2009年6月　第11卷　第2期
中　国　会　计　与　财　务　研　究
China Accounting and Finance Review
Volume 11, Number 2 – June 2009

财务操纵新视角：经营现金流量操纵的动机和手段*

薛爽　叶飞腾

摘要

本文运用Bertrand *et al.*(2002)模型，验证了上市公司经营活动现金流量操纵的动机和路径。研究发现，具有提高利润含金量动机（也称匹配动机）或跨越经营现金流量零点动机的上市公司在受到行业冲击时，其现金流量反应的灵敏性显著低于其他公司，说明这些公司存在现金流量操纵行为。且当行业冲击为负向时，这些公司现金流量的敏感性下降更多，即操纵幅度更大。具有操纵动机的公司主要通过“销售商品、提供劳务收到的现金”、“购买商品、接受劳务支付的现金”以及“支付给职工的现金”达到操纵的目的。进一步分析发现，嫌疑公司主要利用了“经营性应收”和“经营性应付”项目来操纵“销售商品收到的现金”或“购买商品支付的现金”。

关键词：现金流量操纵、操纵动机、操纵手段、Bertrand *et al.* (2002) 模型

中图分类号：F230、F275

* 薛爽，上海财经大学会计与财务研究院，会计学院。邮政编码：200433。电子邮箱：xuesh@mail.shufe.edu.cn。叶飞腾，上海财经大学会计学院，博士生。电子邮箱：research4@163.com。本文受到国家自然科学基金资助项目（批准号70602030）、教育部人文社科重点研究基地重大项目（批准号08JJD630005）、上海市浦江计划课题“公允价值的运用与会计信息质量－基于新旧会计准则的比较研究”,上海市曙光计划课题“公司财务操纵全新视角：上市公司现金流量操纵研究”和上海财经大学‘211工程’三期重点学科建设项目的资助。
作者感谢两位匿名审稿人和编辑的宝贵意见，但文责自负。

一、引言

2008年全球性的金融危机爆发以来，大批企业因资金链断裂而破产关闭，“现金为王”再次成为市场的流行语。事实上，即便在经济处于上升的阶段，由于会计盈余被广泛操纵，财务报表使用者也在越来越多地使用现金流量指标来评价企业的经营成果。现金流量以其“可靠性”受到信任和青睐主要有以下原因：首先，现金流量是投资决策的重要依据，价值相关性研究表明现金流量可以为投资者提供增量信息（Wilson, 1987；赵春光，2004）。其次，现金流量也是评价企业业绩的重要指标，Graham *et al.* (2005)调查发现，在评价企业业绩时，22%的财务高管认为经营现金流量和自由现金流量是最重要指标。第三，现金流量还有助于评判会计盈余的质量和预测公司的财务困境。章之旺（2004）发现，现金流量信息可以为财务困境预测提供增量信息。实务中，我们也发现很多公司在退市或被ST前几年，虽然公司仍然盈利，但经营现金流量已经开始连续几年低于净利润甚至为负数。如以财务造假一鸣惊人的“银广厦”在丑闻曝光之前3年以“含金量”衡量的盈余质量就已经恶化。[1] 最后，现金流量正逐渐进入监管层的视野，在意识到以会计盈余作为审核指标的局限性后，监管部门越来越关注现金流量指标并开始将其列入相关制度。

现金流量之所以受到越来越多的重视，是因为人们逐渐认识到现金流量比会计盈余更加可靠，基于收付实现制的现金流量相对于应计制的会计盈余而言可操纵的空间更小，受会计估计和会计方法选择的影响更有限。然而，现金流量并非不可操纵。随着投资者对现金流量数据，特别是经营活动现金流量的广泛关注以及监管部门把现金流量指标纳入审核标准，我们预期公司管理层会产生操纵现金流量的机会主义行为。[2] 公司可以通过推迟应付帐款、加速收回或出售应收帐款、甚至直接把投资和筹资活动产生的现金流量计入经营活动等方式来实现操纵。在我国特殊的制度背景下，剥离上市的上市公司与母公司之间存在千丝万缕的联系，为上市公司利用与母公司集团间的关联交易操纵现金流量创造了条件。因为从上市公司转移出去（进来）的现金流，将来还可以从母公司中转移进来（出去）。由此可见，上市

---

[1] 银广夏在2001年财务造假曝光前，1998、1999、2000年的净利润分别为0.89亿元、1.28亿元和4.18亿元，但对应的经营活动现金流量却只有-0.21亿元，－0.06亿元和1.24亿元。

[2] 本文选用“现金流量操纵”而没有使用“现金流量管理”是因为在财务领域，“现金流量管理”已有特定的含义：“现金流量管理是指以现金流量作为管理的重心、兼顾收益，围绕企业经营活动、投资活动和筹资活动而构筑的管理体系……包括现金预算、现金调度（保持合适的库存现金）、信息与报告系统以分析与评价系统等”（骆良彬，苏明瑜， 2008）。为了避免和通常意义上的现金流量管理概念相区别，我们用了“现金流量操纵”的概念。尽管如此，如果比照Earnings management与Earnings manipulation的差别，本文的概念实际上更接近Earnings management。

公司既存在操纵现金流量的动机又有操纵现金流量的便利条件，势必衍生出操纵现金流量的行为。

本文从现金流量操纵的目的出发，试图回答两个问题。第一个问题是“是否存在现金流量操纵？”。如果存在，那么自然引申到第二个问题，即“如何操纵”。

本文用Bertrand *et al.*（2002）模型，检验有操纵动机公司的经营现金流水平对行业冲击反应的敏感性是否低于其他样本。实证结果发现，那些具有“提高利润含金量”动机和“零点跨越”动机的上市公司的确存在现金流量操纵行为。且当行业冲击为负向时，现金流量被操纵的程度更大。从现金流量表各项目构成看，异常现金流主要来源于“销售商品、提供劳务收到的现金”和“购买商品、接受劳务支付的现金”以及“为职工支付的现金”。进一步，我们发现，现金流量操纵的途径主要是经营性应收或应付项目。

与盈余操纵相关的文献可谓汗牛充栋，但验证现金流量操纵的研究却寥寥可数。本文不仅验证了经营现金流量操纵行为的存在，而且从会计路径上找到了现金流量操纵的手法。因此本研究在内容和方法上拓展了财务操纵的领域，弥补了相关研究的不足。

全文结构安排如下：第二部份对相关文献进行梳理；第三部份是研究设计与假说发展；第四部份是样本选择和描述性统计；第五、六部份分别是对现金流量操纵动机和手段的实证检验；第七部份是稳健性检验；最后是本文结论。

二、文献回顾

目前学术界针对现金流量操纵问题的研究还很少，已有的文献主要是针对盈余管理。即便如此，在现有盈余管理文献中，还是可以发现上市公司在进行盈余管理的同时存在着现金流量操纵的痕迹。Burgs*ta*hler and Dichev（1997）在研究微利公司的盈余管理时发现，微盈的公司来自于经营活动的现金流量显著高于微亏的公司，即微利公司会操纵经营现金流量以提高利润。Roychowdhury（2006）提出了实务活动（real activities）盈余管理的概念，以区别利用应计项目进行的盈余管理。他发现微利公司经营活动现金流显著低于其他公司。Cohen *et al.*（2008）发现，在萨班斯-奥克斯利法案通过前后，上市公司采用实务活动盈余管理与应计项目盈余管理的比率发生变化。萨班斯-奥克斯利法案通过后，监管更加严格，上市公司更多地采用实务活动手段进行盈余管理。这些文献虽然是以盈余管理为研究目的，但实务盈余管理的文献并不能排除上市公司盈余管理的同时兼顾现金流量操纵。事实上，与用应计项目进行盈余管理不同，我们很难识别这些实务活动的目的到底是操纵利润还是操纵现金流量。因此，为了验证现金流量操纵的目的，需要另辟蹊径。

国内对现金流量的研究主要集中在现金流量的价值相关性上。赵春光（2004）发现现金流量相对于会计盈余具有增量的价值相关性。王化成等（2003）发现，增加现金流量信息后的现金流量预测模型预测的准确性提高。张国清 (2007)也发现，

与单独提供会计盈余数字相比，提供现金流量数据能够改进对经营活动现金流量的预测。

有关现金流量操纵的研究才刚刚起步，卢文彬，朱红军（2001）在考察IPO公司经营业绩的变动时发现，用经营活动现金流量衡量的经营业绩在IPO当年和后3年呈现显著的下降态势。

Zhang（2006）是第一篇明确提出现金流量操纵概念的文献。她发现上市公司为了迎合分析师的预测、达到现金股利目标以及跨越现金流量零点会进行现金流量操纵。张然（2007）将中国上市公司作为研究样本，运用Burgs*ta*hler and Dichev（1997）的方法以及最佳拟合曲线模型发现了经营现金流量零点、前期的经营现金流量、分析师的预测是上市公司现金流分布的三个阈值，并找到了管理层操纵现金流的证据。吴联生等（2007）在假定真实现金流量服从混合正态分布下，对上市公司的现金流量管理的频度和幅度进行了推断，发现有5.67%的公司进行了现金流管理。薛爽，蔡祥，郭虹（2008）利用季度数据发现第三季度末经营活动现金流量净额低于净利润的公司，在第四季度存在调增现金流量的行为、具有再融资动机的上市公司在第四季度会操纵经营现金流量，以提高通过监管部门的再融资审核的可能性。

对于上市公司采用什么样的手段进行现金流量操纵，目前的文献鲜有涉及。陈理（2006）发现公司再融资时通过获得一次性的税费返还、收回被股东单位占用的资金、拖延支付货款以及其他与经营活动有关的支出等手段操纵上市公司的现金流量。王啸（2004）发现上市公司在再融资前通过获得税费返还、增加其他收现、延期支付货款等方式操纵经营现金流量。但是，他们的研究只是针对再融资时的公司，样本容量较小。

三、研究设计与假说发展

3.1 现金流量操纵的动机及“嫌疑”公司的确定

经营活动现金流量和净利润同时列于年报开始部分的主要财务数据表中，从列报形式上看，其受重视程度不分伯仲。投资者可以很方便地将二者进行对比。若经营现金流量与净利润偏离较大，则盈余的质量和真实性就容易受到置疑。经营活动产生的现金流量也往往被财务分析师用来评价上市公司利润的“含金量”。因此，我们推断上市公司可能存在匹配经营现金流量与净利润（或营业利润）的动机，从事后的角度看，那些经营现金流量与净利润（营业利润）差额在零附近微小区间的公司应有部分来自现金流量操纵公司。

其次，上市公司还存在迎合监管的动机。2001年颁布的《上市公司新股发行管理办法》以及《中国证监会股票发行审核委员会关于上市公司新股发行审核工作的指导意见》等规定中，明确提出并要求担任新股发行主承销商的证券公司重点关注并说明公司是否存在***“公司现金流量净增加额为负，且经营活动所产生的现金***

流量净额为负、可能出现支付困难”的情况。确定标准和达到标准是监管机构和上市公司博弈的永恒主题。为避免被重点关注，有再融资需求的某些上市公司存在操纵现金流量的动机。另外，这种“跨越”临界点的动机也产生于降低交易成本的需要（Burgs*ta*hler and Dichev, 1997），跨越这种虚幻的临界点的公司和没有跨越的公司相比，会有更低的融资成本、债务条款更“宽松”、在客户和供应商那里得到更多的优惠。前景理论也可以解释跨越零点动机，根据前景理论，投资者会对损失和收益分开评估，投资者的效用函数在损失领域是凹的而非凸的。所以对极小损失的风险也是非常厌恶的。将前景理论应用到投资者对现金流量的评价中，他们对微负的现金流量的评价会远远低于微正的现金流量。由此，我们预期上市公司存在著使“现金流量净增加额”跨越零点和“经营活动现金流量”跨越零点的动机。从事后的角度看，经营现金流量在零附近右侧微小区间的样本很有可能操纵了经营活动现金流量。由于本文考察的是经营活动现金流量而不是现金流量净额的操纵，所以那些操纵“现金流量净增加额”使其跨越零点的公司不在我们的研究范围。值得说明的是，除了特别说明，下文中提到“现金流量”时均指“经营活动现金流量”。

