (1.24)
$SZ \times (\Delta ROA_{i,t-1} - \Delta AROA_{i,t-1})$				0.048** (2.22)	0.049** (2.38)
$SZ \times \Delta AROA_{i,t-1}$					-3.307 (-1.19)
$SZ \times \Delta AROA_t$					1.088 (0.51)
$SZ \times \Delta AROA_{i,t}$					1.454 (1.04)
Year dummies	yes	yes	yes	yes	yes
Adj-R <sup>2</sup>	.088	.129	.133	.137	.140
观察值数	6607	6607	6607	6592	6592

## 机构投资者传递信息角色分析

注： $\Delta IAROA_{i,t}$ 为行业平均的 $\Delta ROA_{i,t}$ ；其它变量定义同表2、表3和表6。回归中调整了异方差和公司个体差异的影响；自变量中包含了截距，但没有报告相应的估值。系数右边括号内为t统计量的值；\*\*\*，\*\*和\*分别表示在显著性水平为0.01，0.05和0.10的水平下显著。

### (三) 其它

为了进一步验证本文的结论，我们也做了一些其它的稳健性检验。例如，在模型中加入 $CAR_{i,t+1}$ 来控制 $\Delta E_{i,t+1}$ 中可能包含的一些不能被t时期市场预期的因素。另外，我们也删除了2000-2006年间从未被机构投资者持有的公司，分析机构首次持有的当年，股价对未来会计信息的反映。以上两种检验的结果与原结论基本一致。此外，我们也将样本分为两个阶段（2000-2003，2004-2006）分别回归。我们发现机构投资者的信息传递作用均存在，且在近几年得到大幅提高。

## 七、结论

本文探讨了机构投资者持股能否增加股票市场信息的价格先导作用。实证研究发现，机构投资者入主的上市公司，其当期股票价格和未来一年的盈利水平更相关。该研究结果说明，相对于其他中小投资者而言，机构投资者确实具有信息优势，并且能够利用这些信息进行股票交易。把公司的盈利信息分为行业整体信息和公司个体信息后，我们发现，机构投资者的这种信息优势主要体现在公司个体信息中。

每当A股市场遭遇大幅波动时，机构投资者就可能会被指为制造泡沫或扰乱资本市场秩序的罪魁祸首，因此本文的研究具有非常重要的现实意义。本研究系统地展示了机构投资者的正面角色，肯定其在加速市场信息流动方面的作用。因此，笔者认为，发展机构投资者有助于改善股票市场的信息环境，进而改善资本市场的资源配置。虽然本文不能完全排除机构投资者的某些非理性行为，但从总体来看，发展机构投资者对于改善资本市场的信息环境是具有积极意义的。



最后，需要指出的是，本研究尚存在一些局限性。首先，我们采用机构持股的实际值而非哑变量进行分析，结果并不是非常显著。采用机构持股的连续变量分析时，结果出现差异的主要原因在于机构持股比例分布的高度集中。本研究的样本中，大部分是机构持股为0和机构持股小于5%的公司。持股比例为0的约占全体样本的43%，持股比例小于5%的约占全体样本的46%。由于持股比例分布过于集中，持股比例间的细微差异难以影响股价对未来利润的反映水平。这样一来，我们只能在有机构入主和没有机构投资者入主的样本之间发现显著差异。这一局限性在一定程度上影响了本文研究结果的进一步推广。但是，随着股权分置改革的完成，更多的股份上市流通，机构投资者对部分上市公司的持股比例将会大幅度上升。届时，机构投资者持股比例的分布过于集中的现象也可能会得到缓解。其次，受数据来源的局限，我们使用前十名机构持股来判断机构是否持股，这种衡量方法会带来一些噪音。另外，本文无法排除机构投资者的信息优势是否与内幕交易相关。

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## Analysis of Institutional Investors' Role in Information Flow<sup>1</sup>

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### Abstract

This study investigates whether stock prices incorporate more information about future earnings when institutional investors<sup>3</sup> are among the top 10 shareholders than when they are not. We show that the stock prices of companies with higher institutional holdings exhibit a higher correlation with earnings of the following year, indicating that stock prices incorporate more future information. Further tests show that this correlation is largely driven by firm-level rather than industry-level information. Overall, this study documents the positive effects of institutional investors on market information flow, providing insights for evaluating institutional trading in the Chinese capital markets.

*Keywords:* Institutional Investors, Incorporation of Future Earnings into Prices, Information Flow

CLC codes: C93, F8

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<sup>3</sup> Institutional investors refers to mutual funds and brokers ranked as the top 10 shareholders in this paper.

## I. Introduction

To achieve the long-term development of China's capital market, the China Securities Regulatory Commission (CSRC) put forth the "Extraordinary Development of Institutional Investors" proposal from 1997 to 1998. In the decade since then, institutional investors — mainly securities-based investment funds, insurance funds, qualified foreign institutional investors (QFII), social security funds, and corporate pensions — have developed dramatically. At the same time, the information role played by institutional investors has captured a lot of attention. One key issue is whether institutional investors accelerate the information flow in capital markets. Some people think that the information advantage of institutional investors improves the informativeness of stock prices, while others argue that China does not have an efficient market, and that this may instead lead to opportunistic trading on the part of institutional investors to gain excess profits; thus, they may play a dysfunctional information role. This paper explores this issue.

