

政府补贴决策、盈余管理动机与上市公司扭亏*

朱松¹ 陈运森²

摘要

政府补贴作为地方政府对上市公司「帮助之手」的一种手段，体现出地方政府在转型经济中所发挥的重要作用。本文基于决策理论模型以及实证研究发现：政府会基于企业的社会责任、企业的重要程度、政府自身的财政实力、补贴政策的持续性等因素对企业进行补贴。其中，扭亏和保牌的动机是非常明显的。当上市公司业绩面临盈利状况不佳问题时，政府往往会大力出手，帮助上市公司进行“盈余管理”。政府补贴力度在一定程度上受企业亏损程度的影响，对于容易实现扭亏为盈的企业，政府补贴力度较大；前一年亏损，当年补贴后能够盈利的公司，政府给予的补贴更高；上市公司避免连续亏损的动机越强，政府补贴力度越大。地方政府对于上市公司的财政补贴严重影响了企业的真实业绩。

关键词：政府补贴、盈余管理动机、上市公司扭亏、企业社会责任、帮助之手

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¹ 朱松：北京师范大学经济与工商管理学院讲师，博士。通信地址：北京市海淀区新街口外大街19号北京师范大学经济与工商管理学院C9信箱，邮编：100875。电子邮件：zhusong@bnu.edu.cn。

² 陈运森：清华大学经济管理学院会计系博士研究生。通信地址：北京市海淀区清华大学紫荆15#626A，邮编：100084。电子邮件：chenyunsen@vip.sina.com。

一、引言

转型经济中，政府往往可能扮演三种角色：“看不见的手”(invisible hand)、“帮助的手”(helping hand)和“攫取的手”(grabbing hand)。在“看不见的手”情况下，政府遵循法律，用自己的权力提供公共产品而并不干涉企业的活动；在“帮助的手”情况下，政府凌驾于法律之上，但用自己的权力来帮助企业；而在“攫取的手”情况下，政府凌驾于法律之上且运用自己的权力寻租(Frye and Shleifer, 1997)。政府补贴是政府(这里主要指地方政府)对企业“帮助的手”的最直接手段。地方企业的好坏可能会影响到地区经济环境的形象，乃至政府官员的政绩。而地方政府需要形象和“面子”，为了维护地区经济环境的良好形象，常常在必要时对本地企业给予经济上的关照(唐清泉、罗党论, 2007; Chen *et al.*, 2008)。地方政府在自身利益的驱动下，为了帮助本地区企业赢得上市资格和配股、增发权，常常通过减免税赋、提供税收返还、财政补贴等方式帮助企业提高业绩，满足监管部门制定的硬性指标要求(Aharony *et al.*, 2000)。虽然在2001年，证监会出台政策限制上市公司利用财政补贴进行盈余管理，增加了地方政府通过补贴帮助上市公司获得配股资格的难度。但是，上市公司的“壳资源”具有很大的价值，当上市公司陷入被摘牌的危机时，相关的利益方，包括地方政府和上市公司大股东，都会利用自身的资源帮助上市公司进行盈余管理，进行“保壳”保卫战。地方政府有动机通过不同手段，比如支持企业宣传、给予企业品牌补贴、在本地知名企业出现亏损与危机时，以维护地区良好的经济环境为名给予援助，帮助上市公司实现保牌和配股动机。地方政府对上市公司提供的支持一方面可抑制本地区资金的外流，另一方面还可将其它地区的资金吸引到本地区，从而形成了具有中国特色的盈余管理现象之一(陈晓、李静, 2001)。

2007年开始的美国次贷危机迅速演变成全球性金融海啸，对大量企业都是一个巨大的灾难。包括美国、日本、英国以及欧洲其他各国在内的许多政府为了挽救经济不断推出各种救市计划和经济政策。为了拉动内需，中国政府推出了“4万亿”的经济刺激计划和十大产业振兴计划，而地方政府的累计预算也已经超过了18万亿(李静睿, 2008)。在中国，很大意义上都是中央政府制定财政政策，而地方政府对企业有直接的控制，具体实施各种政策(Chen *et al.*, 2008)，其对企业的干预行为必然符合自身的效用最大化。所以，在这种背景下研究地方政府对企业的干预决策，特别是直接的政府补贴动机，具有很强的现实意义。

对于业绩较差且不稳定的公司，地方政府倾向采用政府补贴的方式(陈晓、李静, 2001)。由于政府掌握的资源也是有限的，如何对企业进行补贴以实现政府目标是一个最优化问题。实际上，如何补贴才能更好的帮助企业是有据可寻的(唐清泉、罗党论, 2007)。政府补贴力度一方面取决于补贴的动机，另一方面取决于补贴的能力，即政府的财政能力。对于地方政府来讲，当地的企业数目众多，选择什么样的企业给予补贴取决于补贴后政府获得的效用、自身的财政能力以及国家的政策等因素。政府获得的效用则基于当地的就业水平、税收的稳定、企业的重要程度等，即动机方面的因素；而政府的财政状况、国家政策等因素也会影响到政府进行补贴的能力问题。因此，并非对于所有亏损企业政府都会进行补贴，选择性的补贴以实现有限财政能力的效用最大化是政府给予企业补贴时所进行的重要决策。本文

基于决策模型,对帮助企业进行盈余管理、实现扭亏的政府补贴决策和补贴力度进行了分析,并采用中国上市公司2001至2006年的数据进行了实证检验。研究发现:政府会基于企业的社会责任、企业的重要程度、政府自身的财政实力、补贴政策的持续性等因素对企业进行补贴。其中,扭亏和保牌的动机是非常明显的。对于政府来讲,当企业小幅亏损,政府可以通过补贴帮助企业实现扭亏时,“帮助之手”的作用就会显现。由于企业可能出现连续2年亏损,政府也会尽量帮助企业及早实现扭亏,缓解第3年再度亏损形成的较大负担和压力。如果企业已经连续2年亏损,那么就会面临ST、保牌等严重压力,必要时政府也会尽力帮助企业实现扭亏和保牌。地方政府对于上市公司的财政补贴严重影响了企业的真实业绩。在实际亏损的公司中(剔除政府补贴的情况下),有大约19%的上市公司在政府帮助之下,实现了扭亏为盈,即政府补贴扭曲了约1/5的公司的业绩,帮助上市公司进行盈余管理。这一比例值得监管层进一步关注。

在全球金融危机大背景下,各国政府出台经济政策直接和间接地帮助企业,研究政府干预企业的行为和动机具有极强的现实意义。本文的研究对目前关于政府补贴动机与盈余管理问题的讨论给出了更加直观的理论决策分析,采用决策理论与效用矩阵,较为清晰地展示了政府与企业在不同决策阶段和状态下的效用,为实证检验政府帮助企业扭亏的补贴动机、政府“帮助之手”的作用提供了理论基础。其次,利用中国上市公司较长期间(2001至2006年)数据的实证分析为深入理解转型经济中政府的作用提供了更多证据。目前国内关于政府补贴问题的研究也并没有一致的结论,本文为补贴动机的研究提供了更多的经验证据。再次,本文侧重分析了政府补贴帮助企业“扭亏”和“盈余管理”的动机,为研究企业盈余管理行为和方式提供了更多的证据。

文章第2部分对相关文献进行了回顾,第3部分建立了决策模型,并提出本文的研究假设,第4部分为研究设计,实证检验在第5部分,第6部分为本文的总结和存在的不足。

二、文献回顾

政府补贴是直接或间接向微观经济活动主体(企业和个人)提供的一种无偿转移,属于转移支付范畴,因而这样的补贴是有条件的。事实上,只有在政府和微观经济主体有清晰财产界限的条件下,政府出于某些目的,认为有必要干预微观经济主体去追求某些经济利益的活动时,才会产生补贴行为(王凤翔、陈柳钦,2005)。为实现地方利益最大化,地方政府有动因积极改进体制、建立市场,以争取处于不断流动中的资源(Sun, 2000)。地方政府使用补贴政策可以显著地促进地区投资增长,大量投资在短时间内就会使得地区经济总值迅速提高(洪银兴、曹勇,1996)。而且,地方政府也积极促进新企业的建立与发展,为了促进产业的发展,地方政府依赖行政手段干预经济并不是好的选择,使用补贴这种经济手段实际上是一种进步。原因是市场经济的主体是企业,如果本地企业不能够达成地方政府希望的既定目标,那么地方政府实施补贴加以“利益诱导”成为一种可以依赖的方式(王凤翔、陈柳钦,2005)。地方企业的好坏可能会影响到地区经济环境的形象,乃至政府官员的政绩。而地方政府需要形象和“面子”,因此,政府为维护地区经济环境的形象,常常在需要时对本地企业给予关照(唐清泉、罗党论,2007)。地方政府在自身

利益的驱动下,为了帮助本地区企业赢得上市资格和配股、增发权,常常通过减免税赋、提供税收返还、财政补贴等方式帮助企业提高业绩,满足监管部门制定的硬性指标要求(陈晓、李静,2001)。