基于以上分析，我们用频率分布图来确定嫌疑公司的区间范围。图1是经营现金流量与净利润差异或偏离程度（DEV）的频率分布图。由于上市公司具有匹配经营现金流量与净利润的动机，我们预测在频率分布图中，在零点两侧会有异常的凸起。从图1 DEV分布来看，在零点附近区域[-0.03, 0.1]聚集了异常多的样本（样本数量显著地大于按正态分布预期的样本数）。因此，我们把DEV处于[-0.03, 0.1]的公司定义为第一类操纵经营现金流量的嫌疑公司，即具有提高利润含金量动机的公司，本文中有时也称为具有匹配动机的公司。

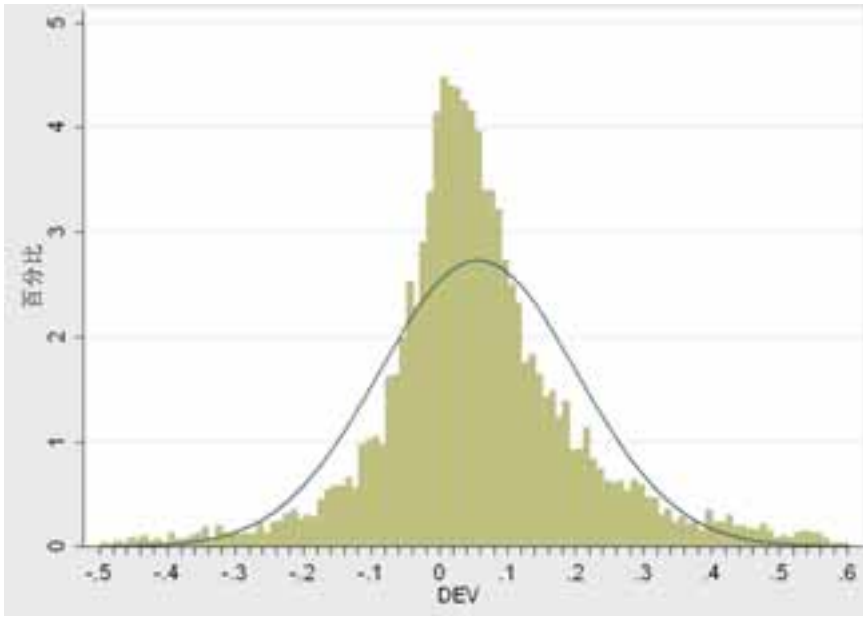


图1：经营现金流量与净利润的偏离程度

图1是关于*DEV*的分布图。横坐标是*DEV*，*DEV*等于经营现金流量与净利润的差额除以销售收入，用来代表公司现金流与净利润的偏离程度。纵坐标是给定*DEV*区间所对应的观测数占总样本的百分比。

图2是总资产现金流比率*COA*（＝经营活动现金流量/总资产）的频率分布图。从图2我们可以看出，大量样本聚集在*COA*零点右侧，在略大于零的范围内，样本数量明显比按照正态分布概率预测的样本数量多，这很可能是上市公司为达到监管要求或降低交易成本而操纵经营现金流量以跨越*COA*零点的结果。因此我们把*COA*处于[0, 0.06]的公司定义为第二类现金流量操纵嫌疑公司，即具有跨越零点动机的公司。

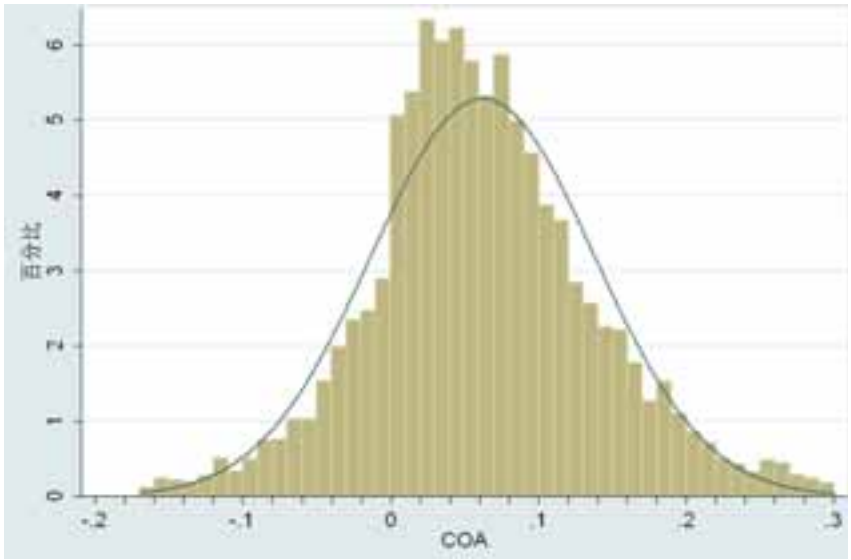


图2：总资产现金流量比率分布图

图2是关于总资产现金比率(*COA*)分布的直方图。纵坐标是在给定*COA*区间所对应的观测数占总样本的百分比。

利用临界点附近的嫌疑公司来检验上市公司是否存在现金流量操纵可能会受到以下问题的影响：文中现金流量操纵嫌疑公司的范围确定为临界点附近微小区间（匹配动机）和临界点右侧微小区间（跨越零点动机）的公司。但现金流量操纵的公司并不仅仅局限于这两个区间，因为一部分现金流量操纵公司在发生行业冲击时虽然进行了逆向的现金流量操纵，但未进入本文选定的这两个区间或操纵现金流之后超出了本文选定的这两个区间。这个误差对于本文的检验是个不利的误差，它的存在会使得实证结果变得更加不显著。因此，这种样本偏差不会影响我们结论。

3.2 假说发展

盈余管理研究中操纵性应计的计量方法有很多种，例如：行业平均模型、Jones模型、修正的Jones模型以及控制业绩影响的KLW模型（Kothari *et al.*, 2005），现金流量操纵却没有被普遍认可的模型。尽管Dechow *et al.*（1998）提供了一个*CFO*的模型（简称DKW模型），认为正常的*CFO*是关于上期销售收入和本期销售收入的一个函数。但DKW模型需要较长的时间序列数据来估计模型参数。由于样本时间跨度的限制，本文从另一条路径出发，利用上市公司对行业冲击的反应来判断上市公司是否操纵了现金流量。

我们的思路是：首先，经营活动现金流量的基础是收付实现制，很难分离出操控的经营活动现金流量，所以本文从一个特殊的角度来研究这个问题，即考察上市公司面临行业冲击时的反应。这里的行业冲击是指对整个行业经营现金流量水平产生影响的外部因素。在面临负的行业冲击时，嫌疑公司会操纵现金流量以减轻行业冲击的影响。比如，通过加速应收账款的收回或出售应收账款、推迟应付帐款，甚至把投融资活动产生的现金流量计入经营活动现金流量来降低不利的行业冲击对经营现金流量造成的影响。其次，当受到一个好的行业冲击（例如，突发事件引起的产品价格上升）时，嫌疑公司会“储存”一部分现金流量，以备将来需要时“释放”出来。这里需要注意的是，这部分嫌疑公司在未进行现金流量操纵之前应该位于嫌疑公司区间右侧，由于“储备”了一部分现金流量而落入了嫌疑公司区间。那么上市公司为什么要“储存”现金流量使自己贴上嫌疑公司的标签呢？因为在正的行业冲击时“储存”一部分现金流量，可以起到类似盈余管理中“糖果盒（cookie jar）”的作用，为将来需要时进行反向的现金流量操纵做储备。例如，通过关联交易方式把一部分现金流转移到母公司中，将来需要时再通过关联交易转移回来。另外，将现金流“储存”的成本远比提高现金流量的成本低，因为提高现金流更容易受到监管部门和审计师的关注，得到关联方配合的难度也更大。综上所述，与没有操纵现金流量的公司相比，被操纵公司的经营现金流量对行业冲击的反应灵敏性会较低。因此我们可以推断前面定义的以提高利润含金量为目标的第一类嫌疑公司和以实现跨越零点为目标的第二类嫌疑公司的经营现金流量对行业冲击的灵敏性应该显著低于其它公司。

基于以上分析，我们提出如下假说：

假说1：有现金流量操纵动机的嫌疑公司对行业冲击反应的灵敏性低于其他公司。

具有匹配动机的嫌疑公司既具有在负行业冲击时调增现金流量的动机，也具有在正行业冲击时储存现金流量的动机。负向行业冲击时，现金流量更可能低于净利润，因此，我们预期负向冲击时，现金流量对行业冲击敏感性下降更明显。同样，对于为实现跨越现金流量零点而操纵现金流量的公司，虽然也存在正的行业冲击时储存现金流量的动机，但跨越现金流量零点而引发的操纵行为应该主要发生在面临负的行业冲击时调增现金流量的行为中。而且，这类嫌疑公司在正行业冲击时储存现金流量的最终目的还是为了在负行业冲击来临时，调增现金流量以跨越零点。所以我们提出：

假说2：与正向的行业冲击相比，当行业冲击为负向时，具有操纵现金流量动机的上市公司对行业冲击反应的灵敏性下降更多。

3.3 回归模型

Bertrand *et al.*（2002）（以下简称Bertrand模型）为我们提供了一个考察公司对行业冲击反应程度的模型。Bertrand模型的原理是假定在正常情况下，具有某种相同特点的样本（如同行业等）面对来自外部的共同冲击时，反应（敏感性）应该不存在明显差异。如果在不同的子样本中存在系统性差异，说明不同的子样本可能还有其他不同之处（如操纵动机等）。在Bertrand *et al.* (2002) 中，作者认为如果集团公司内部存在掏空行为，集团公司的控股股东会把其在低控股权公司的利益转移到其具有高控股权公司中，因此集团公司中的上市公司相对于非集团公司的上市公司面对行业冲击的反应更不灵敏。Jian and Wong（2008）把Bertrand 模型应用到关联交易的研究中，发现中国具有再融资、避免退市动机的上市公司关联销售水平异常的高。同样地，Bertrand 模型也可用于识别现金流量操纵嫌疑公司与非嫌疑公司面对行业冲击的不同反应，因为嫌疑公司具有提高利润含金量或跨越现金流量零点的目的。在负的行业冲击时，嫌疑公司为了达到匹配和跨越目的而进行调增现金流量，对负的行业冲击反应的灵敏性会下降。在正的行业冲击时，嫌疑公司会“储存”一部分现金流量，以备将来需要时“释放”出来，导致现金流量对正向行业冲击反应的敏感性也会降低。因此，我们认为Bertrand模型虽然是为了研究集团公司内的掏空行为而产生，但同样适用于现金流量操纵的研究。本文检验现金流量操纵的模型如下：

$$CFO_{it} = \beta_0 + \beta_1 PCFO_{it} + \beta_2 PCFO_{it}*D + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + FIRM_i + TIME_t + \varepsilon_{it} \quad (1)$$

$$PCFO_{it} = COAm*TA_i \quad (2)$$

上述模型（1）中，CFO为经营活动现金流量；D为虚拟变量；当公司为第一类或第二类现金流量操纵嫌疑公司时取1，否则取0；$SIZE$和LEV分别是总资产的自然对数和总资产负债率，用来控制规模和资本结构的影响。 $PCFO$的定义见模型（2）。$COAm$为剔除自身后的行业加权平均总资产经营现金流比率，TA为总资产。因为行业平均$COAm$是不受上市公司操纵影响的，所以$PCFO$可以理解为公司预期的现金流量或未受操纵影响的公司本期的现金流量。$FIRM$和$TIME$分别用来控制公司个体效应和时间的固定效应。由于在回归模型中控制了固定效应，所以$PCFO$实质上是行业冲击带来的未受操纵影响的CFO。

当上市公司所在的行业受到一个不可控的不利的行业冲击时，嫌疑公司会正向操纵现金流量以增加净利润与现金流量的匹配程度或跨越COA零点。[3] 相反，当行

[3] 这里需要注意的是，嫌疑公司是按公司操纵现金流量之后的结果来确定的，所以公司在操纵现金流量之前并不落在嫌疑公司的区间范围内。

业受到一个有利的冲击时，嫌疑公司会“储存”一部分经营现金流量，以备将来需要时使用。所以从事后的角度来看，有动机操纵现金流量的嫌疑公司相对于其他公司而言对行业冲击反应的灵敏度下降，β_2应显著为负。

四、样本选择与变量定义

4.1 样本与变量

财政部于2001年颁布《现金流量表具体准则》对原现金流量表准则进行了修订，为了保持经营活动现金流量数据的一致性，本文选取2001年至2006年深沪两市A股上市公司作为研究样本。数据主要来源于WIND和CSMAR数据库。