One important reason that institutional investors are able to accelerate information flow in capital markets is that they have advantages in accessing more timely and accurate information about public companies, relative to individual investors. First, institutional investors are able to employ experts. These experts have been trained systematically; they have strong research and analysis capabilities, and generally they focus on one or several industries only. Thus, they are able to put more effort into collecting public information. Second, institutional investors hold large shares of listed companies and may have more opportunities to communicate with managers from these companies. In addition to public information, they are able to obtain some private information from the management, whereas individual investors generally are not. Third, institutional investors are generally large and have more financial resources, and thus can obtain information through more channels using these resources. For example, they can purchase large amounts of historical trading data from such databases as Wind or Genius and analyse these data. They can also purchase analyst research reports from the research departments of investment banks. As a consequence of these information advantages, institutional investors are able to conduct valuation analysis more effectively, thereby accelerating information flow in the capital markets and reducing the risks of their investments.

But China's stock market is still in the early stages of development, and it has no solid regulatory system. In such a market environment, can institutional investors play their information role effectively? First, institutional investors are profit-driven parties. They can manipulate stock prices with the sufficient funding they enjoy, resulting in high market volatility and thereby inducing the herding behaviour of small investors to make a profit. Second, driven by concerns over reputation and compensation, institutional

investors may herd irrationally when making investments, ignoring their own individual information. Such behaviour by institutional investors is contrary to their responsibilities regarding information communication and market stabilisation.

In this study, institutional investors are defined as fund companies or security firms who are among the top 10 largest shareholders of listed firms. We investigate whether institutional investors have information advantages over individual investors, whether they have a high ability to acquire information about a company's future earnings more accurately and timely than individual investors, and whether they use this information to make trades. We use price-leading, which is the extent of future information reflected in current stock prices, to measure institutional investors' information advantages. If institutional investors have superior information and use this information to trade, then the prices of stocks held by these institutional investors will reflect the companies' future performance more timely, and a stronger price-leading effect should be observed.

Using A-share non-financial firms listed in China from 2000 to 2006 as our sample, we explore institutional investors' effect on price leading. We find that the stock prices of firms with institutional investors among the top 10 largest shareholders are more closely related to their future earnings. This result implies that institutional investors do have information advantages over small investors and use their information for trading purposes. When decomposing the information into industry-level and firm-level components, we further find that this relation is largely driven by firm-level rather than industry-level information.

Institutional investors are important for the development of the Chinese capital markets. Existing studies in China on institutional investors focus mainly on their effects on financial performance, stock return volatility, earnings quality, and related transactions; these studies include Xiao and Wang (2005), Hu and Jin (2007), Li and Zhang (2007), Wang and Xiao (2005), and others. But studies of how institutional investors affect the information content of stock prices are limited. This paper sheds light on this matter for market participants, especially with respect to the recent market, which has been experiencing high volatility, and institutional investors are being blamed for manipulating stock prices and creating a bubble.<sup>4</sup> Our empirical results imply that institutional investors play a significant role in accelerating information flow in the market. Although some irrational behaviour on the part of institutional investors cannot be ruled out, we must acknowledge their positive effects on the financial markets as well.

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<sup>4</sup> Initiation of new mutual funds was suspended for about two months beginning September 2007.

The rest of this paper is organised as follows. Section II is the literature review and hypothesis development. Section III introduces our research design. Section IV describes the sample selection procedures and descriptive statistics. We present our empirical evidence in Section V. Section VI describes the robustness tests, and Section VII concludes this paper.

## II. Literature Review and Hypothesis Development

Much research has examined the information advantage of institutional investors in the US. Lev (1988) finds that institutional investors have more resources than other investors and therefore more valuable information. Walther (1997) shows that institutional investors are more likely to use financial analyst earnings forecasts, rather than simple random walk forecasting models. Bartov *et al.* (2000) argue that firms with higher institutional investor holdings have significantly fewer anomalies than firms with lower holdings. El-Gazzar (1998) finds that the more shares held by institutional investors, the smaller the market reactions on earnings announcement dates, implying that institutional investors have other information channels besides financial statements, or else have obtained related information before earnings are announced. Recent studies find similar results. Jiambalvo *et al.* (2002) find that institutional investors use some current non-earnings information when forecasting companies' future earnings, leading to a higher degree of future information reflected in current stock prices. Ayers and Freeman (2003) show that the stock prices of firms with more analysts following and more institutional holdings include more information about future earnings. Ali *et al.* (2004) examine the relation between positions held by institutional investors and abnormal returns around a firm's next-quarter earnings announcement dates and find a significant positive relation between the two. Ke and Petroni (2004) show that institutional investors can predict when a firm's increasing earnings string will break and thus short their positions before the break. All these studies are consistent with the argument that institutional investors in the US have a wealth of resources to use, that they are capable of forecasting firms' future earnings and can forecast them more timely and accurately, and that they use the information they have to trade.

But China's stock markets are still in their infancy, and the development of institutional investors has just been initiated. Whether institutional investors have information advantages, and whether they are able to use the information to trade rationally, are open questions. Some institutional investors do not make investments based on valuation analyses; rather they are driven by the great profits from speculation on the secondary market. Since institutional investors have sufficient funding, they

could manipulate stock prices through self-trading, boost prices, or collude with listed companies.