Chen *et al.* (2008) 发现地方政府通过财政转移积极参与上市公司的盈余管理,而政府帮助企业盈余管理的这种行为主要是为了达到中央政府制定的各种规则指标。陈晓和李静(2001)研究了我国地方政府财政行为在提升公司业绩中的作用,从盈余管理方面验证了地方政府出于资源竞争的需要,在资本市场中积极参与了上市公司的盈余管理,对上市公司进行了大面积的税收优惠和财政补贴。刘浩(2002)则发现地方政府并没有利用补贴收入进行盈余管理,并且,国有股权比例对补贴收入有较显著的正向影响,与陈晓和李静(2001)的结论相反。陈冬华(2003)没有从盈余管理入手,而是讨论了政府背景与政府补贴的关系,研究发现,具有地方政府背景的董事在上市公司董事会中占有相当重要的席位,地方政府影响越大,上市公司越可能获得更多的补贴收入。这种补贴收入的存在,将使本地上市公司在与外地上市公司的竞争过程中具有更大的优势。以上的几篇文献都是基于描述性统计对政府补贴动机和补贴力度进行的研究,而没有控制一些相关因素,因此缺乏一定的说服力。唐清泉和罗党论(2007)基于2002至2004年的财政补贴数据,发现政府基于社会目标给予上市公司政府补贴,就业是主要考虑的因素。而公司的再融资动机没有影响到财政补贴,与陈晓和李静(2001)对1997至1999年政府补贴的研究结论也不一致。可能的原因在于政府对上市公司的补贴动机不再是为企业融资而进行盈余管理,更重要的是为保住上市公司的“壳资源”以及创造更好的形象和“面子”,维护地区经济环境的良好形象。唐清泉和罗党论(2007)还发现政府补贴对于企业的经济效应并没有显著影响。而这种结论则是出于他们对政府补贴动机的模糊,政府补贴是为了避免企业当年的业绩问题,而并非出于对企业未来经济效益的考虑。

鉴于目前对于政府补贴动机的研究并没有一致的结论,而且几篇实证研究对于政府补贴力度以及动机都缺乏理论模型上的分析,因此本文基于决策模型,对政府补贴问题进行探讨,并利用上市公司数据进行进一步实证检验。

三、理论模型与研究假设

政府对企业的财政补贴能够使地方政府控制的资产最大化、增加地方就业、维持地区经济的稳定、维护地区形象及促进地区经济发展。在基本动机下,政府会出于某些考虑,如企业所承担的社会责任、企业的重要程度、政府的财政实力以及国家产业技术政策等,给予当地企业一定的政府补贴,但“扭亏”是其中非常重要的动机。具体来说,如果企业亏损了,直接影响地方政府掌控的上市公司资产,并影响后续通过配股和增发等手段对资产的潜在控制。地方政府的一个很重要的目标就是维持地区的稳定发展,就业作为稳定的重要方面,无疑在政府决策中占有核心地位。如果企业亏损了,而政府不提供补贴以使得企业平稳运转和减少由于亏损而进行的企业裁员,那么很可能会由于企业的亏损导致失业率上升,直接影响社会稳定。而且,由于企业“盈利”或者“亏损”传递给投资者不同的信号,造成投资者给予企业不同的评价,对于当地政府也会产生正面或者负面的影响,从而会极大的影响地区的形象。由于上市公司在经济发展中的引擎作用,其盈利或亏损直接影响地区的经济发展,因此政府因帮助企业扭亏而进行财政补贴的动机非常强,而且补贴是政府对企业非常重要的支援行为,因此本文集中考虑政府补贴的扭亏动机。

表1给出了在企业“盈利”与“亏损”状态下，政府补贴决策的效用矩阵。效用矩阵中，每个方格中第一项表示政府的效用，第二项为企业的效用。

表1 政府补贴决策效用矩阵—是否补贴

	盈利	调整为盈利	亏损
补贴	$(-a+r, 0+a)$	$(-a+r+e, e)$	$(-a+r, -B+a)$
不补贴	$(0, 0)$		$(0, -B)$

企业的“亏损”状态分为“收到政府补贴前的净利润为负”与“即使存在政府补贴净利润依旧为负”，前者为利润表中净利润减去政府补贴的金额，而后者为利润表中的净利润。我们定义的企业“实际亏损”状态指“收到政府补贴前的净利润为负”。假设企业和政府的效用与实际亏损或盈利金额、政府补贴金额成单调递增关系，即企业实际亏损为 $-B$ ($B>0$)，则支付矩阵中其效用也为 $-B$ 。政府补贴为 a ($a>0$)，则企业获得政府补贴增加的效用为 a ，政府的效用减少 a 。 $-B+a$ 为企业获得政府补贴后依旧亏损下的效用 ($-B+a<0$)。 r 为政府对企业进行补贴后，政府和企业获得的例如形象、面子等好处。除了表面上的形象和面子，政府因为帮助上市公司而最终增加当地GDP水平也是非常重要的方面。由于在中国地方政府推行的是一种锦标赛制度(周黎安, 2007)，晋升锦标赛使得地方官员是地区晋升博弈的运动员，同时政府职能要求他们又必须是辖区内市场经济的裁判员。这两者存在内在的角色冲突，会使地方政府更有激励去干预企业的活动。而上市公司对当地政府的重要性显而易见，无论对于当地的就业率、税收还是资源获取等增加GDP的重要因素，上市公司都发挥着不可忽视的作用。所以政府给予上市公司补贴后能更多的为政府官员自己的政治升迁获得砝码。 e 表示企业获得政府补贴后盈利时，政府和企业所获得的额外效用，若企业在政府补贴前盈利，则对于政府和企业都没有额外效用。^{3 4}可以想像， $e>0$ ，因为企业实现盈利对于当地政府来讲属于政绩工程，会吸引更多的投资者在当地进行投资；而对于企业来讲实现盈利，也可以吸引证券市场上更多的投资者，以及获得机构以及分析师更好的评价，从而获得融资上的便利，包括股权融资和债权融资。

³ 盈利企业在获得政府补贴时，企业和政府都会存在额外效用，只是与亏损状况下的额外效用更小。为了解释上的方便，我们假设这时额外效用为零。

⁴ 对于企业进行补贴使得当地政府获得了好的“名声”，可以吸引更多的企业到当地进行投资。而对于盈利企业进行补贴与对亏损企业进行补贴，从直觉上讲这一行为传递出来的信号有所不同，亏损企业和政府在扭亏中获得的效用都将超过对盈利企业的补贴。这里为了更好的说明补贴前后企业盈利状况不同对政府的效用的不同，我们对将政府获得的效用分为 r 和 e 两部分。

推论1：当 $-a + r > 0$ 时，即 $r > a$ 时，政府对企业的补贴获得的好处超过政府财政补贴成本时，政府的最优决策是对企业进行补贴。⁵

政府补贴会减少企业的负担，对于企业的帮助可以提高地方政府的形象和面子。虽然说政府补贴会降低地方政府的财政收入，但是与地方形象和面子、当地GDP以及官员的政治砝码比较，如果在政府看来后者的收益超过财政收入的降低，那么给企业补贴是他们的最优选择。由于我们无法观察到 r ，即政府对企业进行补贴后，政府和企业获得的例如形象和面子、当地GDP以及政治砝码等好处，因此我们无法进行检验，只是从逻辑上给出我们的分析和判断。

政府的行为一定是要满足政府利益的最大化，由于自身掌握资源的有限性，如政府对企业的财政补贴来源于政府的财政税收等收入，而政府的财政支出包括经济、教育、医疗等很多方面，对企业的支持只是其中的一个方面而已，所以政府对企业的救助是有资源限度的。在提升本地经济发展的宏观目标下，政府肯定是“以最少的钱，获得最大的收益”。也就是说，政府补贴力度一方面取决于政府补贴的动机，另一方面取决于补贴的能力问题，即政府的财政能力。对于地方政府来讲，当地的企业数目众多，选择什么样的企业给予政府补贴取决于补贴后政府获得效用的程度、自身的财政能力以及国家政策。政府获得的效用则基于当地的就业水平、企业的重要程度，即动机方面的因素，而政府的财政能力、国家政策等因素也会影响到政府进行补贴的能力问题。因此，并非对于所有亏损企业政府都会进行补贴，选择性的补贴以实现有限财政能力的效用最大化是政府给予企业补贴时所进行的重要决策。

推论2：当 $-B + a > 0$ ，即 $a > B$ 时，企业由亏损转为盈利，盈利状况下政府和企业都会获得额外效用 e ($e > 0$)，政府对企业进行补贴的动机更强，此时政府的效用为 $(-a + r + e)$ ，企业的效用为 e 。⁶而当 $-B + a < 0$ ，即 $a < B$ 时，也就是说政府的补贴依旧无法让企业实现盈利，对于政府来讲无法获得额外的效用 e ，因此对通过补贴无法扭亏的企业的补贴会降低。

按照表1的效用矩阵和推论2可知，政府对亏损企业的补贴会较少，因为对于亏损公司补贴，加上政府补贴后企业依旧亏损，虽然起到了政府支持企业的作用，但是对企业的业绩并没有非常大的支持力度。这种情况下，政府补贴的力度会降低。政府补贴的作用在于帮助企业保持盈利的形象，帮助企业进行盈余管理。因此，对