我们对2001至2006年所有A股公司样本进行了如下筛选。首先，金融类公司与其他上市公司相比具有不同的公司特征，剔除金融类上市公司。其次，本文的部分变量要除以销售收入来消除公司规模的影响，所以剔除了销售收入为零的上市公司。第三，因为要计算剔除自身的行业加权平均总资产现金流量比率，剔除了行业内只有一家公司的样本。行业分类采用中国证监会颁布的《上市公司行业分类指引》大类标准，即单字母加两位数字的编码。在剔除缺失数据的样本以及上下1%极值之后，共得到 6426个企业-年观测值。

表1是关于变量的定义。在模型（1）中，D代表有操纵现金流量嫌疑的公司。根据前面的分析，嫌疑公司分为两类。为提高净利润与现金流量匹配程度而可能进行操纵的嫌疑公司我们用D_DEV来定义，即经营现金流量与净利润的差异DEV处于[-0.03，0.1]的公司为1,否则为0。D_COA为代表第二类嫌疑公司的哑变量，当总资产现金流比率处于[0，0.06]的公司设为1，否则为0。NEG是代表行业面临不利的冲击的哑变量，本期的$PCFO$小于上期的$PCFO$时取1；否则取0。

其他几个变量用来检验现金流量操纵的途径。$MAIN$、$OTHER$、$WAGE$、$TAXO$、$TAXREFUND$分别代表现金流量表中与经营活动有关的项目。其中，$MAIN$是销售商品收到的现金减去购买商品支付的现金。$OTHER$代表收到的其他与经营活动有关的现金减去支付的其他与经营活动有关的现金。$TAXO$和$TAXREFUND$分别代表支付的税金和收到的税收返还。$WAGE$代表为职工支付的现金。最后，$\triangle AR$和$\triangle AP$分别代表资产负债表上与经营活动有关的应收项目的减少和应付项目的增加。

表1：变量定义

变量名	含义
COA	总资产现金流比率，等于经营活动现金流量除以总资产。
DEV	（经营活动现金流量-净利润）/销售收入。
COAm	除自身外的行业加权平均总资产现金流比率，权数为总资产。
PCFO	预期现金流量，等于*COAm*TA*，其中 *TA*为总资产。
D_DEV	虚拟变量，代表具有提高净利润含金量动机的公司，*DEV*处于[-0.03, 0.1]时为1，否则为0。
D_COA	虚拟变量，代表具有跨越零点动机的嫌疑公司，*COA*处于[0, 0.06]的公司设为1，否则为0。
NEG	虚拟变量，代表不利的行业冲击。本期*PCFO*小于上期*PCFO*时取1；否则取0。
MAIN	销售购买现金净流量，等于销售商品/提供劳务收到的现金减去购买商品/接受劳务支付的现金。
OTHER	其它经营现金净流量，等于收到的其它与经营活动有关的现金减去支付的其它与经营活动有关的现金。
WAGE	支付职工现金，等于支付给职工及为职工支付的现金。
TAXO	支付的各项税费。
TAXREFUND	收到的税费返还。
△AR	经营性应收项目的期初余额减去期末余额，即本期经营性应收项目的减少。
△AP	经营性应付项目的期末余额减去期初余额，即本期经营性应付项目的增加。
SIZE	总资产的自然对数。
LEV	总负债/总资产

4.2 描述性统计分析

表2是主要变量的描述性统计，Panel A 是离散变量的描述性统计部分。从*D_DEV*和*D_COA*的频率和百分比来看，有匹配现金流量与净利润动机的嫌疑公司的数目占所有样本的46.28%，跨越现金流量零点动机的嫌疑公司占所有样本的34.20%。平均来看，行业冲击为正的概率为65.21%，行业冲击为负的概率是34.79%。Panel B部分是关于连续变量的描述性统计，Panel B 显示*DEV*的均值和中值分别为0.097和0.047，这说明*DEV*的分布呈右偏状态。*COA*的均值为0.062，*COAm*的均值为0.067。*CFO*的均值（中值）为0.111（0.090），*PCFO*的均值（中值）为0.105（0.059）。

SIZE

表2：变量描述性统计

Panel A 离散变量部分

		0		1	
	样本总数	样本数	%	样本数	%
D_DEV	6426	3,452	53.72	2,974	46.28
D_COA	6426	4,228	65.80	2,198	34.20
NEG	5148	3,357	65.21	1,791	34.79

Panel B 连续变量部分

	样本总数	最小值	均值	中值	最大值
DEV	6426	-0.914	0.097	0.047	3.654
COA	6426	-0.239	0.062	0.057	0.342
COAm	6426	-0.063	0.067	0.063	0.191
CFO	6426	-3.316	0.111	0.090	2.753
PCFO	6426	-0.373	0.105	0.059	3.335

表3是变量间相关系数表，从表中我们可以看出，*CFO*与*PCFO*显著正相关。*PCFO*与*PCFO*D_DEV* 和*PCFO*D_COA*正相关，但相关系数不是很大，不会引起共线性问题。未报告的相关性系数分析还显示，*PCFO*D_DEV*NEG*与*PCFO*D_DEV*的相关系数以及*PCFO*D_COA*NEG*与*PCFO*D_COA*的相关系数均超过0.7，若把它们同时放入一个方程进行回归，会造成多重共线性。在后面的多元回归分析中，本文采了分样本回归的办法克服这个问题。

表3：变量间相关系数表

	CFO	*PCFO*	*DEV*	*COA*	*D_DEV*	*D_COA*	*PCFO*D_DEV*	*PCFO*D_COA*	*SIZE*
PCFO	0.272*								
DEV	0.388*	0.077*							
COA	0.613*	0.141*	0.221*						
D_DEV	-0.118*	-0.086*	-0.226*	0.077*					
D_COA	-0.102*	-0.065*	-0.007	-0.277*	0.228*				
*PCFO*D_DEV*	0.006	0.383*	-0.101*	0.053*	0.490*	0.101*			
*PCFO*D_COA*	-0.022	0.300*	-0.002	-0.140*	0.116*	0.543*	0.349*		
SIZE	0.081*	0.541*	0.004	0.080*	0.057*	-0.015	0.375*	0.234*	
LEV	-0.031*	-0.033*	0.148*	-0.039*	-0.045*	0.002	-0.025*	-0.004	-0.061*

Pearson相关系数。表中的星号表示相关系数至少在5%的水平上显著。变量定义详见表1。

五、现金流量操纵动机的实证检验

Bertrand 模型要求控制样本的个体和时间固定效应，本文采用2001到2006年的面板数据来控制固定效应，选用的面板数据模型为固定效应模型。另外，为了解决数据可能存在的序列相关，参考Petersen (2009)，表4-表6的检验采用了Cluster-Robust *Sta*ndard Errors 的方法。

表4是嫌疑公司对行业冲击反应的多元回归结果，所有回归中，*PCFO*均显著为正，说明行业冲击确实会影响公司的经营现金流。回归（1）加入以提高净利润含金量为目标的现金流操纵嫌疑公司（第一类）与行业冲击的交乘项。回归（2）加入以跨越现金零点为目标的现金流操纵嫌疑公司（第二类）与行业冲击的交乘项。两个回归中交乘项的系数都显著为负，即第一类和第二类嫌疑公司的现金流量对行业冲击的敏感性显著低于其他公司，回归结果与假说1的预期相符。回归（3）中，我们把两类嫌疑公司与行业冲击的交乘项同时放入模型，结果类似。因此，回归（1）至（3）的结果很好地验证了我们的第一个假说，即有操纵动机的公司对现金流行业冲击的反应更小。从系数的大小上看，以跨越零点为目的的现金流量操纵幅度更大。

表4 现金流量操纵嫌疑公司对行业冲击的反应

变量	(1) 全部样本	(2) 全部样本	(3) 全部样本	(4) *NEG* = 1	(5) *NEG* = 0
PCFO	0.391***	0.396***	0.416***	0.767***	0.372***
	(7.732)	(7.508)	(7.364)	(6.643)	(5.454)
*PCFO*D_DEV*	-0.194***		-0.139***	-0.284**	-0.168***
	(-5.803)		(-4.250)	(-1.968)	(-4.991)
*PCFO*D_COA*		-0.285***	-0.245***	-0.456***	-0.187***
		(-6.374)	(-5.187)	(-3.377)	(-3.980)
SIZE	-0.015***	-0.017***	-0.014***	-0.031***	-0.009
	(-2.818)	(-3.137)	(-2.636)	(-3.012)	(-1.046)
LEV	-0.003	-0.002	-0.002	-0.017	-0.001
	(-0.368)	(-0.298)	(-0.333)	(-1.493)	(-0.167)
INTERCEPT	0.197***	0.209***	0.195***	0.310***	0.139**
	(5.698)	(6.067)	(5.582)	(4.357)	(2.368)
YEAR	控制	控制	控制	控制	控制
*PCFO*D_DEV*正负冲击系数差异比较				Z =-0.783	
*PCFO*D_COA*正负冲击系数差异比较				Z =-1.881*	
N	6278	6278	6278	1775	3335
Adj.R^2	0.008	0.011	0.013	0.065	0.02

表中所有模型的因变量都是*CFO*。面板数据回归中控制了公司个体的固定效应。其中回归（4）和（5）分别是用行业受到负的冲击（*NEG* = 1）和正的冲击（*NEG* = 0）时的样本。其它模型用的是01至06年公司年度全样本。*、**、***分别表示在10%、5%和1%的水平上显著。

为了进一步判断嫌疑公司对行业冲击反应灵敏度下降幅度是否与行业冲击的方向相关，我们把样本分为正向冲击和负向冲击的样本分别进行检验。负向冲击（*NEG* = 1）定义为本期的*PCFO*小于上期的*PCFO*；正向行业冲击（*NEG* = 0）定义为本期的*PCFO*大于上一期的*PCFO*。分样本回归结果见表4回归（4）和（5）。以匹配为动机的嫌疑公司对负的行业冲击和正的行业冲击的反应程度不同：面临负的行业冲击，交乘项系数为-0.284；面临正的行业冲击时，交乘项系数为-0.168。从系数大小上看，负的冲击时操纵现金流的幅度更大。我们对其进行了统计检验[4]，结果显示Z值为-0.783，未达到显著性水平。回归（4）和（5）显示，以跨越零点为目的的嫌疑公司对负行业冲击和正行业冲击的反应存在明显差异。当行业冲击为负时，*PCFO*D_COA*前的系数为-0.456；而当行业冲击为正的时候，*PCFO*D_COA*前的系数只有-0.187，表明负行业冲击时现金流敏感度下降的幅度远高于正行业冲击时敏感度的下降幅度。同时，我们也对其进行了统计检验[4]，Z值为-1.881，说明负行业冲击时现金流敏感度下降的幅度显著高于正行业冲击时敏感度的下降幅度。综上所述，我们认为假说2基本得到了验证，即与正向行业冲击相比，当行业冲击为负时，嫌疑公司对行业冲击反应的灵敏性下降更多。

综合上面的实证结果，具有匹配动机的嫌疑公司和跨越现金流量零点动机的嫌疑公司在面临行业正向冲击和负向冲击时都会操纵现金流量。为了使得利润和经营现金流量相互匹配，在正的冲击时，储存现金流以备将来“释放”，在负的冲击时，调增经营活动现金流量；而且嫌疑公司在操纵现金流量的行为上存在非对称性，特别是对于跨越零点动机的公司，在负行业冲击时调增现金流量的程度显著大于正行业冲击时储存现金流量的程度。

六、现金流操纵手段的实证检验

第五部分的分析表明，有匹配动机和跨越零点动机的上市公司存在操纵经营现金流量的行为。那么从经营现金流量的来源看，哪几部分受到了操纵？上市公司采用什么样的手段进行现金流量操纵呢？

---

[4] Z 统计量为 $\frac{(\hat{\beta}_{NEG=1} - \hat{\beta}_{NEG=0})}{\sqrt{S^2(\hat{\beta}_{NEG=1}) + S^2(\hat{\beta}_{NEG=0})}}$，其中 $\hat{\beta}_{NEG=1}$ 与 $\hat{\beta}_{NEG=0}$ 分别是两个子样本的回归系数估计值，s^2 ( )则是相应回归系数的标准误差之平方项。