If institutional investors are able to forecast companies' future earnings and use their superior information to trade, we should observe that the stock prices of companies with higher institutional holdings incorporate more information about future earnings. In contrast, if institutional investors artificially boost or suppress stock prices for short-term profits, stock prices will not be able to reflect the companies' future performance. On the basis of the above analysis, we therefore propose the following hypothesis:

**H1: The stock prices of companies with higher institutional holdings will be more informative about future earnings.**

Earnings of listed firms can be decomposed into industry-level and firm-level information. Institutional investors are able to obtain more information at both levels with their solid financial resources and professional employees. Therefore, we decompose the overall information into industry level and firm level and hypothesise as follows:

**H2: The stock prices of companies with higher institutional holdings will be more informative about future earnings at both industry and firm levels.**

### III. Empirical Design

We use the relation between stock returns and future earnings to represent the informativeness of current stock prices and investigate whether institutional traders affect this informativeness. Following Ayers and Freeman (2003), we use Model (1) to test our prediction:

$$\begin{aligned}
 CAR_{i,t} = & \alpha_0 + \sum_{\tau=1}^1 [\lambda_{\tau} \Delta E_{i,t+\tau}] + \alpha_1 IO_{i,t} + \sum_{\tau=1}^1 [\beta_{\tau} IO_{i,t} \Delta E_{i,t+\tau}] + \alpha_3 SZ_{i,t} \\
 & + \sum_{\tau=1}^1 [\theta_{\tau} SZ_{i,t} \Delta E_{i,t+\tau}] + FIXED + \varepsilon_{i,t}
 \end{aligned} \tag{1}$$

where

$CAR_{i,t}$  = Cumulative market-adjusted stock returns for one fiscal period ending December 31.<sup>5</sup> Dividend payouts have been adjusted in calculating stock returns. For firms listed in the Shanghai Stock Exchange, we use the Shanghai A-share Index to represent the market return. For firms listed in the Shenzhen Stock Exchange, we use the Shenzhen A-share Index to represent the market return;

$\Delta E_{i,t}$  = Earnings changes for year  $t$ , calculated as the difference between net income in year  $t$  and net income in year  $t-1$ , scaled by the market value at the end of year  $t-1$ ;<sup>6</sup>

$IO_{i,t}$  = Dummy variable for institutional investors, equal to 1 if institutional investors are among the top 10 shareholders, and 0 otherwise;

$SZ_{i,t}$  = Firm size, calculated as the residual value of regressing  $SZ\_DM_{i,t}$  on  $IO_{i,t}$ .  $SZ\_DM_{i,t}$ ; this is the indicator variable. We first rank all firms into 10 deciles by their market value at the end of year  $t-1$ . We set  $SZ\_DM_{i,t}$  equal to 1 (-1) for firms in the top (bottom) three deciles, and 0 otherwise.

$FIXED$  = Dummy variables for year.

We use the coefficients of future earnings change (with the subscript  $t+1$ ) and of current earnings change (with the subscript  $t$ ) to test our hypotheses. The coefficient of future earnings change ( $\lambda_{t+1}$ ) captures the informativeness of current stock prices on future earnings. If the informativeness is enhanced by institutional investors, then the coefficient of the interaction term  $IO_{i,t} \times \Delta E_{i,t+1}$  ( $\beta_{t+1}$ ) should be positively significant. We introduce current earnings change to control for the impact of current earnings on stock prices, and previous earnings change to control for any effects from post-earnings-announcement drift.

<sup>5</sup> We also use the period ending April 30 to calculate the cumulative returns, and the results are consistent.

<sup>6</sup> Following the comment from one anonymous referee, we also use total assets as the scale, and the results are consistent. Please refer to Section VI (Robustness Tests) for details.



Because firms in the same industry may exhibit some common characteristics with respect to stock returns and earnings, the effect of institutional investors on the informativeness of stock prices might be driven by industry-level rather than firm-level information. Therefore, we decompose earnings into industry-level earnings and firm-level earnings and employ the following model for further investigation:

$$\begin{aligned}
 CAR_{i,t} = & \alpha_0 + \sum_{\tau=1}^1 [\lambda_{\tau} (\Delta E_{i,t+\tau} - \Delta IAE_{i,t+\tau})] + \sum_{\tau=1}^1 [\delta_{\tau} \Delta IAE_{i,t+\tau}] + \alpha_1 IQ_{i,t} \\
 & + \sum_{\tau=1}^1 [\beta_{\tau} IO_{i,t} (\Delta E_{i,t+\tau} - \Delta IAE_{i,t+\tau})] + \sum_{\tau=1}^1 [\gamma_{\tau} IO_{i,t} \Delta IAE_{i,t+\tau}] + \alpha_3 SZ_{i,t} \\
 & + \sum_{\tau=1}^1 [\theta_{\tau} SZ_{i,t} (\Delta E_{i,t+\tau} - \Delta IAE_{i,t+\tau})] + \sum_{\tau=1}^1 [\varphi_{\tau} SZ_{i,t} \Delta IAE_{i,t+\tau}] + FIXED + \varepsilon_{i,t}
 \end{aligned} \quad (2)$$

where,  $\Delta IAE_{i,t}$  is the average earnings changes for all firms in the same industry for firm  $i$  in year  $t$ .<sup>7</sup> The difference between current earnings and industry average ( $\Delta E_{i,t+1} - \Delta IAE_{i,t+1}$ ) is firm-level earnings. Other variables are defined as in Model (1). If institutional investors care more about individual firms than the industry as a whole, the coefficient of the interaction term  $IO_{i,t} \times (\Delta E_{i,t+1} - \Delta IAE_{i,t+1})$  ( $\beta_{t+1}$ ) should be positively significant.