⁵ 政府补贴的程序一定原因是基于企业的亏损，但同时也由于企业的重要程度、政府的财政能力等原因。因此从A、B的亏损程度上讲，A公司亏损仅100万，更容易扭亏，但是由于A企业重要程度不如亏损200万的B公司，A公司所在地区的财力不如B公司地区，因此出现这种情况。因此在检验政府补贴的问题中，总体上讲政府是会帮助企业扭亏，但是并不是所有政府都会在任何亏损情况下都这么做，补贴时机的选择也是政府获得额外效用的重要考虑。

⁶ 假设最低的政府补贴使企业实现盈利，则 $a=B$ ，此时上市公司盈利为0。

于即使补贴了依旧亏损的公司，政府补贴动机更小，补贴的力度可能也较小。而盈利的企业很多是由于政府给予补贴使得企业扭亏为盈的。因此，基于表1的理论分析，我们假设：

H1：政府补贴力度在一定程度上受企业亏损程度的影响，总体上讲亏损公司获得的政府补贴力度较小。

推论2表明政府补贴很大程度上是基于企业补贴前的实际盈利情况而定的，对于那些补贴后能够实现扭亏为盈的企业，政府补贴动机越强，力度可能也会更大。表2给出了理论分析，参数变量的假设如表1。同样，效用矩阵中，每个方格中第一项表示政府的效用，而第二项为企业的效用。

表2 政府补贴决策矩阵—补贴的当年效用

企业盈利状态	政府补贴后果	效用函数
补贴前亏损 (0, -B)	补贴后亏损	$(-a + r, -B + a)$
	补贴后盈利	$(-a + r + e, e)$
	不补贴	$(0, -B)$
补贴前盈利 (0, 0)	补贴	$(-a + r, 0 + a)$
	不补贴	$(0, 0)$

政府补贴的一种作用在于保持企业盈利的形象，对于“实际亏损”的公司，政府可以利用“帮助之手”帮助企业改善形象，给予企业更多的补贴，从而扭亏为盈。虽然从2001年开始，政府补贴已经从配股增发的业绩指标中剔除，但是对于企业来讲，即使无法从股市融资，业绩的好坏决定了企业从其他渠道获得资金的能力。使企业扭亏为盈，对于地方政府来讲是帮助企业融资的一种手段。因为企业盈利好了，才能从其他地方获得资金，而且来自各方面的压力则更小。因此，“帮助之手”的作用在于改善企业盈利形象。对于政府来讲，当企业在补贴前亏损，而收到政府补贴后实现盈利的话，政府的效用最高，因此政府在这种情况下进行补贴的动机更强，力度也会更大。当然，并非对于所有亏损的企业，政府都会给予补贴。选择什么样的企业给予政府补贴取决于企业对当地的就业水平、税收稳定的影响、企业的重要程度、政府自身的财政能力以及国家政策等因素。基于以上分析，我们假设：

H2：其他条件相同的情况下，对于容易扭亏的企业，政府补贴的可能性越高，力度可能也越大。

政府的补贴力度也会基于企业前一年的盈亏状态，因为连续2年亏损会面临ST的压力。表3给出了考虑企业前期经营业绩后的补贴效用，参数变量的假设如表1。其中c为避免连续2年亏损的潜在收益，或连续2年亏损的潜在成本。可以想像， $c > r$ ，因为连续2年亏损给企业以及政府都带来很大的危机和压力。

表3 政府补贴决策效用矩阵—考虑企业前期经营业绩后的补贴效用

企业盈利状态	政府补贴后果		效用函数
补贴前亏损			
(0, -B)	补贴后亏损	前一年亏损	$(-a+r-c, -B+a-c)$
		前一年盈利	$(-a+r, -B+a)$
	补贴后盈利	前一年亏损	$(-a+r+e+c, e+c)$
		前一年盈利	$(-a+r+e, e)$
	不补贴	前一年亏损	$(-c, -B-c)$
		前一年盈利	$(0, -B)$
补贴前盈利			
(0, 0)	补贴后盈利	前一年亏损	$(-a+r, 0+a)$
		前一年盈利	$(-a+r, 0+a)$
	不补贴	前一年亏损	$(0, 0)$
		前一年盈利	$(0, 0)$

推论3：当 $-B+a \geq 0$ ，且 $-a+r-c \geq 0$ ，即 $a \geq B$ 且 $a \geq c-r$ 时，企业实现盈利，盈利状况下政府和企业都会获得额外效用 $e(e > 0)$ ，而且避免连续2年亏损，这时政府对企业进行补贴的动机更强，此时政府的效用为 $(-a+r+e+c)$ ，企业的效用为 $(e+c)$ 。而当 $-B+a < 0$ ，即 $a < B$ 时，也就是说政府的补贴依旧无法让企业实现盈利，对于政府来讲无法获得额外的效用 (e) ，因此对通过补贴无法扭亏的企业的补贴会降低。

虽然中国股票市场中目前退市机制不完善，但至少说企业连续2年亏损就会面临ST的问题。一旦上市公司被ST，那么管理层和地方政府都存在较大压力，尤其是对于第3年的经营情况会更加关注。为了避免第3年更多的压力，管理层在亏损的第2年往往会进行盈余管理，以避免连续2年亏损。当然，有很多企业利用第2年的“大洗澡”行为，为第3年的扭亏为盈创造条件，但是随着监管的越来越严格，这种手法被监管层和市场所诟病。因此，第2年是否能够扭亏为盈很重要。如果企业的实际经营情况无法在第2年盈利，政府则会出手帮助企业，政府补贴力度会更大。因此，我们假设：

H3：其他条件相同的情况下，为了避免企业连续亏损，政府会通过政府补贴的形式帮助企业扭亏。

如果由于企业亏损较为严重，政府无法帮助企业在某一年度扭亏，也依旧没能够在下一年度实现，那么第三年对于企业来讲就会被ST。一旦上市公司被ST，那么管理层和地方政府都存在非常大的压力。表4给出了企业已经连续2年亏损时，政府补贴决策的效用情况，参数变量的假设如表1。为了简化起见，我们假设若当年公司实际盈利，则可以扭亏，避免ST，此时政府与企业的效用均为0。若企业当年实际发生亏损，那么连续2年亏损的压力使得政府和企业都出现-D的负效用。⁷

⁷ 一旦ST，企业在外部融资以及正常经营上都存在较大压力，对于当地政府来讲也是一件头疼的事情。

表4 政府补贴决策矩阵—连续2年亏损后是否补贴

	盈利	调整为盈利	亏损
补贴	$(-a+r, 0+a)$	$(-a+r+e, e)$	$(-D-a+r, -D-B+a)$
不补贴	$(0, 0)$		$(-D, -D-B)$

推论4：当 $-B+a \geq 0$ ，即 $a \geq B$ 时，且 $-a+r > 0$ 时，即 $r > a$ 时，企业由亏损转为盈利，盈利状况下政府和企业不仅消除了连续亏损的负效用 $(D, D > 0)$ ，而且都会获得额外正效用 $e(e > 0)$ ，政府对企业进行补贴的动机更强，此时政府的效用为 $(-a+r+e)$ ，企业的效用为 (e) 。⁸

为了避免出现企业被ST，ST之前的扭亏以及盈余管理动机都是非常强烈的。企业管理层会寻找政府的帮助，政府也会发挥“有形的手”帮助企业避免ST，给予非常大的补贴力度。因此，我们假设：

H4：其他条件相同的情况下，上市公司避免连续亏损的动机越强，政府补贴动机也越强，力度可能也越大。

四、研究设计

4.1 模型与变量

由于政府补贴金额最小为0，因此我们采用了Tobit模型进行回归，模型设定如下：

$$\begin{aligned}
 SUBSIDY_t = & \alpha + \beta_1 LOSS_t + \beta_2 LOSSGAIN_t + \beta_3 PRELOSSLOSSGAIN_t \\
 & + \beta_4 PREPRELOSSPRELOSS_t + \beta_5 EMPLOYEE_t + \beta_6 SIZE_t \\
 & + \beta_7 MARKET_t + \beta_8 STATE_t + \beta_9 LEV_t + \beta_{10} GROWTH_t + \beta_{11} SUBSIDY_{t-1} \\
 & + \beta_j \Sigma YEARS_j + \beta_l \Sigma INDS_l + \varepsilon
 \end{aligned} \quad (1)$$

被解释变量 $SUBSIDY_t$ 为公司当年获得的政府补贴，为利润表中的“补贴收入”项目，采用期末总资产标准化（我们也对“补贴收入+财政返还+所得税返还”进行了检验，结果一致）。为了避免异常值的影响，我们对被解释变量上下限1%的样本进行了winsorize。