首先看经营现金流量的构成。根据现金流量来源，我们把经营活动现金流分解为销售购买现金净流量（*MAIN*）、其它经营现金净流量（*OTHER*）、支付给职工的现金（*WAGE*）、支付的各项税费（*TAXO*）、收到的税费返还（*TAXREFUND*）。其中，销售购买净现金流量（*MAIN*）等于销售商品、提供劳务收到的现金减去购买商品、接受劳务支付的现金；其它经营现金净流量（*OTHER*）等于收到的其它与经营活动有关的现金减去支付的其它与经营活动有关的现金；支付给职工的现金（*WAGE*）等于支付给职工及为职工支付的现金。

研究的思路与第五部分类似。以销售购买净流量为例，我们已经验证了两类嫌疑公司存在操纵现金流量的行为，即嫌疑公司经营现金流量对行业冲击的反应更不灵敏，那么如果经营活动现金流量中的销售购买净流量部分受到了操纵，我们应该发现嫌疑公司的经营活动现金流量中的销售购买净流量部分相对其它公司的销售购买净流量而言，对行业冲击的反应灵敏性更低。

对于销售购买净流量（*MAIN*），表5显示，*PCFO*D_DEV*和*PCFO*D_COA*系数为分别为-0.087和-0.137且显著，说明两类嫌疑公司中的销售商品、提供劳务收到的现金和购买商品、接受劳务支付的现金部分受到了操纵。由于中国上市公司很多都是剥离上市，与母公司之间存在千丝万缕的关系。所以中国上市公司与母公司集团之间的关联交易很难分清是正常的关联交易还是非正常的关联交易。这为上市公司利用关联交易操纵经营活动现金流和盈余提供了便利（Jian and Wong, 2008）。

对于其它经营净流量（*OTHER*）,交乘项的系数虽然为负，但统计上不显著。这与实务界认为“其它与经营活动有关的现金”是现金流量表中的“垃圾筒”是不相符的。表5的回归（3）显示两类嫌疑公司也通过支付给职工的工资（*WAGE*）来操纵现金流量。比如，在负的行业冲击时，公司可能推迟职工工资的支付到下一年度，把本年度的经营现金流量“做”得更加漂亮。最后两列回归结果表明支付的各项税费（*TAXO*）和收到的税收返还（*TAXREFUND*）等科目的现金流量没有被操纵。这不难理解，因为税收不是公司能够掌控的，所以这些项目难以成为操纵的对象。

表5 经营活动现金流量组成部分的操纵检验

变量	(1)	(2)	(3)	(4)	(5)
	MAIN	*OTHER*	*WAGE*	*TAXO*	*TAXREFUND*
PCFO	0.051	0.031	-0.005	0.009	0.029**
	(1.027)	(0.633)	(-0.496)	(0.633)	(2.127)
*PCFO*D_DEV*	-0.087***	-0.004	-0.025***	0.009	-0.002
	(-2.869)	(-0.187)	(-4.013)	(1.419)	(-0.374)
*PCFO*D_COA*	-0.137**	-0.019	-0.013*	-0.004	-0.008
	(-2.219)	(-0.671)	(1.724)	(-0.528)	(-1.326)
SIZE	-0.014	-0.022**	-0.003	-0.010***	-0.006**
	(-1.307)	(-2.007)	(-1.128)	(-2.749)	(-2.494)
LEV	0.000*	0.000	0.000	0.000	0.000
	(1.733)	(-0.565)	(1.280)	(-0.698)	(0.823)
INTERCEPT	0.441***	0.095	0.110***	0.161***	0.060***
	(6.241)	(1.276)	(5.876)	(6.851)	(4.200)
YEAR	控制	控制	控制	控制	控制
N	6130	6003	6127	6128	3932
Adj.R^2	0.034	0.005	0.013	0.076	0.074

MAIN、*OTHER*、*WAGE*、*TAXO*、*TAXREFUND*是经营活动现金流量的组成部分，其中*MAIN*代表销售商品、提供劳务收到的现金减去购买商品、 接受劳务支付的现金；*OTHER*代表收到的其它与经营活动有关的现金减去支付的其它与经营活动有关的现金；*WAGE*代表支付给职工及为职工支付的现金；*TAXO*代表支付的各项税费；*TAXREFUND*代表受到的税费返还。

现在，我们找到了被操纵的现金流量表项目，基于经营现金流量与资产负债表的关系，这些操纵行为也应反映在资产负债表科目中。如果将二者相结合，就能比较完整地还原公司操纵现金流量的手段。

从前面经营活动现金流量组成部分的操纵检验中，我们可以看出，除了支付给职工的现金外，两类嫌疑公司主要是操纵了经营活动现金流量中的销售商品、提供劳务收到的现金和购买商品、接受劳务支付的现金。根据现金流量表和资产负债表的勾稽关系，我们将关注的重点放在应收、应付等经营性应计项目上。这里的应收项目主要包括应收票据、应收账款和预收账款，应付项目主要指应付票据、应付帐款、预付帐款、应付工资和应交税金等。如果嫌疑公司采用经营性应收和应付来操纵现金流量，比如当行业有一个负的冲击时，通过加速应收账款收回和推迟应付帐款来调增现金流量，那么嫌疑公司当期的应收账款减少和应付帐款增加对负的行业冲击的反映灵敏性应该较低。我们用$\triangle AR$和$\triangle AP$分别表示经营性应收项目的减少和经营性应付项目的增加，$\triangle AR$加上$\triangle AP$则表示应收应付项目的总体变化。具体

的设计是，以经营性应收项目的减少（$\triangle AR$）和应付项目的增加（$\triangle AP$）作为因变量，嫌疑公司虚拟变量与行业冲击的交乘项作为自变量。我们的主要目的是看嫌疑公司虚拟变量与行业冲击的交乘项前的系数是否是显著为负。

表6的（1）、（2）、（3）列显示，当采用所有公司-年度样本时，*PCFO*D_DEV*和*PCFO*D_COA*都显著为负，说明两类嫌疑公司都利用了经营性应收和应付项目操纵现金流。为了判断嫌疑公司利用经营性应计操纵现金流量是发生在负的行业冲击时还是正的行业冲击时或两者都有，我们按照行业冲击的负、正分成两个子样本。从（4）到（6）列是当行业冲击为负时的结果。从第（4）和（6）列可以看出，对于匹配动机的公司，*PCFO*D_DEV*显著为负，说明在负的行业冲击时通过加速应收账款收回或推迟支付应付项目来提高经营活动现金流量。对于跨越现金流量零点的嫌疑公司，第（5）列的系数显著为负，即这类公司主要利用了经营性应收项目来操纵现金流量。当行业冲击为正时（（7）到（9）列），为匹配动机而进行操纵的嫌疑公司利用了经营性应收项目（*PCFO*D_DEV*的系数在（7）和（8）列显著为负）。对跨越现金流量零点的嫌疑公司，交乘项在回归（7）和（9）中显著为负，说明主要利用了经营性应付项目进行操纵。

综合表5和表6的结果，我们认为，嫌疑公司主要是通过加速应收账款收回、延迟应付帐款来影响销售商品收到的现金或购买商品支付的现金，或延迟支付工人工资等手段达到对经营性现金流量进行操纵的目的。

以上检验中，经营性应付项目包含了应付工资和应交税金。表5中，我们已经发现嫌疑公司操纵了支付给职工的工资，但未操纵支付的各项税费。我们将这两个项目从经营性应付项目中剔除后，所得的结果与表6相似，所有结论均不受影响。

表6：现金流量操纵手段

变量	全样本			*NEG* = 1			*NEG* = 0		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	△AR+△AP	*△AR*	*△AP*	*△AR+△AP*	*△AR*	*△AP*	*△AR+△AP*	*△AR*	*△AP*
PCFO	0.175***	0.009	0.163**	0.302	-0.428**	0.730***	0.253***	0.018	0.221**
	(3.153)	(0.154)	(2.32)	(1.399)	(-2.104)	(2.757)	(2.969)	(0.237)	(2.413)
*PCFO*D_DEV*	-0.137***	-0.017	-0.118*	-0.426**	-0.009	-0.417*	-0.124**	-0.085*	-0.035
	(-2.783)	(-0.340)	(-1.884)	(-2.061)	(-0.0437)	(-1.648)	(-2.191)	(-1.675)	(-0.574)
*PCFO*D_COA*	-0.110**	-0.104*	-0.006	0.001	-0.360**	0.361*	-0.166**	-0.014	-0.145*
	(-2.005)	(-1.851)	(-0.0864)	(0.00333)	(-2.148)	(1.653)	(-2.405)	(-0.231)	(-1.953)
SIZE	-0.040***	0.030**	-0.069***	-0.101**	0.044	-0.145***	-0.083***	0.055***	-0.136***
	(-3.042)	(2.22)	(-4.172)	(-2.327)	(1.067)	(-2.718)	(-3.705)	(2.753)	(-5.689)
LEV	0.004	-0.003	0.007	-0.048*	-0.112***	0.065*	0.003	0.004	-0.001
	(0.616)	(-0.486)	(0.878)	(-1.673)	(-4.192)	(1.856)	(0.434)	(0.564)	(-0.0647)
INTERCEPT	0.255***	-0.235**	0.490***	0.777**	-0.271	1.004***	0.602***	-0.428***	0.996***
	(2.858)	(-2.572)	(4.311)	(2.46)	(-0.940)	(2.593)	(3.762)	(-3.005)	(5.916)
YEAR	控制	控制	控制	控制	控制	控制	控制	控制	控制
N	6036	6041	6040	1698	1699	1698	3212	3216	3215
Adj.R^2	0.009	0.004	0.005	0.032	0.055	0.034	0.017	0.007	0.021

*△AR*为应收项目的减少，*△AP*为应付项目的增加，*△AR+△AP*则表示净应收项目的减少；

七、稳健性检验

我们进行了如下稳健性检验。首先，在确定操纵利润含金量的嫌疑公司时，用营业利润替代净利润来确定嫌疑公司。从概念的内涵来说，经营现金流量对应的应该是营业利润。我们定义了一个与*D_DEV*相似的变量*D_DEVm*，即经营现金流量与营业利润的差异。其次，鉴于公司在增发、配股年度通常存在财务上的操纵行为（吴联生，薄仙慧，王亚平，2007；薛爽，2008），我们在模型中进一步加入增发、配股哑变量（增发或配股前一年和当年设为1，否则为0）与*PCFO*的交乘项控制单纯由于增发、配股所导致的操纵行为。[5] 最后，两个交乘项*PCFO*D_DEV*和*PCFO*D_COA*存在一定的相关性，在表5和表6中我们把两个交乘项分别放在模型中，结论亦不受影响。

八、结论

会计的权责发生制原则给利用应计项目进行的盈余管理留下了巨大的想像空间。也正因如此，财务操纵的研究一直以来都集中在对盈余管理动机、手段和后果等的探讨。本文则从现金流量操纵这样一个新的视角来研究财务操纵行为。通过本研究，我们希望探讨两个问题：一个是公司为什么要进行现金流量操纵？如何找到可能操纵现金流的嫌疑公司？二是，现金流操纵的途径如何。

我们从两个角度分析现金流操纵的动机。第一，因为应计项目未来转为现金流具有不确定性，报表使用者一般会用利润的含金量来简单地评价利润的质量。因此，我们预期，那些经营现金流量稍低于净利润的公司有动机也更有能力（相对于现金流量远远低于净利润的公司来说）对经营现金流量进行操纵使得现金流量与净利润更加匹配。第二，公司申请再融资时，证监会对经营现金流量为负的公司会比较关注。因此，那些经营现金流为负的公司有动机对现金流量操纵使其跨越零点。

我们借助Bertrand *et al.*（2002）模型，验证了上市公司存在操纵经营活动现金流量的行为。发现有提高净利润含金量动机和跨越现金流量零点的动机的上市公司的确存在操纵现金流量的行为，且在行业冲击为负向时，其操纵程度更大。通过对现金流量表项目的分解和资产负债表与现金流量表之间的勾稽关系，我们发现嫌疑公司是通过操纵经营性应收和应付项目来影响“销售商品、提供劳务收到的现金”和“购买商品、接受劳务支付的现金”达到操纵现金流量的目的。此外，提前或推迟支付“给职工的现金”也是嫌疑公司操纵经营现金流量的手段之一。

本文的贡献在于以下两个方面：第一，虽然已有少量文献验证了现金流量操纵的存在，但相关研究仍极其匮乏。本文用了与以往不同的研究思路、研究方法和模型，再次验证了现金流操纵的存在性，为现金流量操纵提供了新的经验证据。

---

[5] 感谢匿名审稿人的宝贵意见。

第二，我们发现了对现金流量进行操纵的手段以及这些手段在会计路径上留下的痕迹。这为实务工作中监督现金流量操纵提供了基础。

参考文献

陈理，2006，“上市公司经营性现金流操纵实证研究”，《财经科学》第4期，第30-36页。

卢文彬，朱红军，2001，“IPO公司经营业绩变动与股权结构研究”，《财经研究》第7期，第45-52页。

骆良彬，苏明瑜，2008，“现金流量管理与企业可持续发展”，《财会通讯》（理财版）第4期：56-57页。

王化成，陈小可，刘雪辉，2003，“中国资本市场披露现金流量的有用性”，《经济理论和经济管理》第10期，第29-35页。

王啸，2004，“我国上市公司现金流量操纵现象分析”，《证券市场导报》，第34-41页。

吴联生，薄仙慧，王亚平，2007，“现金流量在多大程度上被管理了——来自我国上市公司的证据”，《金融研究》第3期，第162-174页。

薛爽，蔡祥，郭红，2008，“上市公司在操纵经营性现金流吗？——基于季度报告的实证分析”，《中国会计与财务研究》第1期：第69-99页。

赵春光，2004，“现金流量价值相关性的实证研究——兼评现金流量表准则的实施效果”，《会计研究》第2期，第29-35页。

章之旺，2004，“现金流量在财务困境预测中的信息含量实证研究：来自2003-2004年度ST公司的新证据”，《中国管理科学》第12卷第6期，第23-28页。

张国清，2007，“经营活动现金流量预测实证研究”，《当代财经》第1期，第104-119页。

张然，2007，“中国上市公司现金流管理研究-兼对新兴市场和成熟市场现金流管理行为比较研究”，《中国会计评论》第3期，第381-400页

Bertrand, M., Mehta, P., and Mullainathan, S. (2002), ‘Ferreting Out Tunneling: An Application to Indian Business Groups’, *Quarterly Journal of Economics* 121-148.