#### IV. Sample Selection and Data Description

Our sample selection starts with all non-financial A-share firms on the Shenzhen and Shanghai stock exchanges between 2000 and 2006. We hand-collect data of institutional shareholdings, and all other data come from the Wind database. Although in China the first mutual fund was issued in 1998, data about institutional shareholdings are not available until 2000. We therefore use 2000 as our first sample year. Table 1 reports the sample distribution during this seven-year period. Among the final sample of 8333 firm-year observations, 4738 have institutional shareholders who are among the top 10 shareholders, accounting for nearly 60 per cent of the whole sample. This pattern shows the widespread nature of institutional shareholders, which can be considered an important factor in China's capital market. The time series data show that the average shareholding of institutional investors increases from 1.237 per cent in 2000 to 3.016 per cent in 2006, while their average holding of tradable shares increases steadily during the same period, from 3.711 per cent to 6.295 per cent. As a whole, the holdings of institutional investors increase over time, indicating that their effects have become more important in the capital market.

<sup>7</sup> All A-share firms are classified into 13 industries according to the industry classification established by the CSRC.

**Table 1** Sample by Institutional Shareholder and by Year

Year	No. of firms	Percentage of		Holdings of tradable shares by			
		Firms with institutional shareholders	firms with institutional shareholders (%)	Shareholdings of institutional shareholders (%)		institutional shareholders (%)	
				Median	Mean	Median	Mean
2000	923	550	59.59	0.232	1.237	0.674	3.711
2001	1074	673	62.66	0.254	1.168	0.743	3.425
2002	1128	818	72.52	0.601	1.620	1.852	4.797
2003	1178	628	53.31	0.090	1.346	0.230	4.159
2004	1241	638	51.41	0.100	1.830	0.265	5.268
2005	1350	651	48.22	0.000	2.097	0.000	5.372
2006	1439	780	54.20	0.490	3.016	0.000	6.295
Total	8333 <sup>8</sup>	4738	56.86	0.250	1.830	0.621	4.825

Table 2 provides the mean and median values of the market and financial characteristics of firms with or without institutional shareholder investment. The first row shows that firms with institutional shareholders exhibit a higher *CAR* than those without them, suggesting that institutional shareholders choose firms with higher stock returns. As related to firm scale ( $MV_{t-1}$ ), institutional shareholders prefer those firms with a higher market value. In terms of accounting performance ( $\Delta E_{t-1}$ ,  $\Delta E_t$ ,  $\Delta E_{t+1}$ ), firms chosen by institutional investors show significantly higher median values than those they have not chosen. The difference in average performance between firms with and without institutional shareholders is significant except for  $\Delta E_{t+1}$ , which mainly results from the extreme values of a few observations. As a whole, firms with institutional shareholders exhibit a better growth opportunity in earnings.

<sup>8</sup> To obtain as many observations as possible, we delete observations with missing variables related to respective regressions. Therefore, the number of observations related to each model may be slightly different, while Table 1 reports the whole sample.

**Table 2** Sample Characteristics by Institutional Shareholder

Variable	Firms with institutional shareholders		Firms without institutional shareholders		Test for difference in median	Test for difference in mean
	Median	Mean	Median	Mean	(Z test)	(T test)
$CAR_t$	-0.027	0.049	-0.132	-0.157	21.74***	19.44***
$MV_{t-1}$	90728	123478	48517	66597	37.21***	22.71***
$\Delta E_{t-1}$	0.004	0.014	-0.003	-0.010	11.65***	3.45***
$\Delta E_t$	0.005	0.015	0.000	0.012	9.46***	0.35
$\Delta E_{t+1}$	0.003	0.012	0.001	0.029	2.25**	1.63*

Note:  $CAR_t$  is the cumulative market-adjusted stock returns;  $MV_{t-1}$  is the market value at the end of year  $t-1$ ; units are RMB10,000;  $\Delta E_{t-1}$ ,  $\Delta E_t$ , and  $\Delta E_{t+1}$  represent earnings changes in years  $t-1$ ,  $t$ , and  $t+1$ , respectively. The test for difference in median is the Wilcoxon rank-sum test; the Z-value is reported. The test for difference in mean is the t-test; t-statistics are reported. \*\*\*, \*\*, and \* denote statistically significant differences at the 1, 5, and 10 per cent levels, respectively.