业绩变量包括： $LOSS_t$ ，哑变量，1表示当年净利润（加入政府补贴后）为负，否则为0； $LOSSGAIN_t$ ，哑变量，1表示当年获得政府补贴收入前净利润为负，而获得政府补贴后净利润为正，否则为0； $PRELOSSLOSSGAIN_t$ ，哑变量，1表示前一年净利润为负，而且本年获得政府补贴前净利润为负，加入政府补贴后净利润为正，否则为0； $PREPRELOSSPRELOSS_t$ ，哑变量，1表示企业已经连续两年亏损（指的是t-2及t-1两年），否则为0。

⁸ 假设最低的政府补贴使企业实现盈利，则 $a=B$ ，此时上市公司盈利为0。

政府对于企业的补贴很大程度上取决于企业所承担的社会责任，主要表现在当地的就业问题(唐清泉、罗党论，2007)，因此我们采用企业员工人数的自然对数($EMPLOYEE_t$)控制这种影响。政府补贴的动机和力度也取决于企业的重要程度，规模越大的企业在地方经济中发挥的作用也会越大，越重要的企业政府给与的补贴也会越多，我们采用上市公司规模(总资产的自然对数 $SIZE_t$)控制。政府的财政能力以及当地的市场化程度都会影响政府补贴的力度，我们采用当地市场化进程指数 $MARKET_t$ 来表征(樊纲等，2007)，一方面反映当地经济水平，另一方面反映政府的干预水平。⁹政府补贴往往由于国家产业政策、技术支持等政策性原因具有一定的持续性和连续性，因此我们也控制了上一年度的政府补贴水平， $SUBSIDY_{t-1}$ 为上一年度政府补贴/总资产。

其他控制变量包括： $STATE_t$ 为股权性质，哑变量，1表示国家最终控股，否则为0。Jian and Wong (2009)发现中央政府控制的企业与地方政府控制的企业在政府与上市公司之间的资源注入及利益输送上存在着显著区别。为了控制不同等级政府补贴的差异，我们将国有控股具体划分为中央控股与地方控股， $CENTERGOV_t$ ，哑变量，1表示最终控制人为中央政府，否则为0； $LOCALGOV_t$ ，哑变量，1表示最终控制人为地方政府，否则为0。 LEV_t 为期末总资产负债率； $GROWTH_t$ 为当年主营业务收入增长率； $YEARS$ 为年度哑变量，6年样本采用5个哑变量； $INDS$ 为行业哑变量，证监会行业分类13类，剔除金融保险行业，剩下12个行业采用11个行业变量控制行业特征。

4.2 样本与数据来源

本文选择了2001和2006年上市公司，¹⁰剔除金融保险行业，剔出没有披露政府补贴的样本、剔除雇员人数低于50人的样本，最终样本为6,861个，2006年1278家公司，2005年1273家，2004年1180家，2003年1117家，2002年1047家，2001年966家。最终控制人数据来自于CCER数据库和上市公司年报，财务数据来自于CSMAR数据库，市场化进程指数来自于《中国市场化指数——各地区市场化相对进程2006年度报告》(樊纲等，2007)。

五、实证分析

5.1 描述性统计

表5列示了2001至2006年度上市公司通过政府补贴改变企业业绩的情况。第4列的百分比表示政府补贴前净利润为负的公司占总体样本的比例，第6列的百分比表示政府补贴后净利润依旧为负的公司占总体样本的比例，第8列的百分比表示政府补贴后净利润依旧为正(扭亏)的公司占总体样本的比例，第9列的百分比表示政府补贴后净利润为正(扭亏)的公司占补贴前净利润为负的公司比例，即由于政府补贴实现扭亏为盈的企业比例。

⁹ 2006年各地市场指数没有出来，因此我们采用2005年进行替代，以扩大样本。分年度稳健性检验中的结果表明，这种替代对结果没有影响。

¹⁰ 选择2001年之后是由于2001年证监会对政府补贴进行了更加详细和严格的规定，而且2001年开始会计制度也发生了较大的变化，而从2007年1月1日起新会计准则实施。因此样本区间2001至2006年会计政策以及会计数据一致性较高。

表5 企业盈亏与政府补贴情况

	样本 总量	$LOSSPRESUB_t$		$LOSS_t$		$LOSSGAIN_t$		
		样本数	占总 样本 比例(%)	样本数	占总 样本 比例(%)	样本数	占总 样本 比例	占补贴前 亏损的 比例(%)
全部	6861	1124	16.38	910	13.26	214	3.12	19.04
2001	966	140	14.49	118	12.22	22	2.28	15.71
2002	1047	158	15.09	137	13.09	21	2.01	13.29
2003	1117	153	13.70	118	10.56	35	3.13	22.88
2004	1180	191	16.19	152	12.88	39	3.31	20.42
2005	1273	281	22.07	229	17.99	52	4.08	18.51
2006	1278	201	15.73	156	12.21	45	3.52	22.39

注： $LOSSPRESUB_t$ ，哑变量，1表示企业实际盈利（不含政府补贴）为负，否则为0； $LOSS_t$ ，哑变量，1表示净利润（加入政府补贴后）为负，否则为0； $LOSSGAIN_t$ ，哑变量，1表示政府补贴收入前净利润为负，而加入政府补贴后净利润为正，否则为0。

表5显示：从总体样本来看，2001至2006年期间，16%左右的上市公司在剔除政府补贴后是亏损的，也就是说市场有1/6的公司实际是亏损的。而在这些实际亏损的公司中，有大约19%的上市公司在政府“帮助”之下，实现了扭亏为盈，即补贴前净利润为负，补贴后实现盈利；也就是说政府补贴扭曲了大约1/5的公司的业绩，使得投资者不能清楚的认识企业的真实情况，政府帮助上市公司在进行盈余管理。

另外，有一部分公司收到了政府的补贴，只是没有完全扭亏，但是在一定程度上降低了企业的亏损程度。这种情况可能是由于虽然企业与当地的就业、税收稳定紧密相关，但如果大面积亏损，政府是否能够帮助企业实现扭亏则取决于政府的财力和企业的重要性。即虽然政府有动机去帮助上市公司扭亏，但是从能力以及大量亏损公司的选择上考虑，对于某些企业补贴力度没有足以帮助实现扭亏。因此，在检验政府对上市公司补贴是否很大程度上取决于“盈余管理”的动机需要对政府的财力、企业的重要程度等因素进行控制。另一方面的原因可能是，由于政府补贴包含一些政策强制执行而不是政府可以随意控制的因素，如对高新技术企业实行特定税率，进行技术补贴等。虽然地方政府认为企业亏损太多而不愿通过过多补贴令其扭亏为盈，但企业仍然可以获得一些非政府自愿的补贴。

表6对企业不同盈亏情况下政府补贴力度进行了检验。

公司当年若发生亏损（补贴后），当年政府补贴占期末总资产比例平均为0.1475%，而盈利类企业政府补贴为0.2292%，相差0.0818%，在0.01水平上显著。中位数比较也显示了同样的迹象。可见，亏损公司从政府获得的补贴较低，支持了假设1。

当年补贴前亏损而补贴后盈利的公司从政府获得的补贴平均为1.6306%，显著高于其他类型公司的0.1729%，均值检验和中位数的差异都在0.01水平上十分显著。对于政府来讲，当企业小幅亏损，政府可以采用补贴的行为帮助企业实现扭亏时，“帮助之手”的作用就会显现。帮助企业实现盈利，政府的效用也会提高，因此政府在这种情况下进行补贴的动机更强，力度更大，支持了假设2。

表6 企业不同盈亏情况下政府补贴力度检验

		0	1	Diff	t/Z
$LOSS_t$	平均值	0.2292	0.1475	0.0818	4.3868***
	中位数	0.0129	0.0021	0.0108	4.4660***
$LOSSGAIN_t$	平均值	0.1729	1.6306	-1.4577	-45.7241***
	中位数	0.0081	1.5015	-1.4934	-22.9190***
$PRELOSSLOSSGAIN_t$	平均值	0.1985	2.3991	-2.2006	-35.8458***
	中位数	0.0100	2.5934	-2.5834	-13.2590***
$PREPRELOSSPRELOSS_t$	平均值	0.2060	0.5541	-0.3481	-10.2619***
	中位数	0.0110	0.0133	-0.0023	-1.0420

注：表中的数据为当年政府补贴的百分比，采用期末总资产标准化($SUBSIDY_t$)； $LOSS_t$ ，哑变量，1表示净利润(加入政府补贴后)为负，否则为0； $LOSSGAIN_t$ ，哑变量，1表示政府补贴收入前净利润为负，而加入政府补贴后净利润为正，否则为0； $PRELOSSLOSSGAIN_t$ ，哑变量，1表示前一年净利润为负，本年加入政府补贴前净利润为负，加入政府补贴后净利润为正，否则为0； $PREPRELOSSPRELOSS_t$ ，哑变量，1表示企业已经连续两年亏损(指的是t-2及t-1两年)，否则为0。平均值比较的统计量为t，中位数比较的统计量为Z。

如果企业前一年亏损，当年补贴前亏损但可以依靠补贴实现盈利的话，由于可能造成连续2年亏损，因此政府会尽量帮助企业实现扭亏，缓解第3年再度亏损形成的较大负担。政府给予这类公司的支持力度更大，差异在0.01水平上非常显著，支持了假设3。