Burgstahler, D. and Dechev, I. (1997), ‘Earnings Management to Avoid Earnings Decreases and Losses’, *Journal of Accounting and Economics* 24: 99-126.

Cohen, D. A., Dey, A., and Lys, T. Z. (2008), ‘Real and Accrual-Based Earnings Management in the Pre-and Post-Sarbanes Oxley Periods’, *Accounting Review* 83: 757-787.

Graham, J. R., Harvey, C. R., and Rajgopal, S. (2005), ‘The Economic Implications of Corporate Financial Reporting’, *Journal of Accounting and Economics*, Volume 40: 3-73.

Dechow, P. M., Kothari, S. P., and Watts, R. L. (1998), 'The Relation Between Earnings and Cash Flow', *Accounting Review* 25: 133-168.

Jian, M. and Wong, T. J. (2008), 'Propping through Related Party Transactions', *Review of Accounting Studies* forthcoming.

Kothari S. P., Leone, A. J., and Wasley, C.E. (2005), 'Performance Matched Discretionary Accrual Measures', *Journal of Accounting Economics* 39: 163-197.

Peterson, M. A. (2009), 'Estimate Standard Errors in Finance Panel Data Sets: Comparing Approaches', *Review of Financial Studies* 22(1): 435-480.

Roychowdhury, S. (2006), 'Earnings Management through Real Activities Manipulation', *Journal of Accounting and Economics* 42: 335-370.

Wilson, G. P. (1987), 'The Incremental Information Content of the Accrual and Funds Components of Earnings After Controlling for Earnings', *The Accounting Review* LXII(2): 624-652.

Zhang, R. (2006), 'Cash Flow Management, Incentives, and Market Pricing', *SSRN working paper*.

2009年6月 第11卷 第2期
中 国 会 计 与 财 务 研 究
China Accounting and Finance Review
Volume 11, Number 2 – June 2009

A New Angle on Financial Manipulation: Motivations for and Methods of Cash Flow Manipulation

Shuang Xue and Feiteng Ye*

Abstract

In this paper, we use the Bertrand *et al*. (2002) model to test the motivations for and methods of cash flow manipulation. There are two motivations for manipulating cash flow. One is to increase the quality of earnings, and the other is to avoid a negative net cash flow from operations (CFO). The CFO of firms that have motivation to manipulate cash flow is less sensitive to industry shocks than that of firms without such motivation. Furthermore, the degree of manipulation is greater when the impact of industry is negative. Empirical results show that cash flow from sales, cash flow paid for purchases, and cash paid to employees are the main manipulated items. Further study discloses that firms manipulate CFO by expediting receivables or postponing payables.

Key words: CFO manipulation, Motivation, Methods, Bertrand *et al*. (2002)
CLC codes: F230, F275

* Shuang Xue, School of Accountancy, Institute of Accounting and Finance, Shanghai University of Finance and Economics. Email: xuesh@mail.shufe.edu.cn; Feiteng Ye, School of Accountancy, Shanghai University of Finance and Economics. Email: research4@163.com.
This research is funded by the National Natural Science Grant (70602030), the Key Social Science Research Institute Grant of the Ministry of Education (08JJD630005), the Shanghai Pujiang Project (Fair Value and Quality of Accounting Information), the Shanghai Dawn Project (A New Angle on Financial Manipulation: Cash Flow Manipulation), and the 211-III project of SHUFE.
We appreciate the two anonymous referees and the Executive Editor Dr Donghui Wu for their valuable comments and suggestions. All errors and omissions are ours.

I. Introduction

Since the current world financial crisis began in 2008, many firms have been going bankrupt because they lack cash. "Cash is king" has regained its importance in financial management. Indeed, even during the economic boom, users of accounting information were relying more and more on cash flow to evaluate a company's performance because they knew that earnings are easily manipulated. Cash flow is more reliable for several reasons. First, it is a key factor in decision-making. Value relevance literature shows that cash flow provides incremental information for investors (Wilson, 1978; Zhao, 2004). Second, ratios based on cash flow offer an important dimension in evaluating a firm's performance. Graham *et al.* (2005) show that 22 per cent of chief financial officers regard cash flow from operations (CFO) and free cash flow as the most important accounting information in evaluating firm performance. Third, cash flow helps in appraising earnings quality or forecasting financial distress. For example, Zhang (2004) finds that cash flow provides incremental information for financial distress forecasting. In practice, we find that before they are specially treated or delisted, the CFO of some firms has been much lower than their net income or even negative for several years, although the net income is are still positive. For example, Yinguangxia is well known for its accounting fraud. Its earnings quality measured on the basis of cash flow was deteriorating three years before the scandal was exposed.[1] Finally, realising the limitations of earnings, regulators such as the China Securities Regulatory Commission (CSRC) have become more concerned about cash flow and have even incorporated it into some regulations and used it as the benchmark for approvals or monitoring.

Investors are also paying more and more attention to cash flow because they believe it is more reliable than earnings. Compared with accrual-based earnings, cash flow is more difficult to manipulate and less likely to be affected by accounting estimation and accounting policies. But manipulation of cash flow is not impossible. With the increased importance of cash flow, and especially CFO, managers may engage in opportunistic behaviour to manipulate it.[2] There are many methods for doing so, such as expediting accounts receivable, postponing accounts payable, or putting cash flow from investing and financing into CFO. In China, listed companies are usually split from and closely

---

[1] Before its scandal was disclosed in 2001, the earnings of Yinguangxia were RMB89 million, RMB128 million, and RMB418 million from 1998 to 2000, respectively. But the corresponding cash flows from operations were only -RMB21 million, -RMB6 million, and RMB124 million, respectively.

[2] We use *manipulation* rather than *management* of cash flow because *cash flow management* already has specific meanings. Cash flow management has been used to describe a management system that puts emphasis on cash flow from operating activities, which include cash budget, cash distribution, the information and reporting system, and the evaluation system (Luo and Su, 2008). But compared with *earnings management* and *earnings manipulation*, our concept of cash flow manipulation is closer to earnings management.

related to parent companies, and so related-party transactions offer a convenient and low-cost way to manipulate cash flow. Cash flow transferred from (to) listed companies can be transferred back to (from) listed companies. Since some firms have both motivation to manipulate cash flow and an innate convenient situation to realise it, manipulation behaviour seems inevitable.

In this study, we try to answer two questions: first, do listed companies manipulate CFO? If so, then how do they do it?

Using the Bertrand *et al.* (2002) model, we test whether the CFO of a motivated company is less sensitive to industry shocks than that of a non-motivated company. Empirical results show that companies with motivation to increase the quality of earnings or to avoid a negative net CFO do manipulate CFO. In addition, when the industry shock is negative, the degree of manipulation is greater. Empirical results also show that cash flow from sales, cash flow paid for purchases, and cash paid to employees are the main items manipulated. Furthermore, firms manipulate CFO mainly by expediting receivables or postponing payables.

Compared with the tremendous literature on earnings management, there is almost no research on CFO manipulation. In this paper, we not only test CFO manipulation, but also discover the methods of manipulation. Thus, this study expands our knowledge of financial manipulation in respect to both the scope and the method. We believe that it will fill the gap in the current literature.

The paper proceeds as follows. Section II reviews related literature. Section III covers research design and hypothesis development. Section IV describes our sample and presents the descriptive statistics. Sections V and VI report the empirical results. Section VII presents the robust tests. Finally, Section VIII concludes this paper.

II. Literature Review

Although a large body of literature on earnings management exists, only a few papers studying cash flow manipulation have appeared so far. But some literature on earnings management does imply that firms manipulate earnings and CFO at the same time. Burgstahler and Dechev (1997) find that small positive income firms have significantly more CFO than small negative income firms; specifically, small positive income firms use CFO to increase earnings. Roychowdhury (2006) distinguishes between earnings management using real activities and earnings management using accruals. He finds that small positive income firms have significantly lower CFO. Cohen *et al.* (2008) find that after the adoption of Sarbanes-Oxley Act, the ratio of real-activities earnings management to accrual-based earnings management changed. The Sarbanes-Oxley Act

has made regulation more strict, and many listed firms tend to use real-activities rather than accrual-based earnings management. Although these papers are oriented toward detecting earnings management, it is difficult to distinguish real-activities earnings management from CFO manipulation. In fact, because it is too challenging to discover the reasons behind real-activities manipulation, we must investigate CFO management from a new angle in order to find it.

In China, researchers mainly focus on the value relevance of CFO. Zhao (2004) finds that CFO has incremental value relevance relative to accounting earnings. Wang *et al.* (2003) show that CFO can improve the preciseness of the cash flow forecasting model. Zhang (2007) gets similar results to those of Wang *et al*. (2003).

With respect to CFO manipulation, Lu and Zhu (2001) find that, when investigating IPO firm performance before and after the IPO, performance measured by CFO significantly decreases in the IPO year and three years after the IPO.

Zhang (2006) is the first scholar who clearly puts forward the concept of cash flow manipulation in the research paper. She finds that listed firms manipulate CFO to meet analyst forecasts and cash dividend targets, and to pass the zero point of cash flow. Taking Chinese listed firms as the sample and applying the methodology of Burgstahler and Dichev (1997) as well as the best-fitted distribution model, Zhang (2007) finds that the zero point of CFO, previous-year CFO, and analyst-forecasted cash flow are the targets managers use to manipulate CFO. Wu *et al*. (2007) study the frequency and degree of CFO management. Assuming that real cash flow has a compound normal distribution, they find that 5.67 per cent of listed companies may manipulate cash flow. Xue *et al*. (2008) use quarterly accounting information to investigate CFO management and find that when a company's CFO is lower than earnings by the end of the third quarter, its managers will manipulate it upwards in the fourth quarter to make the annual CFO match annual earnings. They also find that potential applicants for seasoned equity offerings (SEOs), especially those threshold applicants (with an ROE slightly over 6 per cent) tend to manipulate CFO upwards in the fourth quarter in order to increase the chances their application will be approved.

So far, few papers have studied the methods of CFO manipulation. Chen (2006) finds that SEO companies manipulate cash flow by a one-time tax refund, taking back funds appropriated by block shareholders, and delaying purchase payments and other relevant operational expenditures. Wang (2004) finds that listed companies manipulate CFO by taking tax refunds, increasing other cash flow received, and delaying purchase payments. But because they study only SEO companies, their sample is small.