## V. Empirical Results and Analyses

### 1. Overall Earnings Information

Table 3 reports the results of regression analysis examining the price-leading role of institutional shareholders. As Column (2) shows, the coefficient of the interaction term between the institutional shareholders dummy and future earnings change,  $IO_{i,t} \times \Delta E_{i,t+1}$ , is significantly positive, suggesting that firms with institutional investors among the top 10 shareholders exhibit higher information content, consistent with hypothesis 1. Columns (3) and (4) show the results after controlling for company size. The coefficient of the interaction term  $IO_{i,t} \times \Delta E_{i,t+1}$  is still significantly positive at the 1 per cent level. Therefore, the results are consistent with H1.

**Table 3** Information Advantage of Institutional Shareholders – Overall Earnings

	(1)	(2)	(3)	(4)
$\Delta E_{i,t}$	0.153*** (4.97)	0.104*** (3.41)	0.149*** (4.79)	0.090*** (3.19)
$\Delta E_t$	0.166*** (4.71)	0.091*** (3.05)	0.250*** (6.39)	0.154*** (3.93)
$\Delta E_{i,t-1}$	0.016* (1.56)	-0.012 (-1.17)	0.029*** (2.83)	-0.005 (-0.48)
$IO$		0.083*** (10.25)		0.073*** (9.38)
$IO \times \Delta E_{i,t-1}$		0.036 (0.60)		0.054 (0.95)
$IO \times \Delta E_t$		0.332*** (2.89)		0.297*** (2.85)
$IO \times \Delta E_{i,t-1}$		0.101*** (2.95)		0.108*** (3.24)
$SZ$			-0.035*** (-5.47)	-0.033*** (-5.25)
$SZ \times \Delta E_{i,t-1}$			0.032 (0.66)	0.001 (0.04)
$SZ \times \Delta E_t$			0.207*** (4.72)	0.141*** (2.85)
$SZ \times \Delta E_{i,t-1}$			0.056*** (4.31)	0.041** (2.47)
Year dummies	yes	yes	yes	yes
Adj-R <sup>2</sup>	.124	.157	.139	.165
No. of observations	6128	6128	6128	6128

Note:  $IO$  is the dummy variable for institutional holdings, which equals 1 if institutional investors are ranked among the top 10 shareholders, and 0 otherwise;  $SZ$  represents firm size, defined as in Model (1); all other variables are defined as in Table 2. Standard errors are adjusted for heteroskedasticity and within correlations clustered by firms.<sup>9</sup> The constant is included in regressions but not reported.  $T$ -statistics are reported in parentheses next to each coefficient. \*\*\*, \*\*, and \* denote statistically significant differences at the 1, 5, and 10 per cent levels, respectively.

## 2. Earnings Information at Industry and Firm Levels

Table 4 reports the price-leading role of institutional shareholders at both the industry level and firm level. As Column (5) shows, the coefficient of the interaction term between the institutional shareholders dummy and the industry average of future earnings change,  $IO_{i,t} \times \Delta IAE_{i,t+1}$ , is not significant, suggesting that the role of institutional investors among the top 10 shareholders provides no additional effect on the extent to which stock prices reflect industry information. At the same time, the coefficient of the interaction term between the institutional shareholders dummy and firm-level future earnings change,  $IO_{i,t} \times (\Delta E_{i,t+1} - \Delta IAE_{i,t+1})$ , is statistically positive. As a result, we conclude that institutional shareholders show more concern about firm-level future earnings than

<sup>9</sup> We do not adopt the Fama-MacBeth method in regression analyses. According to Peterson (2009), the Fama-MacBeth method applies to long periods. For panel data with short periods, the clustering method, together with the introduction of year dummies, effectively reduces the bias. Hence, we employ this method in this paper.

industry-level information, thus enhancing the speed at which stock prices reflect firm-specific information about the future.