如果企业已经连续2年亏损(指的是t-2及t-1两年)，那么会面临ST、保牌等严重压力。企业管理层会通过更大的努力正常提高企业经营业绩，或者通过重组、盈余管理等途径实现盈利，必要时政府也会尽力帮助企业实现扭亏和保牌，毕竟“壳”资源在中国资本市场中价值十分高昂。具有保牌动机的企业获得的政府补贴比例要显著高于其他企业，均值比较在0.01水平上显著，支持了假设4。

表6的统计比较仅仅从盈余管理动机角度进行了分析，但是政府补贴力度取决于很多因素，如政府的财政实力、企业的重要程度等因素，因此为了更好地检验政府补贴的盈余管理动机假设，需要对补贴的其他动机进行控制。

5.2 回归分析

表7采用多元回归方法对政府补贴力度与上市公司扭亏关系进行了实证分析。前4列分别针对4个假设进行检验，最后一列为所有变量的综合分析，回归均采用Tobit模型。

表7 政府补贴力度与上市公司扭亏回归分析

$LOSS_t$	-	-0.2138 (-8.02)***				-0.0700 (-3.10)***
$LOSSGAIN_t$	+		1.3359 (35.12)***			0.8728 (20.35)***
$PRELOSSGAIN_t$	+			2.3786 (34.54)***		1.4135 (17.90)***
$PREPRELOSSPRELOSS_t$	+					0.2250 (5.70)***
$EMPLOYEE_t$	+	0.0219 (2.36)**	0.0156 (1.90)*	0.0132 (1.61)	0.5252 (11.91)***	0.0122 (1.56)
$SIZE_t$	+	0.0070 (0.62)	0.0283 (2.85)***	0.0373 (3.75)***	0.0394 (3.52)***	0.0404 (4.18)***
$MARKET_t$?	0.0144 (3.18)***	0.0202 (5.00)***	0.0191 (4.73)***	0.0160 (3.55)***	0.0196 (5.10)***
$CENTERGOV_t$?	-0.0167 (-0.65)	-0.0476 (-2.10)**	-0.0451 (-1.99)**	-0.0212 (-0.84)	-0.0530 (-2.46)**
$LOCALGOV_t$?	0.0271 (1.33)	-0.0001 (-0.00)	0.0113 (0.62)	0.0255 (1.26)	-0.0015 (-0.08)
LEV_t	?	0.2158 (5.97)***	0.0403 (1.32)	-0.0088 (-0.29)	0.0072 (0.21)	-0.0233 (-0.72)
$GROWTH_t$?	-0.0255 (-1.60)	0.0204 (1.49)	0.0125 (0.91)	-0.0101 (-0.66)	0.0070 (0.53)
$SUBSIDY_{t-1}$	+	0.7625 (48.47)***	0.6547 (46.26)***	0.7386 (52.96)***	0.7724 (49.49)***	0.6806 (50.23)***
$YEARS$ & $INDS$		控制	控制	控制	控制	控制
N		6861	6861	6861	6861	6861
$LR\ chi^2$		2259.55	3298.09	3258.81	2331.91	3708.47
Pseudo R^2		0.1747	0.2550	0.2519	0.1803	0.2867

注：回归采用Tobit模型；被解释变量 $SUBSIDY_t$ 为当年政府补贴，采用期末总资产标准化； $LOSS_t$ ，哑变量，1表示净利润(加入政府补贴后)为负，否则为0； $LOSSGAIN_t$ ，哑变量，1表示政府补贴收入前净利润为负，而加入政府补贴后净利润为正，否则为0； $PRELOSSGAIN_t$ ，哑变量，1表示前一年净利润为负，本年加入政府补贴前净利润为正，加入政府补贴后净利润为正，否则为0； $PREPRELOSSPRELOSS_t$ ，哑变量，1表示企业已经连续两年亏损(指的是 $t-2$ 及 $t-1$ 两年)，否则为0。 $EMPLOYEE_t$ 为上市公司雇员人数，采用对数标准化； $SIZE_t$ 为期末总资产总额的自然对数； $MARKET_t$ 为各地市场化指数(2006年采用2005年代替)； $CENTERGOV_t$ ，哑变量，1表示最终控制人为中央政府，否则为0； $LOCALGOV_t$ ，哑变量，1表示最终控制人为地方政府； LEV_t 为期末总资产负债率； $GROWTH_t$ 为当年主营业务收入增长率； $SUBSIDY_{t-1}$ 为上年政府补贴，采用上期期末总资产标准化； $YEARS$ 为年度哑变量； $INDS$ 为行业哑变量，证监会行业分类13类，剔除金融保险业，剩下12个行业采用11个行业变量控制行业特征。***，**，*分别表示在0.01，0.05，0.10水平上显著。

政府对于企业的补贴很大程度上取决于企业所承担的社会责任，主要表现在当地的就业问题上(唐清泉、罗党论，2007)，表7中企业员工人数($EMPLOYEE_t$)的回归系数显著为正也说明了政府补贴的这种动机。政府补贴的动机和力度也取决于企业的重要程度，规模越大的企业在地方经济中发挥的作用也会越大，越重要的企业政府给与的补贴也会越多，体现为上市公司规模($SIZE_t$)回归系数显著为正。政府的财政能力以及当地的市场化程度都会影响政府补贴的力度，我们也发现地区市场化程度($MARKET$)与政府补贴之间显著正相关，与陈晓、李静(2001)关于财政补贴地区化差异的判断一致。最终控制人为中央的上市公司由于与地方政府关系不是那么密切，因此在政府补贴上会较地方政府直接控制的企业以及民营企业有一定的差距。政府补贴往往由于国家产业政策、技术支持等政策性原因具有一定的持续和连续性，因此当年的政府补贴与上期的补贴之间具有很强的相关性，表现为 $SUBSIDY_{t-1}$ 回归系数显著为正。

在控制了政府补贴的就业动机、政府经济实力、企业重要程度、补贴的政策，以及企业的债务水平、企业性质、成长能力、行业和年度差异等因素后，结果显示：不管是单独检验，还是综合检验， $LOSS_t$ 前的系数都在0.01水平上显著为负，表明政府对亏损企业的补贴可能性较低，力度可能也较小。因为对于亏损公司补贴，加上政府补贴后企业依旧亏损，虽然起到了政府支持企业的作用，但是对企业的业绩并没有非常大的支持力度。这种情况下，政府补贴的力度会降低或者维持在一般水平。而如果政府补贴能够帮助企业保持盈利的形象，那么政府补贴的力度就更大，假设1得到证明。而且，模型1 Pseudo R^2 为17.47%，具有较强的解释力。

$LOSSGAIN_t$ 前的系数也在0.01水平上显著为正，表明政府补贴的一项作用在于保持企业盈利的形象，因此对于可以通过政府补贴实现扭亏的公司，政府就会更大程度上利用“有形之手”帮助企业改善形象，给予企业更多的补贴。虽然从2001年开始，政府补贴已经从配股增发的业绩指标中剔除，但是对于企业来讲，即使无法从股市融资，业绩的好坏决定了企业从其他渠道获得资金的能力，特别是对银行贷款等债务融资。使企业扭亏为盈，对于地方政府来讲是帮助企业融资的一种手段。因为企业盈利好了，才能从其他地方获得资金，而且来自各方面的压力则更小。因此，“有形之手”的作用在于改善企业盈利形象。对于政府来讲，当企业在补贴前亏损，而收到政府补贴后实现盈利的话，政府的效用会提高，因此政府在这种情况下进行补贴的动机更强，力度更大，支持了本文的假设2。模型2的Pseudo R^2 为25.50%，解释力进一步增强。

$PRELOSSLOSSGAIN_t$ 的系数也在0.01水平上显著为正，说明ST制度给上市公司管理层和地方政府都产生较大的压力，尤其是对于第3年经营情况的预期。管理层在亏损的第2年往往会进行盈余管理，以避免连续2年亏损。如果企业的实际经营情况无法在第2年盈利，政府则会出手帮助企业，政府补贴力度会更大，假设3得到进一步证明。模型3的Pseudo R^2 为25.19%，解释力也比较满意。

$PREPRELOSSPRELOSS_t$ 的回归系数同样在0.01水平上显著为正，说明政府补贴在帮助企业“保牌”上发挥了很大的作用。保牌动机越强的公司，政府补贴的力度更大；企业之所以实现保牌，也在一定程度上是政府补贴所造成的。如果企业已经连续2年亏损，那么会面临ST、保牌等严重压力，回归结果支持了假设4。模型4的回归结果支持了陈晓、李静(2001)的结论，但与唐清泉、罗党论(2007)的结论不一致。

模型5的综合影响回归中显示, $LOSS_t$ 、 $LOSSGAIN_t$ 、 $PRELOSSLOSSGAIN_t$ 以及 $PREPRELOSSPRELOSS_t$ 的回归系数与之前的模型结果相同, 与假设一致。而且, 总体模型的解释力达到28.67%, 可见, 政府补贴的动机绝大部分来自于对于上市公司业绩的支持, 研究很好的支持了陈晓、李静(2001)的结果。总之, 表7的结果很好的支持了决策模型中提出的4个假设, 支持了政府在盈余管理中的重要作用。