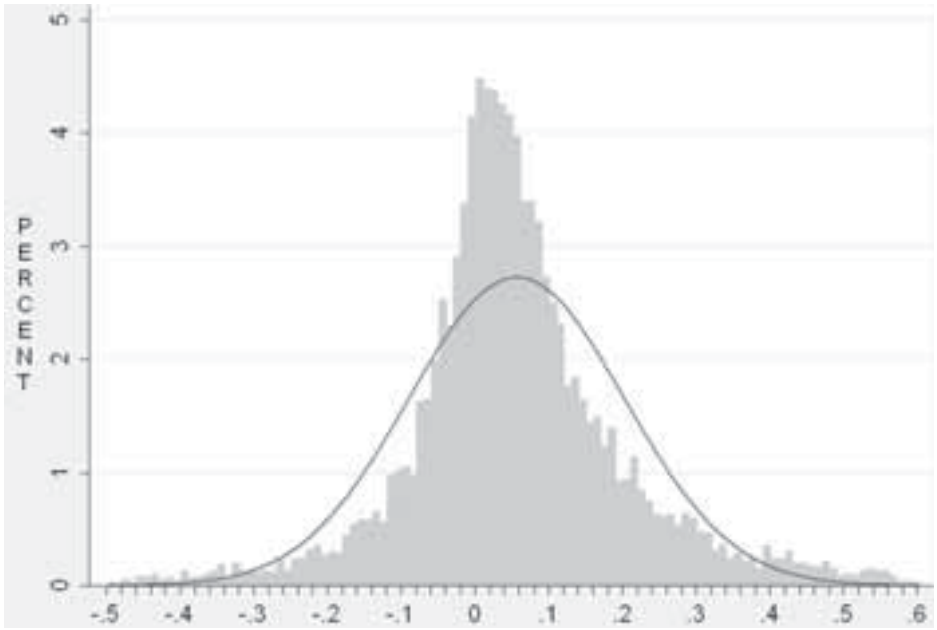
III. Research Design and Hypothesis Development

3.1 Analysis of Cash Flow Manipulation Motivations and Definition of "Suspicious" Firms

Cash flow from operations (CFO) and net income are two items listed under the section "Important Accounting Data and Ratios" that tops the annual report. The presentation format of these two items in the annual report not only highlights their importance but also offers investors a convenient way to compare them. CFO is considered an important benchmark by which to evaluate earnings quality. If the CFO deviates a large degree from net income, and especially if the net income is much higher than the CFO, investors will suspect the reliability and persistence of earnings. Under such pressure, managers have an incentive to manipulate CFO. In addition, analysts also broadly use CFO to evaluate earnings quality. Therefore, we expect managers will be motivated to match CFO and net income (or operating income). As deduced ex post facto, some firms whose CFO is very close to their net income (or operating income) are cash flow manipulators, that is, they can be identified as suspicious firms.

Moreover, managers are also motivated to meet regulatory requirements. Both the "Regulations on Equity Issuing by Public Firms" and the "Directive Suggestions of the Public Offering Review Committee about the Review Procedure for Equity Issuance of Public Firms", promulgated by the CSRC in 2001, attach prominent importance to CFO. According to these regulations, underwriters of equity issuers are required to pay more attention to CFO and to state whether the issuers' change in cash flow or the CFO is negative, which could result in insolvency. Establishing and meeting standards is a permanent game played between regulators and listed companies. Under these regulations, SEO firms certainly have the motivation to manipulate cash flow in order to avoid being closely checked.

In addition, the motivation to cross the cut-off point also comes from the need to decrease transaction costs (Burgstahler and Dichev, 1997). Firms that cross a "heuristic" cut-off point will have a lower cost of capital, more advantageous terms in debt contracting, or more favourable conditions from customers and suppliers. The motivation to cross the zero cut-off point is also consistent with prospect theory. Prospect theory postulates that an individual's value functions are concave in gains and convex in losses, and that investor utility increases greatly from a loss to a gain. Therefore, we expect that firms will have the incentive to avoid a small negative CFO. *Ex post*, some firms falling within the small intervals to the right of zero CFO may be manipulation firms. In this study we focus only on CFO; therefore, unless otherwise specified, cash flow is referred to as CFO throughout the remainder of the paper.

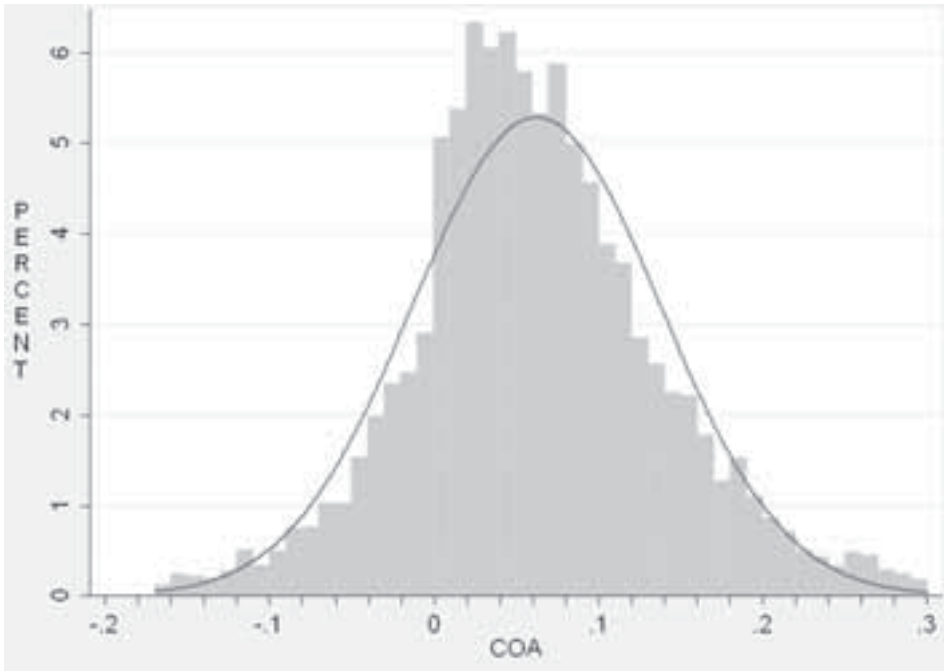


Graph 1 *DEV* Frequency Distribution Diagram

Graph 1 shows the *DEV* distribution. The x-axis is *DEV*, which is equal to CFO minus net income, scaled by sales. The y-axis is the percentage of firm-year observations in a given *DEV* interval.

On the basis of the above analysis, we use a histogram frequency distribution diagram to identify suspicious firms. Graph 1 is the *DEV* (deviation of CFO from net income, scaled by sales) frequency distribution diagram. Since some listed firms have an incentive to match CFO and net income, we expect that an abnormally high frequency of firms will be seen around the zero point in the *DEV* frequency distribution diagram. From Graph 1, we find an abnormally high frequency of firms at the interval [-0.03, 0.1] (significantly higher than would be expected for a normal distribution). Hence, we define firms whose *DEV* is at the interval [-0.03, 0.1] as Type I suspicious firms for cash flow manipulation, whose motivation is to increase the quality of earnings. We also name these suspicious firms as matching-motivated firms.

Graph 2 is the *COA* (=CFO/total assets) frequency distribution diagram, which shows that a high number of firms "cluster" at intervals just to the right of the zero point of *COA*. The frequency in this small interval is much higher than it would be in a normal distribution. We predict that this is the result of CFO manipulation to meet regulation requirements or to reduce transaction costs as discussed above. Hence, we define firms whose *COA* is at the interval [0, 0.06] as Type II suspicious firms for cash flow manipulation, or negative-*COA*-avoiding firms.



Graph 2 *COA* Frequency Distribution Diagram

Graph 2 is the *COA* frequency distribution diagram. The x-axis is *COA*. The y-axis is the percentage of firm-year observations at a given *COA* interval.

The following concerns arise from using the frequency distribution diagram to identify suspicious firms. We use intervals around zero (matching-motivated-firms) and intervals to the right of zero (negative-*COA*-avoiding firms) to identify suspicious firms. But cash flow manipulation firms probably exist in other areas as well. Some firms might manipulate cash flow but do not fall into these two areas we have chosen. But this bias is against our findings and so will not weaken our conclusions.

3.2 Hypothesis Development

There are many models for detecting earnings management or discretionary accruals, for example, the industry average model, Jones model, adjusted or modified Jones model, and profit adjusted KLW model (Kothari *et al*., 2005). However, there is no generally accepted model for cash flow manipulation. Although Dechow *et al*. (1998) provide a CFO model (hereafter, DKW model) and argue that CFO is a function of last period sales and current period sales, it is difficult to estimate the parameters of the DKW model because it requires a long period of time series. Therefore, we try to find a bypass (a sensitivity to industry shocks) to identify cash flow manipulation.

Because CFO is cash-based and it is difficult to distinguish discretionary CFO from non-discretionary CFO, we examine cash flow manipulation from a totally new angle, that is, a company's CFO reaction to an industry shock. An industry shock refers to an exogenous factor that affects the industry level of CFO. When facing a negative industry shock, suspicious firms will manage CFO to alleviate its negative consequences. For example, they may expedite accounts receivable, postpone accounts payable, or put cash flow from investing or financing into CFO. When a positive industry shock arises, such as an unanticipated price rise, suspicious firms may reserve some cash flow. Before manipulating cash flow, these suspicious firms should be at the interval right of the suspicious interval (e.g. [-0.03, 0.1] for Type I suspicious firms), and after reserving some cash flow, should fall into the suspicious interval. Then why might listed firms reserve cash flow, causing them to be labelled suspicious? This is because reserving some cash flow during positive industry shocks could play a role as a cookie jar, just like the role of earnings management. This "reserved" cash flow could be released to increase cash flow during negative industry shocks in the future. For example, a listed firm could transfer cash flow to its parent firm by related-party transactions and transfer it back when needed in future. In addition, the cost of reserving CFO is lower than that of increasing CFO, because increasing CFO is more likely to catch the attention of regulators and auditors and makes it more difficult to seek cooperation from related parties. In sum, the CFO of suspicious firms is less sensitive to industry shocks than that of non-suspicious firms. Therefore, we expect that the CFO of Type I suspicious firms (matching-motivated firms) and Type II suspicious firms (negative-*COA*-avoiding firms) will be significantly less sensitive to industry shocks than other firms.

The above reasoning leads us to formulate the following hypothesis:

H1: The CFO of suspicious firms that have a motivation to manipulate cash flow will be less sensitive to industry shocks than that of firms without the motivation to manipulate.

Matching-motivated firms have both the incentive to increase cash flow during negative industry shocks and to reserve cash flow during positive industry shocks. When facing negative industry shocks, CFO is more likely to be less than net income. So we expect that the decrease in sensitivity will be more pronounced during negative than during positive industry shocks. Similarly, for Type II suspicious firms, cash flow is manipulated mainly during negative industry shocks. The purpose of manipulating cash flow during positive industry shocks would also be to prepare for cash flow manipulation during negative industry shocks. Therefore, our second testable hypothesis is as follows:

H2: The decrease in sensitivity to industry shocks will be more pronounced during negative industry shocks than during positive industry shocks.

3.3 Regression Model

Bertrand *et al*. (2002) (hereafter the Bertrand model) provide us an opportunity to check a company's response to industry shocks. The logic of the Bertrand model is as follows: under normal conditions, firms with the same characteristics (such as in the same industry) should not have significantly different reactions to the same exogenous shock. A systematically different reaction implies some sort of differences among these firms (such as some firms having a certain motivation and the others not). Bertrand *et al*. (2002) argue that if tunnelling activities are occurring in a group company, the ultimate controller of the group company will transfer interests from companies with low cash flow rights to companies with high cash flow rights. Hence, group companies will be less sensitive to industry shocks than non-group companies. Jian and Wong (2008) apply the Bertrand model to their study of related-party transactions and find that Chinese listed companies applying for SEOs or threatened by delisting have an abnormally high level of related-party transactions. Likewise, the Bertrand model can be used to distinguish between CFO manipulation suspicious firms and non-suspicious firms by studying their different responses to industry shocks. Because suspicious firms have the incentive to match CFO and net income or to avoid negative CFO, their CFO will be less sensitive to industry shocks. During negative industry shocks, suspicious firms will increase cash

flow, so their sensitivity to industry shocks will decrease. During positive industry shocks, suspicious firms will reserve some cash flow, and their sensitivity to industry shocks will also decrease. In short, although the Bertrand model was created to investigate tunnelling activities in group companies, it can also be used to detect cash flow manipulation. The model used to test cash flow manipulation is as follows:

$$CFO_{it} = \beta_0 + \beta_1 PCFO_{it} + \beta_2 PCFO_{it}*D + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + FIRM_i + TIME_t + \varepsilon_{it} \quad (1)$$

$$PCFO_{it} = COAm*TA_i \quad (2)$$

In the above Model (1), *CFO* is cash flow from operations; *D* is a dummy variable and is equal to 1 if the listed company belongs to Type I or Type II suspicious firms, and 0 otherwise; *SIZE* is the logarithm of total assets, and *LEV* is total liability divided by total assets. Model (2) is used to define *PCFO*. *COAm* is the industry average *COA* weighted by total assets (when computing the *COAm*, we exclude firm *i* itself); *TA* is total assets. Generally speaking, *COAm* cannot be manipulated by any single firm, so *PCFO* can be interpreted as the predicted *CFO* or un-manipulated *CFO*. *FIRM* and *TIME* are used to control for firm-fixed effects and time-fixed effects. Since the regression model controls for firm-fixed effects, *PCFO* actually stands for the CFO shock that industry shocks cause before cash flow manipulation.