**Table 4** Information Advantage of Institutional Shareholders – Industry - and Firm-level Earnings

	(1)	(2)	(3)	(4)	(5)
$\Delta E_{i,t} - \Delta AE_{i,t}$	0.148*** (4.89)	0.102*** (3.38)	0.103*** (3.38)	0.090*** (3.19)	0.088*** (3.11)
$\Delta E_i - \Delta AE_i$	0.162*** (4.65)	0.090*** (3.01)	0.090*** (3.03)	0.153*** (3.93)	0.152*** (3.89)
$\Delta E_{i,t} - \Delta AE_{i,t+1}$	0.015 (1.39)	-0.013 (-1.26)	-0.013 (-1.24)	-0.006 (-0.55)	-0.006 (-0.57)
$\Delta AE_{i,t}$	0.889** (2.38)		-0.153 (-0.36)		-0.149 (-0.33)
$\Delta AE_i$	0.911** (2.44)		0.763 (1.64)		0.655 (1.42)
$\Delta AE_{i,t+1}$	0.470 (1.33)		1.085*** (2.66)		0.983** (2.33)
<i>IO</i>		0.087*** (11.07)	0.096*** (7.20)	0.081*** (10.08)	0.090*** (4.99)
<i>IO</i> × ( $\Delta E_{i,t} - \Delta AE_{i,t}$ )		0.030 (0.51)	0.032 (0.55)	0.050 (0.89)	0.051 (0.91)
<i>IO</i> × ( $\Delta E_i - \Delta AE_i$ )		0.329*** (2.86)	0.327*** (2.85)	0.295*** (2.83)	0.293*** (2.81)
<i>IO</i> × ( $\Delta E_{i,t} - \Delta AE_{i,t+1}$ )		0.100*** (2.92)	0.098*** (2.88)	0.107*** (3.22)	0.106*** (3.18)
<i>IO</i> × $\Delta AE_{i,t}$			1.063 (1.52)		1.037 (1.49)
<i>IO</i> × $\Delta AE_i$			0.032 (0.05)		-0.138 (-0.19)
<i>IO</i> × $\Delta AE_{i,t+1}$			-0.882 (-1.35)		-0.557 (-0.85)
<i>SZ</i>				-0.030*** (-4.55)	-0.038*** (-2.69)
<i>SZ</i> × ( $\Delta E_{i,t} - \Delta AE_{i,t}$ )				0.002 (0.05)	-0.003 (-0.07)
<i>SZ</i> × ( $\Delta E_i - \Delta AE_i$ )				0.140*** (2.86)	0.138*** (2.79)
<i>SZ</i> × ( $\Delta E_{i,t} - \Delta AE_{i,t+1}$ )				0.040** (2.46)	0.039** (2.38)
<i>SZ</i> × $\Delta AE_{i,t}$					-0.124 (-0.22)
<i>SZ</i> × $\Delta AE_i$					-0.087 (-0.15)
<i>SZ</i> × $\Delta AE_{i,t+1}$					0.533 (1.01)
Year dummies	yes	yes	yes	yes	yes
Adj-R <sup>2</sup>	.127	.156	.159	.164	.167
No. of observations	6128	6128	6128	6128	6128

Note:  $\Delta AE_{i,t}$  is the average of earnings for all firms in the same industry in year  $t$  for firm  $i$ ; all other variables are defined as in Tables 2 and 3. Standard errors are adjusted for heteroskedasticity and within correlations clustered by firms. The constant is included in regressions but not reported. T-statistics are reported in parentheses next to each coefficient. \*\*\*, \*\*, and \* denote statistically significant differences at the 1, 5, and 10 per cent levels, respectively.

## VI. Robustness Test<sup>10</sup>

### 1. Endogeneity Test of Institutional Shareholders Information Advantage

Under some cases, institutional shareholders choose to invest in high quality firms; thereafter, their previous price-leading role may not be the result of their information transmission role. In other words, institutional shareholders may intentionally invest in firms whose stock prices reflect more about future earnings. Consequently, our results do not support the information interpretation role of institutional shareholders. Regarding this endogeneity problem, we select the following sample to analyse Model (1). We choose two groups of firms: one group consists of firms never held by institutional shareholders, of which there are 628 observations; the other group consists of those firms that will be held by institutional shareholders in the following period (i.e., one year before a firm is to be held by an institutional shareholder), of which there are 141 total observations. During our sample period, both groups of firms are not held by any institutional shareholders. Any significant quality difference appearing between these two groups means that institutional shareholders actively choose firms with better quality, and thus the endogeneity problem is serious. In contrast, if we find no statistical difference between the information qualities of these two groups, then the endogeneity problem alone cannot be driving the pattern discussed in this study. Table 5 shows the related testing results; among them,  $IO\_bef_t$  is a dummy variable, which equals 1 if the firm will be held by institutional shareholders. If year  $t$  is the first year that institutional shareholders invest in a company,  $IO\_bef_t$  takes the value of 1, and 0 otherwise.

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<sup>10</sup> We are grateful for the comments from the three anonymous referees and editor about this section.

**Table 5** Information Advantage of Institutional Shareholders – Overall Earnings (Endogeneity Test)

	(1)		(2)	
$\Delta E_{t-1}$	0.074***	(2.58)	0.127***	(3.00)
$\Delta E_t$	0.040**	(2.13)	0.068***	(2.58)
$\Delta E_{t+1}$	-0.013	(-0.63)	-0.002	(-0.09)
$IO\_bef_t$	0.042**	(2.06)	0.055***	(2.59)
$IO\_bef_t \times \Delta E_{t-1}$	0.057	(0.37)	-0.036	(-0.24)
$IO\_bef_t \times \Delta E_t$	0.262	(0.98)	0.138	(0.54)
$IO\_bef_t \times \Delta E_{t+1}$	-0.005	(-0.10)	-0.036	(-0.55)
$SZ$			-0.057***	(-3.63)
$SZ \times \Delta E_{t-1}$			0.099**	(2.09)
$SZ \times \Delta E_t$			0.062*	(1.73)
$SZ \times \Delta E_{t+1}$			0.006	(0.15)
Year dummies	yes		yes	
Adj-R <sup>2</sup>	.258		.276	
No. of observations	769		769	

Note:  $IO\_bef_t$  is the dummy variable for institutional holding in the future period, which equals 1 when institutions initiate holdings in the company, and 0 otherwise; other variables are defined as in Tables 2 and 3. Standard errors are adjusted for heteroskedasticity and within correlations clustered by firms. The constant is included in regressions but not reported; t-statistics are reported in parentheses next to each coefficient. \*\*\*, \*\*, and \* denote statistically significant differences at the 1, 5, and 10 per cent levels, respectively.