5.3 稳健性检验

稳健性检验中我们首先进行了分年度回归, 避免各年经济状况差异造成的影响, 回归结果见表8。

$LOSS_t$ 变量的系数在2002和2003年显著, 其他年度不显著。 $LOSSGAIN_t$ 和 $PRELOSSLOSSGAIN_t$ 的系数在所有年度都显著, 而 $PREPRELOSSPRELOSS_t$ 的系数在2002和2006年不显著, 其他年度均高度显著。分年度回归结果基本与表7一致, 支持了本文提出的4个假设。

表9为另外的稳健性检验情况。首先检验了获得政府补贴的企业的补贴情况, 其次考虑了高管政府背景对于争取更多的政府补贴的影响(陈冬华, 2003)。最后采用政府补贴的变化情况来检验政府帮助企业实现扭亏、进行盈余管理的情况。

第1列采用政府补贴大于0的样本进行了回归。 $LOSS_t$ 的回归系数为-0.0329, 但在0.1水平不显著。 $LOSSGAIN_t$ 、 $PRELOSSLOSSGAIN_t$ 以及 $PREPRELOSSPRELOSS_t$ 的回归系数的预期符号与显著性程度与之前的结果高度一致, 进一步支持了假设2、假设3和假设4, 说明政府补贴动机很大程度上与企业的盈余管理、扭亏情况相关。

第2列加入了企业高管的政府背景为企业获得补贴的影响。由于高管的政府背景数据我们仅收集了2004至2006年, 因此这部分回归采用了2004至2006年的样本, 样本量为3,584家公司。回归结果同样是 $LOSS_t$ 的回归系数为负但不显著, $LOSSGAIN_t$ 、 $PRELOSSLOSSGAIN_t$ 以及 $PREPRELOSSPRELOSS_t$ 的回归系数与预期高度一致, 进一步支持了假设2、假设3和假设4。我们还发现企业高管的政府背景对政府补贴没有显著影响, 至少从2004至2006年的样本情况来看, POL_t 前的系数不显著, 与陈冬华(2003)的结论不一致, 可能的原因在于陈冬华(2003)的结论是基于IPO年度的单变量比较, 对于其他因素, 包括盈余管理动机、行业等都没有进行控制。

第3列为政府补贴变化情况与企业盈余管理、扭亏情况的分析。同样, $LOSS_t$ 、 $LOSSGAIN_t$ 、 $PRELOSSLOSSGAIN_t$ 以及 $PREPRELOSSPRELOSS_t$ 的回归系数与预期高度一致, 而且都在0.01水平上显著, 表明(1)对于亏损公司补贴, 加上政府补贴后企业依旧亏损, 虽然起到了政府支持企业的作用, 但是对企业的业绩并没有非常大的支持力度, 政府对亏损企业的补贴较少;(2)对于可以通过政府补贴实现扭亏的公司, 政府就会更大程度上利用“有形之手”帮助企业改善形象, 给予企业更多的补贴;(3)第2年是否能够扭亏为盈很重要, 如果企业的实际经营情况无法在第2年盈利, 政府则会出手帮助企业, 政府补贴力度会更大;(4)政府补贴在帮助企业“保牌”上发挥了很大的作用。保牌动机越强的公司, 政府补贴的力度更大。总之表9的结果进一步支持了表7和本文的假设。

表8 政府补贴力度与上市公司扭亏回归分析—分年度检验

样本年度	2006	2005	2004	2003	2002	2001
$LOSS_t$	-0.0217 (-0.42)	0.0161 (0.35)	-0.0787 (-1.48)	-0.2087 (-3.45)***	-0.1288 (-2.38)**	-0.1143 (-1.53)
$LOSSGAIN_t$	0.7960 (7.91)***	0.8945 (10.92)***	0.9167 (9.52)***	1.0534 (10.29)***	0.5219 (4.34)***	0.7266 (4.61)***
$PRELOSSGAIN_t$	1.4750 (9.56)***	1.6609 (9.25)***	1.3584 (7.33)***	1.1386 (6.27)***	1.1797 (4.90)***	1.3171 (4.57)***
$PREPRELOSSPRELOSS_t$	0.0754 (0.99)	0.2596 (2.37)**	0.5139 (5.45)***	0.2373 (2.77)***	-0.0335 (-0.31)	0.2781 (2.11)**
$EMPLOYEE_t$	0.0081 (0.48)	0.0120 (0.67)	0.0305 (1.70)*	0.0529 (2.92)***	-0.0071 (-0.37)	-0.0487 (-1.88)*
$SIZE_t$	0.0488 (2.42)**	0.0553 (2.59)**	0.0230 (1.02)	-0.0084 (-0.36)	0.0223 (0.93)	0.0883 (2.59)**
$MARKET_t$	0.0320 (3.91)***	0.0234 (2.72)***	0.0152 (1.69)*	0.0218 (2.46)**	0.0120 (1.30)	-0.0003 (-0.02)
$CENTERGOV_t$	-0.0508 (-1.15)	0.0077 (0.16)	-0.1320 (-2.67)***	-0.0672 (-1.31)	-0.0312 (-0.58)	-0.0751 (-0.98)
$LOCALGOV_t$	0.01436 (0.41)	0.0474 (1.26)	-0.0499 (-1.30)	0.0339 (0.83)	-0.0425 (-0.96)	-0.0458 (-0.72)
LEV_t	-0.0916 (-1.38)	-0.1517 (-2.20)**	-0.0194 (-0.26)	0.0322 (0.40)	0.1845 (2.11)**	0.2203 (1.88)*
$GROWTH_t$	-0.0334 (-1.05)	0.0974 (2.66)***	-0.0767 (-2.52)**	0.0151 (0.48)	-0.0072 (-0.23)	0.0119 (0.31)
$SUBSIDY_{t-1}$	0.7779 (25.81)***	0.6342 (20.00)***	0.6440 (20.58)***	0.6595 (19.37)***	0.7079 (22.80)***	0.6874 (16.15)***
YEARS and INDS	控制	控制	控制	控制	控制	控制
N	1278	1273	1180	1117	1047	966
LR chi ²	941.38	707.12	682.20	645.64	559.62	392.33
Pseudo R ²	0.3640	0.2937	0.3066	0.3136	0.3069	0.2186

注：回归采用Tobit模型；被解释变量SUBSIDY为当年政府补贴，采用期末总资产标准化；LOSS，哑变量，1表示净利润(加入政府补贴后)为负，否则为0；LOSSGAIN_t，哑变量，1表示政府补贴收入前净利润为负，而加入政府补贴后净利润为正，否则为0；PRELOSSGAIN_t，哑变量，1表示前一年净利润为负，本年加入政府补贴前净利润为负，加入政府补贴后净利润为正，否则为0；PREPRELOSSPRELOSS_t，哑变量，1表示企业已经连续两年亏损(指的是t-2及t-1两年)，否则为0；EMPLOYEE_t为上市公司雇员人数，采用对数标准化；SIZE为期末总资产的自然对数；MARKET_t为各地市场化指数(2006年采用2005年代替)；CENTERGOV_t，哑变量，1表示最终控制人为中央政府，否则为0；LOCALGOV_t，哑变量，1表示最终控制人为地方政府，否则为0；LEV为期末总资产负债率；GROWTH为当年主营业务收入增长率；SUBSIDY_{t-1}为上年政府补贴，采用上期期末总资产标准化；YEARS为年度哑变量；INDS为行业哑变量，证监会行业分类13类，剔除金融保险业，剩下12个行业采用11个行业变量控制行业特征。***，**，*分别表示在0.01，0.05，0.10水平上显著。

表9 政府补贴力度与上市公司扭亏回归分析—稳健性检验

自变量	预期符号	$SUBSIDY_t$		
		$SUBSIDY_t > 0$	有政府背景数据	$SUBCHANGE_t$
$LOSS_t$	-	-0.0329 (-1.43)	-0.0254 (-0.85)	-0.0524 (-3.09)***
$LOSSGAIN_t$	+	0.6344 (17.17)***	0.8748 (16.26)***	0.4586 (13.09)***
$PRELOSSLOSSGAIN_t$	+	1.2822 (18.71)***	1.4657 (14.63)***	1.5560 (23.73)***
$PREPRELOSSPRELOSS_t$	+	0.3436 (8.16)***	0.2662 (4.90)***	0.2714 (9.05)***
$EMPLOYEE_t$	+	0.0098 (1.26)	0.0116 (1.11)	0.0094 (1.58)
$SIZE_t$	+	-0.0245 (-2.48)**	0.0505 (3.98)***	0.0087 (1.19)
$MARKET_t$?	-0.0035 (-0.91)	0.0241 (4.65)***	0.0046 (1.56)
$CENTERGOV_t$?	-0.0479 (-2.23)**	-0.0578 (-2.05)**	-0.0061 (-0.37)
$LOCALGOV_t$?	-0.0195 (-1.13)	0.0037 (0.17)	0.0041 (0.31)
LEV_t	?	-0.0517 (-1.47)	-0.1080 (-2.62)***	-0.0802 (-3.38)***
$GROWTH_t$?	0.0213 (1.48)	-0.0005 (-0.03)	-0.0001 (-0.00)
$SUBSIDY_{t-1}$	+	0.6397 (49.04)***	0.6919 (37.15)***	
POL	+		-0.0311 (-1.55)	
$YEARS$ & $INDS$		控制	控制	控制
N		4018	3584	6861
LR chi ²		3220.17	2143.86	1611.43
Pseudo R ²		0.4108	0.3090	0.1722