When the industry suffers a negative shock, suspicious firms will increase cash flow to match net income and CFO or to avoid a negative CFO.[3] In contrast, when the industry meets a positive shock, suspicious firms will reserve some cash flow to release it when needed in future. Therefore, considered *ex post*, suspicious firms that have the incentive to manipulate cash flow will be less sensitive to industry shocks compared with firms without the motivation to manipulate. Therefore, β_2 in Model (1) should be significantly negative.

IV. Sample Selection and Variable Definition

4.1 Sample and Variable

In 2001 the Ministry of Finance promulgated the "Cash Flow Statement Standard". To maintain the consistency of cash flow data, we use the data of A-share firms listed in Shenzhen and Shanghai between 2001 and 2006 to test our hypothesis. All data are taken from the WIND and CSMAR databases.

[3] Suspicious firms are identified *ex post*, so they may not fall within the corresponding intervals *ex ante*.

To obtain the sample needed, we delete (1) firms in the financial industry since they have different characteristics compared with other firms; (2) firms whose sales are zero, because we divide some variables by sales; and (3) firms with only one firm in the industry. We adopt the three-digit code (one character adding two numerals) industry standard according to the "Guide on Industry Classification for Listed Firms" set by the CSRC. After deleting the highest and lowest 1 per cent outliers, we finally obtain 6426 firm-years.

Table 1 presents the definitions of variables. In Model (1), *D* denotes suspicious firms that have a motivation to manipulate cash flow. There are two types of suspicious firms. Type I consists of suspicious firms that have an incentive to match CFO and net income. We use *D_DEV* to denote these. *D_DEV* takes the value of 1 if a firm's *DEV* falls within [-0.03, 0.1], and 0 otherwise. Type II comprises suspicious firms that have an incentive to avoid negative *CFO*. We use *D_COA* to denote these. *D_COA* takes the value of 1 if a firm's *COA* is within the interval [0, 0.06], and 0 otherwise. *NEG* is a dummy variable and denotes negative industry shocks. It is equal to 1 if the current period *PCFO* is less than the previous period *PCFO*, and 0 otherwise.

Some variables are used to detect the methods of cash flow manipulation. *MAIN, OTHER, WAGE, TAXO*, and *TAXREFUND* are cash flow statement items that are related to *CFO*. *MAIN* is equal to cash flow from sales or services rendered minus cash flow paid for purchases or services received; *OTHER* is equal to cash flow received from other operating activities minus cash flow paid for other operation activities; *TAXO* is cash flow paid for taxes; *TAXREFUND* is cash flow received from tax refunds. $\triangle AR$ and $\triangle AP$ are the decrease in operating receivable items and the increase in operating payable items, respectively.

Table 1 Variable Definitions

Variable	Definition
COA	Cash flow from operations divided by total assets.
DEV	(Cash flow from operating net income)/sales.
COAm	Weighted industry average *COA* excluding the firm's own *COA*, weighted by total assets.
PCFO	Predicted *CFO*, which is equal to *COAm*TA*; *TA* is total assets.
D_DEV	Dummy variable that denotes firms that have the incentive to increase earnings quality in terms of cash flow. It takes the value of 1 when *DEV* falls within [-0.03, 0.1], and 0 otherwise.
D_COA	Dummy variable that denotes firms that have the incentive to avoid negative *CFO*. It takes the value of 1 when *COA* falls within [0, 0.06], and 0 otherwise.
NEG	Dummy variable that denotes negative industry shocks. It takes the value of 1 if current-period *PCFO* is less than last-period *PCFO*, and 0 otherwise.
MAIN	Sales-purchase net cash flow, which is equal to cash flow from sales or services rendered minus cash flow paid for purchases or services received.
OTHER	Net cash flow from other operating activities, which is equal to cash flow received from other operating activities minus cash flow paid for other operating activities.
WAGE	Cash flow paid to employees.
TAXO	Cash flow paid for taxes.
TAXREFUND	Cash flow received from tax refund.
$\triangle AR$	Opening balance of operating receivables minus ending balance of operating receivables, that is, the decrease in operating receivables.
$\triangle AP$	Ending balance of operating payables minus opening balance of operating payables, that is, the increase in operating payables.
SIZE	Natural logarithm of total assets.
LEV	Total liability/total assets.

4.2 Descriptive Statistics

Table 2 presents the descriptive statistics of the primary variables. Panel A reports the statistics for discrete variables and Panel B for continuous variables. Panel A shows that matching-motivated firms (*D_DEV* equals 1) take up 46.28 per cent of the total sample, and negative-*COA*-avoiding firms (*D_COA* equals 1) take up 34.20 per cent. The probability of positive industry shocks is 65.21 per cent and of negative industry shocks 34.79 per cent. Panel B shows that the mean and median of *DEV* are 0.097 and 0.047, respectively, and that *DEV* is right-skewed. The means of *COA* and *COAm* are 0.062 and 0.067, respectively. The mean (median) of *CFO* is 0.111 (0.09) and the mean (median) of *PCFO* is 0.105 (0.059), respectively

Table 2 Descriptive Statistics

Panel A Discrete Variables

		0		1	
	Total Sample	No.	Per cent	No.	Per cent
D_DEV	6426	3452	53.72	2974	46.28
D_COA	6426	4228	65.8	2198	34.2
NEG	5148	3357	65.21	1791	34.79

Panel B Continuous Variables

	Total Sample	Min	Mean	Median	Max
DEV	6426	-0.914	0.097	0.047	3.654
COA	6426	-0.239	0.062	0.057	0.342
COAm	6426	-0.063	0.067	0.063	0.191
CFO	6426	-3.316	0.111	0.09	2.753
PCFO	6426	-0.373	0.105	0.059	3.335

Table 3 presents the Pearson's correlation coefficients between the main variables. We see that *CFO* and *PCFO* are significantly and positively correlated. *PCFO* is positively correlated with *PCFO*D_DEV* and *CFO*D_COA*. Since the correlation coefficient is small, it will not entail any problem with multicollinearity. Untabulated correlation results indicate that the correlation coefficients of *PCFO*D_DEV*NEG* and *PCFO*D_DEV*, and of *PCFO*D_COA*NEG* and *PCFO*D_COA*, are more than 0.7. Putting them together into the same regression would cause a problem with multicollinearity. Therefore, we adopt sub-sample regressions to avoid multicollinearity's effects.

Table 3 Pearson's Correlation Coefficients

	CFO	*PCFO*	*DEV*	*COA*	*D_DEV*	*D_COA*	*PCFO*D_DEV*	*PCFO*D_COA*	*SIZE*
PCFO	0.272*								
DEV	0.388*	0.077*							
COA	0.613*	0.141*	0.221*						
D_DEV	-0.118*	-0.086*	-0.226*	0.077*					
D_COA	-0.102*	-0.065*	-0.007	-0.277*	0.228*				
*PCFO*D_DEV*	0.006	0.383*	-0.101*	0.053*	0.490*	0.101*			
*PCFO*D_COA*	-0.022	0.300*	-0.002	-0.140*	0.116*	0.543*	0.349*		
SIZE	0.081*	0.541*	0.004	0.080*	0.057*	-0.015	0.375*	0.234*	
LEV	-0.031*	-0.033*	0.148*	-0.039*	-0.045*	0.002	-0.025*	-0.004	-0.061*

This table reports the pooled Pearson's correlation for the entire sample. * denotes significance at least at the 5 per cent level.

V. Empirical Results: Motivations to Manipulate CFO

With respect to the Bertrand model, both the firm-fixed effects and time-fixed effects must be controlled for. We control for these fixed effects by using panel data between 2001 and 2006. In addition, referring to Petersen (2009), we use the Cluster-Robust Standard Errors method to solve any series correlation problem.

Table 4 reports the sensitivity of the CFO of suspicious firms to industry shocks. *PCFO* is significantly positive in all regressions. This suggests that industry shocks do affect a firm's CFO. In Column (1), we include an interaction term between the matching-motivated firm dummy and industry shocks. Similarly, in Column (2) we include an interaction term between the negative-*COA*-avoiding firm dummy and industry shocks. The results show that both interaction terms are significantly negative, and indicate that the CFO of both Type I and Type II suspicious firms is less sensitive to industry shocks. This is consistent with Hypothesis 1. In Column (3) we add both interaction terms into the regression, and the results are similar to Column (1) and Column (2). Therefore, Columns (1) to (3) support our first hypothesis that the CFO of suspicious firms that have a motivation to manipulate cash flow is less sensitive to industry shocks. In terms of the coefficient of interaction, the degree of manipulation is greater for Type II suspicious firms (negative-*COA*-avoiding firms).

Table 4 Sensitivity of the CFO of Suspicious Firms to Industry Shocks

Variable	(1)	(2)	(3)	(4)	(5)
	Total Sample	Total Sample	Total Sample	*NEG* = 1	*NEG* = 0
PCFO	0.391***	0.396***	0.416***	0.767***	0.372***
	(7.732)	(7.508)	(7.364)	(6.643)	(5.454)
*PCFO*D_DEV*	-0.194***		-0.139***	-0.284**	-0.168***
	(-5.803)		(-4.250)	(-1.968)	(-4.991)
*PCFO*D_COA*		-0.285***	-0.245***	-0.456***	-0.187***
		(-6.374)	(-5.187)	(-3.377)	(-3.980)
SIZE	-0.015***	-0.017***	-0.014***	-0.031***	-0.009
	(-2.818)	(-3.137)	(-2.636)	(-3.012)	(-1.046)
LEV	-0.003	-0.002	-0.002	-0.017	-0.001
	(-0.368)	(-0.298)	(-0.333)	(-1.493)	(-0.167)
INTERCEPT	0.197***	0.209***	0.195***	0.310***	0.139**
	(5.698)	(6.067)	(5.582)	(4.357)	(2.368)
YEAR	control	control	Control	Control	Control
The difference in coefficients of *PCFO*D_DEV* between positive and negative industry shocks				Z = -0.783	
The difference in coefficients of *PCFO*D_COA* between positive and negative industry shocks				Z = -1.881*	
N	6278	6278	6278	1775	3335
Adj.R^2	0.008	0.011	0.013	0.065	0.02

The dependent variable is *CFO*. We use panel data to control for the firm-fixed effects. Column (4) includes only samples that suffer negative industry shocks, and Column (5) includes only samples that meet with positive industry shocks. Columns (1) to (3) include all samples between 2001 and 2006. *,**, and *** denote significance at the 10 per cent, 5 per cent, and 1 per cent levels, respectively.

To investigate whether a firm's CFO sensitivity to industry shocks is correlated with the direction of the shocks, we divide the sample into a positive-industry-shock sub-sample (*NEG* = 0) and a negative-industry-shock (*NEG* = 1) sub-sample. A negative industry shock is defined to be when the current-period *PCFO* is less than the last-period *PCFO*. Columns (4) and (5) report the regression results for both negative and positive shocks, respectively. For negative industry shocks, the coefficient of interaction (*PCFO*D_DEV*) is -0.284, whereas for positive industry shocks it is -0.168. But the statistic test shows that the difference is not statistically significant. The Z value is -0.783 and below the critical value.[4] The coefficient of *PCFO*D_COA* is -0.456 during negative shocks, but only -0.187 during positive industry shocks. The Z value is -1.881 and significant at the 10 per cent level. This indicates that the degree of manipulation is higher during negative shocks than during positive shocks for negative-*COA*-avoiding firms. In sum, the results in Columns (4) and (5) marginally support Hypothesis 2. That is, compared with positive industry shocks, the extent of decrease in the sensitivity of CFO to industry shocks is greater during negative industry shocks for suspicious firms.