As Column (1) of Table 5 shows, the coefficients for the interactions between the dummy variables for future institutional holdings  $IO\_bef_t$  and related earnings  $IO\_bef_t \times \Delta E_{t-1}$ ,  $IO\_bef_t \times \Delta E_t$ , and  $IO\_bef_t \times \Delta E_{t+1}$  are not significant at all. Moreover, the interaction with future earnings change,  $IO\_bef_t \times \Delta E_{t+1}$ , is negative, which is quite different from the positive results reported in Table 3. Column (2) of Table 5 reports the results after controlling for company size, showing that the coefficient of the interaction term between  $IO\_bef_t$  and earnings is not significant. As a result, the characteristics of firms held by institutional shareholders cannot fully explain the information advantage. In other words, it is the active role of institutional shareholders that is improving the information environment for invested firms, not the advantages acquired by the invested firms themselves. From the perspective of statistics, our results are not affected by the endogeneity problem.

## 2. Alternative Measures of Earnings Change

We define  $\Delta E_{i,t}$  in Models (1) and (2) as the after-tax net income for year  $t$  minus the after-tax net income for year  $t-1$ , which we then deflate by the market value of tradable shares at the end of year  $t-1$ . To test the robustness of the results, we use  $\Delta ROA_{i,t}$  to measure the earnings change for year  $t$ , which we compute as after-tax net income for year  $t$  minus after-tax net income for year  $t-1$ , and then deflate by total assets at the end of year  $t-1$ . Similarly, we denote the industry average of  $\Delta ROA_{i,t}$  as  $\Delta IAROA_{i,t}$ , and analyse the information advantage at both the industry and firm levels as well. Table 6 provides the related results.

As Table 6 shows, the coefficients of the interaction terms between institutional shareholder dummies and respective earnings,  $IO \times \Delta ROA_{t-1}$ ,  $IO \times \Delta ROA_t$ , and  $IO \times \Delta ROA_{t+1}$ , are statistically positive and consistent with Table 3, and thus H1 is not rejected. Consistently, the coefficients of the interaction terms between the institutional shareholder dummies and respective firm-level earnings,  $IO \times (\Delta ROA_{t-1} - \Delta IAROA_{t-1})$ ,  $IO \times (\Delta ROA_t - \Delta IAROA_t)$ , and  $IO \times (\Delta ROA_{t+1} - \Delta IAROA_{t+1})$ , are also statistically positive. As a whole, the results are consistent with Table 4, suggesting that institutional shareholders place more weight on firm-level than on industry-level information.

**Table 6** Information Advantage of Institutional Shareholders – Overall Earnings (Alternative Measure of Earnings Change)

	(1)		(2)		(3)		(4)	
$\Delta ROA_{t-1}$	0.085*	(1.65)	0.032	(0.93)	0.194**	(2.12)	0.095	(1.46)
$\Delta ROA_t$	0.153***	(2.48)	0.043	(1.32)	0.187**	(2.49)	0.058	(1.46)
$\Delta ROA_{t+1}$	-0.027**	(-2.34)	-0.041***	(-3.64)	-0.015	(-0.89)	-0.033**	(-2.51)
$IO$			0.081***	(9.98)			0.075***	(9.23)
$IO \times \Delta ROA_{t-1}$			0.419***	(2.89)			0.520***	(4.45)
$IO \times \Delta ROA_t$			1.129***	(5.91)			1.136***	(6.06)
$IO \times \Delta ROA_{t+1}$			0.316***	(6.05)			0.307***	(6.07)
$SZ$					-0.044***	(-6.28)	-0.039***	(-5.70)
$SZ \times \Delta ROA_{t-1}$					0.201*	(1.66)	0.117	(1.37)
$SZ \times \Delta ROA_t$					0.128	(1.14)	0.065	(1.14)
$SZ \times \Delta ROA_{t+1}$					0.062**	(2.23)	0.048**	(2.21)
Year dummies	yes		yes		yes		yes	
Adj-R <sup>2</sup>	.086		.131		.095		.138	
No. of observations	6607		6607		6592		6592	



Note:  $ARO A_{it}$  is computed as the after-tax net income for year  $t$  subtracted by the after-tax net income for year  $t-1$ , then deflated by total assets at the end of year  $t-1$ . All other variables are the same as in Tables 2 and 3. Standard errors are adjusted for both heteroskedasticity and within correlations clustered by firms. The constant is included in regressions but not reported;  $t$ -statistics are reported in parentheses next to each coefficient. \*\*\*, \*\*, and \* denote statistically significant differences at the 1, 5, and 10 per cent levels, respectively.