注：回归采用Tobit模型；被解释变量 $SUBSIDY_t$ 为当年政府补贴，采用期末总资产标准化； $SUBCHANGE$ 为当年政府补贴的变化，当年政府补贴减去上年政府补贴； $LOSS_t$ ，哑变量，1表示净利润（加入政府补贴后）为负，否则为0； $LOSSGAIN_t$ ，哑变量，1表示政府补贴收入前净利润为负，而加入政府补贴后净利润为正，否则为0； $PRELOSSLOSSGAIN_t$ ，哑变量，1表示前一年净利润为负，本年加入政府补贴前净利润为负，加入政府补贴后净利润为正，否则为0； $PREPRELOSSPRELOSS_t$ ，哑变量，1表示企业已经连续两年亏损（指的是t-2及t-1两年），否则为0。 $EMPLOYEE_t$ 为上市公司雇员人数，采用对数标准化； $SIZE_t$ 为期末总资产总额的自然对数； $MARKET_t$ 为各地市场化指数（2006年采用2005年代替）； $CENTERGOV_t$ ，哑变量，1表示最终控制人为中央政府，否则为0； $LOCALGOV_t$ ，哑变量，1表示最终控制人为地方政府，否则为0。 LEV_t 为期末总资产负债率； $GROWTH_t$ 为当年主营业务收入增长率； $SUBSIDY_{t-1}$ 为上年政府补贴，采用上期期末总资产标准化； POL_t ，哑变量，1表示上市公司董事长或CEO具有政府背景，曾在中央政府、地方政府或者军队任职； $YEARS$ 为年度哑变量； $INDS$ 为行业哑变量，证监会行业分类13类，剔除金融保险行业，剩下12个行业采用11个行业变量控制行业特征。***，**，*分别表示在0.01，0.05，0.10水平上显著。

虽然地方政府有动机为上市公司进行补贴，以避免可能存在的融资约束以及退市风险，但补贴力度也会因不同的企业所有权而不同。首先，国有上市公司承担了政府的多重目标如就业、税收和社会稳定，并由此造成了国有企业的政策性负担，自然地，在国有上市公司陷入财务困难的时候，地方政府就更有必要对其进行救援来使其度过难关，而财政补贴就是一种直接的救援方式。其次，与非国有企业不同，由于国有企业与政府在产权上的同一性，政府更有动机去为国有公司提供补贴。表10展示了不同所有权下政府补贴的力度，对于所有样本以及政府补贴大于零的公司都进行了分析，也采用了政府补贴变化考察政府帮助企业“扭亏”的动机。

表10的结果说明，虽然上市公司所有权有国有非国有之分，但对于地方政府来讲，只要是能增加地方的就业人数、提升当地的形象从而为自身的考核提供砝码的上市公司，都是自己的“孩子”，没有对谁更加偏袒的倾向。只要上市公司面临可能存在的约束问题，政府都会大力出手，帮助上市公司进行“盈余管理”。而且，上市公司业绩在“差”与“非常差”的时候，政府“帮助的手”的力度也会有很大差别。政府补贴则是政府的一把宝剑，成为上市公司盈余管理的外部手段。当然，最终控制人为中央的上市公司由于与地方政府关系不是那么密切，因此在政府补贴上会较地方政府直接控制的企业以及民营企业有一定的差距。

需要指出的是，由于获得补贴后扭亏为盈的企业所获得的政府补贴可能也较多，从而可能导致这类企业当年获得的政府补贴跟其自身是否扭亏为盈等有着自然的相关联系，即模型中变量 $LOSSGAIN$ 和 $PRELOSSLOSSGAIN$ 的设定可能与被解释变量之间存在一定的机械性相关¹¹（但保牌变量 $PREPRELOSSPRELOS$ 因其定义未基于当期政府补贴而不存在这一机械性联系问题），基于此，我们采用了Chen *et al.* (2008)的事前指标方法，即用政府补贴前净资产收益率(ROE)在 $[-1\%, 0]$ 之间的公司作为容易扭亏的公司来进行稳健性检验，由于该变量的衡量在考虑当年政府补贴影响之前，即在定义上未以 t 年补贴高低为基础，因此避免了上述变量设定与被解释变量之间的机械性相关。在Chen *et al.* (2008)文中，他们通过检验临近亏损（补贴前的ROE在 $[-1\%, 0]$ 区间内）的公司更容易获得补贴来说明政府通过补贴帮助企业扭亏，但是Chen *et al.* (2008)主要是研究政府参与盈余管理，而本文的贡献是基于政府会参与盈余管理的现实，具体考虑其不同的动机。而且，Chen *et al.* (2008)的指标也存在一定的问题，因为政府补贴的力度也取决于企业亏损的具体金额，亏损100万的企业可能补贴前ROE为 -2% ，而亏损200万的企业可能补贴前为 -1% ，对于政府来讲补贴前者更合适。不过我们依旧选取他们的指标进行检验，回归结果见表11。我们对全部样本以及亏损公司都进行了分析，并且对补贴水平以及补贴变化情况，补贴大于0的情况也都分别进行了检验。

$DUMROE_t$ 为哑变量，1表示政府补贴前的ROE处于 $[-1\%, 0]$ 之间，否则为0。 $PRELOSS_t$ 为哑变量，1表示前一年亏损，否则为0。如果企业亏损程度很小，容易扭亏，那么政府会给予更多的补贴，帮助其实现扭亏；如果企业前期亏损，为了避免连续亏损，政府也会给与更多的补贴。表11显示采用Chen *et al.* (2008)的方法，回归结果没有变化，与之前的结果基本一致。但是，值得注意的是，表11的回归模型的解释力较表7下降明显，如对于总体样本回归的解释力从 28.67% 下降到 18.24% ，表明Chen *et al.* (2008)的方法在一定程度上低估了政府补贴上市公司，帮助企业扭亏，实现盈余管理的效果。总之，表11的结果显示，不论是对于补贴水平、补贴变化情况，还是对补贴大于0的公司，采用Chen *et al.* (2008)的指标回归结果与我们之前的结果一致。

¹¹ 实际上采用补贴大于0的样本的检验在一定程度上已经解决了机械性相关问题。

表 10 政府补贴力度与上市公司扭亏回归分析—不同企业性质检验

自变量	符号	非国有		国有	
		All	$SUBSIDY_t > 0$	All	$SUBSIDY_t > 0$
$LOSS_t$	-	-0.0499 (-1.89)*	0.0001 (0.00)	-0.0285 (-1.47)	-0.1067 (-2.43)**
$LOSSGAIN_t$	+	0.8735 (18.71)***	0.6561 (16.18)***	0.4996 (13.34)***	0.8424 (8.48)***
$PRELOSSGAIN_t$	+	1.1706 (13.29)***	1.0748 (13.94)***	1.2889 (17.92)***	2.1128 (12.39)***
$PREPRELOSS_t$	+	0.2140 (4.46)***	0.3483 (6.77)***	0.2685 (7.45)***	0.2551 (3.67)***
$EMPLOYEE_t$	+	0.0057 (0.64)	0.0076 (0.84)	0.0144 (2.17)**	0.0439 (2.72)***
$SIZE_t$	+	0.0353 (3.26)***	-0.0106 (-0.96)	0.0084 (1.04)	0.0443 (2.07)**
$MARKET_t$	+	0.0143 (3.18)***	-0.0053 (-1.16)	0.0036 (1.09)	0.0336 (4.46)***
$CENTERGOV_t$?	-0.0465 (-2.50)***	-0.0311 (-1.63)	-0.0130 (-0.94)	0.0055 (0.75)
LEV_t	?	0.0175 (0.44)	-0.0672 (-1.55)	-0.1019 (-3.52)***	-0.0829 (-1.45)
$GROWTH_t$?	0.0175 (1.05)	0.0265 (1.49)	0.0137 (1.11)	-0.0017 (-0.07)
$SUBSIDY_{t-1}$	+	0.7110 (44.88)***	0.6521 (42.93)***	0.5957 (23.02)***	0.5975 (23.42)***
控制		控制	控制	控制	控制
YEARS & INDS		5065	2956	5065	1796
N		2800.04	2386.66	1115.20	902.28
LR chi ²		0.2974	0.4225	0.1765	0.4137
Pseudo R ²					0.1848