To sum up the results in Table 4, we find that both matching-motivated firms and negative-*COA*-avoiding firms will manipulate CFO during both positive and negative industry shocks. Suspicious firms will increase cash flow during negative shocks and reserve cash flow during positive shocks. Moreover, manipulation behaviour is asymmetric for suspicious firms, especially for negative-*COA*-avoiding firms, whose manipulation is significantly greater during negative shocks than during positive shocks.

VI. Empirical Results: Methods of Cash Flow Manipulation

In the previous section we showed that both matching-motivated firms and negative-*COA*-avoiding firms have the motivation to manipulate cash flow. In this section we investigate which components of CFO are manipulated and what methods are used by suspicious firms to manipulate CFO.

---

[4] $Z = \dfrac{(\hat{\beta}_{NEG=1} - \hat{\beta}_{NEG=0})}{\sqrt{S^2(\hat{\beta}_{NEG=1}) + S^2(\hat{\beta}_{NEG=0})}}$ where $\hat{\beta}_{NEG=1}$ and $\hat{\beta}_{NEG=0}$ are coefficients of regressions (4) and (5), respectively. $s^2(\ )$ is the square of the standard error of the coefficient.

Based on the cash flow statement, we decompose CFO into *MAIN, OTHER, WAGE, TAXO* and *TAXREFUND*. MAIN is cash flow from sales or services rendered minus cash flow paid for purchases or services received. *OTHER* is cash flow from other operating activities minus cash flow paid for other operating activities. *WAGE* is cash flow paid to employees.

The research design is similar to that used in Section V, adopting sales-purchase net cash flow (*MAIN*), for example. We have already shown that Type I and Type II suspicious firms manipulate CFO, and that their CFO is less sensitive to industry shocks. If sales-purchase net cash flow (*MAIN*) is manipulated by suspicious firms to alleviate industry shocks, then the suspicious firm's *MAIN* should be less sensitive to industry shocks.

Taking *MAIN* as the dependent variable, Table 5 reports the regression results. The coefficients of *PCFO*D_DEV* and *PCFO*D_COA* are -0.087 and -0.137, respectively. This suggests that cash flow from sales or services rendered or cash flow paid for purchases or services received may be manipulated. Most Chinese listed firms have been established by splitting from parent companies and they remain closely related to the parent company in operating activities. Hence, it is difficult to distinguish abnormal related-party transactions from normal related-party transactions. This makes it convenient for firms to use related-party transactions to manage either CFO or earnings (Jian and Wong, 2008).

As for *OTHER*, the coefficient of interaction is negative but not significant. This is not consistent with the intuition of some professionals, and they deem cash flow from other operating activities (*OTHER*) to be just like "a garbage bin". Column (3) in Table 5 shows that suspicious firms also tend to use *WAGE* to manipulate CFO. For example, during negative industry shocks, they will postpone employee wage payments to the next period to increase the current-period CFO. Finally, Columns (4) and (5) show that *TAXO* and *TAXREFUND* are not the targets manipulated by suspicious firms. This is reasonable, since taxes are levied by the government and are hard to manipulate by the company itself.

Table 5 Empirical Results Taking the Composition of CFO as the Dependent Variables

Variable	(1)	(2)	(3)	(4)	(5)
	MAIN	*OTHER*	*WAGE*	*TAXO*	*TAXREFUND*
PCFO	0.051	0.031	-0.005	0.009	0.029**
	(1.027)	(0.633)	(-0.496)	(0.633)	(2.127)
*PCFO*D_DEV*	-0.087***	-0.004	-0.025***	0.009	-0.002
	(-2.869)	(-0.187)	(-4.013)	(1.419)	(-0.374)
*PCFO*D_COA*	-0.137**	-0.019	-0.013*	-0.004	-0.008
	(-2.219)	(-0.671)	(1.724)	(-0.528)	(-1.326)
SIZE	-0.014	-0.022**	-0.003	-0.010***	-0.006**
	(-1.307)	(-2.007)	(-1.128)	(-2.749)	(-2.494)
LEV	0.000*	0.000	0.000	0.000	0.000
	(1.733)	(-0.565)	(1.280)	(-0.698)	(0.823)
INTERCEPT	0.441***	0.095	0.110***	0.161***	0.060***
	(6.241)	(1.276)	(5.876)	(6.851)	(4.200)
YEAR	Control	Control	Control	Control	Control
N	6130	6003	6127	6128	3932
Adj.R^2	0.034	0.005	0.013	0.076	0.074

Note: *MAIN, OTHER, WAGE, TAXO*, and *TAXREFUND* are components of CFO. *MAIN* is equal to cash flow from sales or services rendered minus cash flow paid for purchases or services received; *OTHER* is cash flow received from other operating activities minus cash flow paid for other operating activities; *TAXO* is cash flow paid for taxes; *TAXREFUND* is cash flow received from tax refunds.

We have found those items in the cash flow statement that are manipulated. The relationship between the cash flow statement and the balance sheet allows us to trace back to those items in the balance sheet that are manipulated and finally determine the whole "process" of cash flow manipulation.

From Table 5, we see that the main items in the cash flow statement manipulated by suspicious firms are cash flow from sales or services rendered and cash flow paid for purchases or services received. Based on the relationship between the cash flow statement and balance sheet, we focus on operating receivables and operating payables in the balance sheet. Operating receivables include notes receivable, accounts receivable, and advance receipts. Operating payables include notes payable, accounts payable, prepaid accounts, wages payable, and taxes payable. If receivables and/or payables are used to manipulate cash flow, then either or both should be less sensitive to industry shocks for suspicious firms than for non-suspicious firms. When facing negative industry shocks,

suspicious firms will, for example, expedite accounts receivable or postpone accounts payable. We use $\triangle AR$ and $\triangle AP$ to denote the decrease in operating receivables and the increase in operating payables; $\triangle AR + \triangle AP$ is the sum of the two items. In empirical testing, we take the decrease in operating receivables ($\triangle AR$) or the increase in operating payables ($\triangle AP$) or the sum of both as dependent variables, respectively. Consistent with the above regressions, we expect that the interaction between the suspicious firm dummy and industry shock will be significantly negative.

In Table 6, Columns (1) to (3) show that the coefficient *PCFO*D_DEV* is significantly negative in (1) and (3), and the coefficients of *PCFO*D_COA* are significantly negative in (1) and (2). This suggests that the suspicious firms tend to use both operating receivables and operating payables to manipulate cash flow. To investigate the effect of the direction of industry shocks on manipulation, we divide the sample into the negative-shock sub-sample and positive-shock sub-sample.

Columns (4) to (6) are the results of the negative-shock sub-sample. They show that for matching-motivated firms, *PCFO*D_DEV* is significantly negative in (4) and (6), whereas for negative-*CFO*-avoiding firms, *PCFO*D_COA* is significantly negative in (5). This suggests that suspicious firms may expedite accounts receivable or postpone accounts payable to manage cash flow. But the coefficient of *PCFO*D_COA* in regression (6) is marginally and significantly positive, which is inconsistent with our expectation. Columns (7) to (9) present the results during positive industry shocks. The results show that when meeting with positive industry shocks, matching-motivated firms primarily use accounts receivable to manage cash flow, and negative-*CFO*-avoiding firms primarily use accounts payable to do the same.

Summarising the results of Tables 5 and 6, we conclude that suspicious firms can increase or decrease CFO by expediting accounts receivable or postponing accounts payable. They can also manipulate the timing of wage payments.

In Table 6, the payable items include wages payable and taxes payable. Since the former has been found to be manipulated and the latter has not (Table 5), we further exclude these two items when computing items payable in Table 6. The results are similar, and our conclusions are not affected.

Table 6 Methods of Cash Flow Management

	Total Sample			*NEG* = 1			*NEG* = 0		
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	△AR+△AP	△AR	△AP	△AR+△AP	△AR	△AP	△AR+△AP	△AR	△AP
PCFO	0.175***	0.009	0.163**	0.302	-0.428**	0.730***	0.253***	0.018	0.221**
	(3.153)	(0.154)	(2.32)	(1.399)	(-2.104)	(2.757)	(2.969)	(0.237)	(2.413)
*PCFO*D_DEV*	-0.137***	-0.017	-0.118*	-0.426**	-0.009	-0.417*	-0.124**	-0.085*	-0.035
	(-2.783)	(-0.340)	(-1.884)	(-2.061)	(-0.0437)	(-1.648)	(-2.191)	(-1.675)	(-0.574)
*PCFO*D_COA*	-0.110**	-0.104*	-0.006	0.001	-0.360**	0.361*	-0.166**	-0.014	-0.145*
	(-2.005)	(-1.851)	(-0.0864)	(0.00333)	(-2.148)	(1.653)	(-2.405)	(-0.231)	(-1.953)
SIZE	-0.040***	0.030**	-0.069***	-0.101**	0.044	-0.145***	-0.083***	0.055***	-0.136***
	(-3.042)	(2.22)	(-4.172)	(-2.327)	(1.067)	(-2.718)	(-3.705)	(2.753)	(-5.689)
LEV	0.004	-0.003	0.007	-0.048*	-0.112***	0.065*	0.003	0.004	-0.001
	(0.616)	(-0.486)	(0.878)	(-1.673)	(-4.192)	(1.856)	(0.434)	(0.564)	(-0.0647)
INTERCEPT	0.255***	-0.235**	0.490***	0.777**	-0.271	1.004***	0.602***	-0.428***	0.996***
	(2.858)	(-2.572)	(4.311)	(2.46)	(-0.940)	(2.593)	(3.762)	(-3.005)	(5.916)
Year	Control	Control	Control	Control	Control	Control	Control	Control	Control
N	6036	6041	6040	1698	1699	1698	3212	3216	3215
Adj.R^2	0.009	0.004	0.005	0.032	0.055	0.034	0.017	0.007	0.021

△*AR*: the decrease in receivable items; △*AP*: the increase in payable items.

VII. Robustness Tests

To test whether our results are robust, we do the following additional tests. First, we substitute operating profits for net income when identifying matching-motivated firms. Conceptually, cash flow from operations should correspond to operating profits. We define a similar dummy variable *D_DEVm*, which is the difference between CFO and operating profits. Second, since listed firms tend to manipulate financial information in the SEO year (Wu *et al*., 2007; Xue *et al*., 2008), we define a dummy variable, which is equal to 1 if the firm is in the year before the SEO or the year of the SEO, and 0 otherwise. Then we add its interaction with *PCFO* into the regression to control for manipulation behaviour motivated by the SEO.[5] Finally, considering the correlation between *PCFO*D_DEV* and *PCFO*D_COA*, we add them separately into the regressions of Tables 5 and 6. All conclusions hold after these tests.

VIII. Conclusions

Accrual-based accounting provides large room for earnings management. Hence, current studies of financial manipulation mainly focus on the motivations, methods, and economic consequences of earnings management. This paper studies financial manipulation from a new angle (cash flow manipulation) and tries to answer two questions: first, do listed companies manipulate CFO? If yes, then how do they do so?

We identify two motivations for cash flow manipulation. On the one hand, since there is uncertainty in the accrual portion of net income, users of financial information tend to evaluate earnings quality based on cash flow. Therefore, firms whose CFO is slightly lower than net income will have both the incentive and the ability to manipulate CFO in order to make it match net income more closely. On the other hand, when granting approval of applications for SEOs, regulators will be more strict with firms that have negative CFO, giving firms the incentive to avoid negative CFO.

[5] We thank the anonymous referees for this valuable advice.

Using the Bertrand *et al*. (2002) model, we verify the motivations for and methods of cash flow manipulation. Empirical evidence shows that listed firms that have an incentive to increase earnings quality or to avoid negative CFO tend to manipulate CFO. Furthermore, the degree of manipulation is higher when the impact of industry is negative. By decomposing CFO into different items and using the corresponding relation between the balance sheet and cash flow statement, we find that cash flow from sales, cash flow paid for purchases, and cash paid to employees are the main manipulated items in the cash flow statement. Further study discloses that firms manipulate these items by expediting receivables or postponing payables.

This study contributes to the literature at least in two respects: First, although just a few papers have studied cash flow manipulation, this study provides new evidence for such manipulation using a different path, a different method, and a different model. Furthermore, we discover the methods of cash flow manipulation used by suspicious firms and the traces of manipulation in accounting that they leave. This is both important and indispensable to the monitoring of cash flow manipulation in practice.

References

Please refer to pp. 20-21.