**Table 7** Information Advantage of Institutional Shareholders – Industry- and Firm-level Earnings (Alternative Measure of Earnings Change)

	(1)	(2)	(3)	(4)	(5)
$\Delta RO A_{t-1} - \Delta IARO A_{t-1}$	0.082* (1.61)	0.031 (0.92)	0.032 (0.92)	0.131 (1.52)	0.125 (1.50)
$\Delta RO A_t - \Delta IARO A_t$	0.150** (2.44)	0.042 (1.30)	0.042 (1.29)	0.077 (1.50)	0.079 (1.57)
$\Delta RO A_{t+1} - \Delta IARO A_{t+1}$	-0.028** (-2.32)	-0.042*** (-3.65)	-0.042*** (-3.68)	-0.020 (-1.20)	-0.019 (-1.20)
$\Delta IARO A_{t-1}$	0.358 (0.29)		-1.338 (-1.05)		-3.350** (-2.36)
$\Delta IARO A_t$	2.893* (1.92)		1.814 (1.45)		2.680* (1.93)
$\Delta IARO A_{t+1}$	-0.485 (-0.67)		1.263 (1.29)		2.003** (2.09)
$IO$		0.094*** (11.31)	0.097*** (5.08)	0.112*** (11.67)	0.122*** (4.27)
$IO \times (\Delta RO A_{t-1} - \Delta IARO A_{t-1})$		0.406*** (2.84)	0.410*** (2.86)	0.434*** (3.09)	0.460*** (3.36)
$IO \times (\Delta RO A_t - \Delta IARO A_t)$		1.106*** (5.83)	1.120*** (5.89)	1.082*** (5.66)	1.091*** (5.75)
$IO \times (\Delta RO A_{t+1} - \Delta IARO A_{t+1})$		0.310*** (5.95)	0.312*** (6.02)	0.278*** (5.41)	0.278*** (5.48)
$IO \times \Delta IARO A_{t-1}$			1.586 (0.68)		6.047** (2.12)
$IO \times \Delta IARO A_t$			2.739 (0.90)		-0.147 (-0.06)
$IO \times \Delta IARO A_{t+1}$			-2.190 (-1.49)		-3.379 (-1.82)
$SZ$				-0.037*** (-5.26)	-0.047** (-2.16)
$SZ \times (\Delta RO A_{t-1} - \Delta IARO A_{t-1})$				0.124 (1.43)	0.117 (1.39)
$SZ \times (\Delta RO A_t - \Delta IARO A_t)$				0.067 (1.16)	0.071 (1.24)
$SZ \times (\Delta RO A_{t+1} - \Delta IARO A_{t+1})$				0.048** (2.22)	0.049** (2.38)
$SZ \times \Delta IARO A_{t-1}$					-3.307 (-1.19)
$SZ \times \Delta IARO A_t$					1.088 (0.51)
$SZ \times \Delta IARO A_{t+1}$					1.454 (1.04)
Year dummies	yes	yes	yes	yes	yes
Adj-R <sup>2</sup>	.088	.129	.133	.137	.140
No. of observations	6607	6607	6607	6592	6592

Note:  $\Delta IAROA_{it}$  is the industry average of  $\Delta ROA_{it}$ ; all other variables are the same as in Tables 2, 3, and 6. Standard errors are adjusted for both heteroskedasticity and within correlations clustered by firms. The constant is included in regressions but not reported;  $t$ -statistics are reported in parentheses beside each coefficient. \*\*\*, \*\*, and \* denote statistically significant differences at the 1, 5, and 10 per cent levels, respectively.

### 3. Other Issues

We conduct some additional robustness tests. For example, we include  $CAR_{i,t+1}$  as an independent variable to control for potential unexpected market factors in  $\Delta E_{i,t+1}$ . Moreover, we try the sample after excluding firms never held by institutional shareholders between 2000 and 2006, and then analyse market reactions to the event of institutional shareholders' initial holding of a company. In both situations, the results are consistent with the previous conclusions. Moreover, we divide the sample period into two (2000-2003 and 2004-2006) and conduct the regression separately. We find that the information transmission role of institutional shareholders still exists, and that the role has grown stronger in recent years.

## VII. Conclusions

This paper investigates whether institutional investors enhance the price-leading effect on the stock markets. The evidence shows that firms with institutional investors exhibit a stronger link between current stock prices and future earnings. Our finding supports the conclusion that institutional investors have more information relative to individual investors, and that they incorporate the information into stock prices via their trading. Upon decomposing total earnings into industry-level and firm-level earnings, we find that the information advantage held by institutional investors primarily results from firm-level information.

Whenever the A-share market experiences high volatility, institutional investors are blamed for creating bubbles or disturbing the market. This study systematically shows that institutional investors accelerate the information flow in the market and so, we argue, improve the information environment of the capital market and further improve resource allocation. Although we are unable to exclude the possibility of irrational trading by institutional investors, overall they enhance the informativeness of stock prices.

But this study is also subject to several limitations. First, the result is not significant if we use the continuous variable of institutional holding instead of the dummy variable. The insignificance could result from the low variation in institutional holdings. Also, our sample consists mostly of observations without institutional investors or with institutional holdings of less than 5 per cent. The observations with no institutional holdings account for 43 per cent of the full sample, and those with less than 5 per cent holdings account for 46 per cent. The low variation in institutional holdings makes it hard to identify any difference in effect on the informativeness of stock prices. Hence, we can only examine differences between the sample with and the sample without any institutional holdings. This caveat limits the generalisability of this study to a certain degree. Nonetheless, with more shares going public following the reform of the split share structure, institutional holdings will increase, mitigating the concern caused by ownership concentration. Second, as a consequence of data availability, we use the top 10 institutional holdings to represent overall institutional ownership, which adds some noise to our empirical test. Last, we are unable to exclude the possibility that the relation between institutional investors and the price-leading effect could be driven by insider trading.

## References

Please refer to pp. 60-61.