注：回归采用Tobit模型；被解释变量SUBSIDY为当年政府补贴，采用期末总资产标准化；SUBCHANGE为当年政府补贴的变化，当年政府补贴减去上年政府补贴；LOSS，哑变量，1表示净利润(加入政府补贴后)为负，否则为0；LOSSGAIN，哑变量，1表示政府补贴收入前净利润为负，而加入政府补贴后净利润为正，否则为0；PRELOSSGAIN，哑变量，1表示前一年净利润为负，本年加入政府补贴前净利润为负，加入政府补贴后净利润为正，否则为0；PREPRELOSS，哑变量，1表示企业已经连续两年亏损(指的是t-2及t-1两年)，否则为0；EMPLOYEE为上市公司雇员人数，采用对数标准化；SIZE为期末总资产总额的自然对数；MARKET为各地市场化指数(2006年采用2005年代替)；CENTERGOV，哑变量，1表示最终控制人为中央政府，否则为0；LEV为期末总资产负债率；GROWTH为当年主营业务收入增长率；SUBSIDY_{t-1}为上年政府补贴，采用上期期末总资产标准化；YEARS为年度哑变量；INDS为行业哑变量，证监会行业分类13类，剔除金融保险业，剩下12个行业采用11个行业变量控制行业特征。***，**，*分别表示在0.01，0.05，0.10水平上显著。

表 11 另一种指标的检验

自变量	符号	全部样本		亏损公司	
		$SUBSIDY_{t-1} > 0$	$SUBCHANGE_{t-1}$	$SUBSIDY_{t-1} > 0$	$SUBCHANGE_{t-1}$
$LOSS_{t-1}$	-	-0.2005 (-7.39)***	-0.1438 (-6.16)***		
$DUMROE_{t-1}$	+	0.3086 (5.14)***	0.0892 (1.96)**	0.2964 (2.52)**	-0.0518 (-0.52)
$PRELOSS_{t-1}$	+	0.1049 (3.35)***	0.1225 (3.88)***	0.1462 (1.67)*	0.1552 (1.84)*
$PREPRELOSSPRELOSS_{t-1}$	+	0.4254 (8.30)***	0.6088 (11.29)***	1.4267 (9.54)***	1.4579 (9.85)***
$EMPLOYEE_{t-1}$	+	0.0198 (2.14)**	0.0179 (1.96)**	-0.0035 (-0.09)	0.0523 (1.36)
$SIZE_{t-1}$	+	0.0340 (2.96)***	-0.0466 (-4.04)***	0.1581 (3.24)***	-0.0616 (-1.33)
$MARKET_{t-1}$?	0.0147 (3.24)***	-0.0132 (-2.95)***	-0.0053 (-0.28)	-0.0175 (-0.99)
$CENTERGOV_{t-1}$?	-0.0273 (-1.07)	-0.0144 (-0.57)	0.1902 (1.71)*	0.1929 (1.85)*
$LOCALGOV_{t-1}$?	0.0211 (1.04)	0.0001 (0.01)	0.1533 (1.76)*	0.1297 (1.57)
LEV_{t-1}	?	0.0718 (1.88)*	0.0787 (1.91)*	-0.3625 (-3.31)***	-0.1713 (-1.52)
$GROWTH_{t-1}$?	-0.0321 (-2.03)**	-0.0208 (-1.24)	0.1280 (1.69)*	0.0412 (0.52)
$SUBSIDY_{t-1}$	+	0.7803 (49.07)***	0.7011 (46.70)***	0.7148 (13.64)***	0.6798 (13.77)***
$YEARS \& INDS$		控制	控制	控制	控制
N		6861	4018	1124	701
LR chi ²		2404.81	2089.16	344.85	316.72
Pseudo R ²		0.1824	0.2576	0.1179	0.1520

注：回归采用 Tobit 模型； $SUBSIDY_{t-1}$ 为当年政府补贴，采用期末总资产标准化； $SUBCHANGE_{t-1}$ 为当年政府补贴的变化，当年政府补贴减去上年政府补贴； $LOSS_{t-1}$ 为当年净利润(加入政府补贴后)为负，否则为 0； $DUMROE_{t-1}$ 为哑变量，1 表示当年政府补贴前的 ROE 处于 [-1%, 0] 之间，否则为 0； $PRELOSS_{t-1}$ 为哑变量，1 表示前一年净利润为负，否则为 0； $PREPRELOSSPRELOSS_{t-1}$ 为哑变量，1 表示企业已经连续两年亏损(指的是 t-2 及 t-1 两年)，否则为 0； $EMPLOYEE_{t-1}$ 为上市公司雇员人数，采用对数标准化； $SIZE_{t-1}$ 为期末总资产的自然对数； $MARKET_{t-1}$ 为各地市场化指数(2006 年采用 2005 年代替)； $CENTERGOV_{t-1}$ 为哑变量，1 表示最终控制人为中央政府，否则为 0； $LOCALGOV_{t-1}$ 为哑变量，1 表示最终控制人为地方政府，否则为 0； LEV_{t-1} 为期末总资产负债率； $GROWTH_{t-1}$ 为当年主营业务收入增长率； $SUBSIDY_{t-1}$ 为上年政府补贴，采用上期期末总资产标准化； $YEARS$ 为年度哑变量； $INDS$ 为行业哑变量； $INDS$ 为行业分类 13 类，剔除金融保险行业，剩下 12 个行业采用 11 个行业变量控制行业特征。***, **, * 分别表示在 0.01, 0.05, 0.10 水平上显著。

综合表8、表9、表10和表11的稳健性回归结果来看, 本文的假设都得到了很好的验证。

5.4 亏损企业的分析

政府会基于企业的社会责任、重要程度、政府自身的财政实力、补贴政策持续性等因素对企业进行补贴。如果企业发生了亏损, 那么政府就会考虑是否可以帮助企业扭亏对企业进行额外的补贴。因此, 对于实际亏损(补贴前亏损)的企业, 考察政府补贴的盈余管理作用能够更好的支持本文的假设。表12为针对实际亏损企业的回归分析。由于采用的是亏损企业的数据, 变量存在共线性问题, 因此回归中剔除了变量 $LOSS_t$ 。前5列采用补贴水平, 最后1列采用补贴变化情况进行检验。

表12的结果显示: 不管是单独检验, 还是综合检验, 不论是仅采用补贴大于0的样本, 还是采用政府补贴变化情况, $LOSSGAIN_t$ 、 $PRELOSSLOSSGAIN_t$ 以及 $PREPRELOSSPRELOSS_t$ 的回归系数都与预期高度一致, 进一步支持了假设2、假设3和假设4, 即如果企业发生了亏损, 那么政府就会考虑是否可以帮助企业扭亏对企业进行额外的补贴。政府可能会大力出手, 帮助上市公司进行“盈余管理”。而且, 上市公司业绩在“差”与“非常差”的时候, 政府“帮助的手”的力度也会有很大差别。

六、结论与不足

政府为维护地区经济环境的良好形象, 常常向企业伸出“帮助的手”, 在需要时对本地区企业给予经济关照。政府补贴力度一方面取决于政府补贴的动机, 另一方面取决于补贴的能力问题, 即政府的财政能力。对于地方政府来讲, 当地的企业数目众多, 选择什么样的企业给予政府补贴取决于补贴后政府获得效用的程度以及自身的财政能力以及国家政策。因此, 并非对于所有亏损企业政府都会进行补贴, 选择性的补贴以实现有限财政能力的效用最大化是政府给予企业补贴时所进行的重要决策。本文研究发现: 当上市公司业绩面临盈利状况不佳问题时, 政府往往会大力出手, 帮助上市公司进行“盈余管理”。政府补贴力度在一定程度上受企业亏损程度的影响, 对于容易实现扭亏为盈的企业, 政府补贴力度较大; 前一年亏损, 当年补贴后能够盈利的公司, 政府给予的补贴更高; 上市公司避免连续亏损的动机越强, 政府补贴力度越大。政府补贴则是政府的一把宝剑, 成为上市公司盈余管理的外部手段。

政府补贴只是政府“帮助的手”的一个方面, 对于通过政府层面进行的“兼并”、“收购”、“转让”等行为的探讨, 能够更进一步加深对于政府行为及其经济后果的理解。

本文的研究也存在多出不足之处。本文的理论决策模型虽然给出了较为直观的效用分析便于理解, 但并没有严格意义上的数理推导, 理论模型上的完善值得进一步深入探讨。本文采用的变量是事后指标, 这一事后变量综合了很多因素, 并不完全是补贴难易程度的表征。¹²而且, 本文的决策模型没有涉及企业欺骗政府, 骗取补贴的情况, 而这一问题的研究可以帮助我们对于企业与政府之间的博弈有更进一步的认识。再次, 自2005年开始上市公司进行了股权分置改革, 非流通股股东需要向流通股股东支付一定的对价, 而政府也有可能在这一过程中迎合大股东的需要改善上市公司财务状况从而取得有利的对价, 本文也没有能够对股改过程中可能存在的其他动机进行分析。

¹² 感谢匿名审稿人指出这一问题。虽然本文的指标属事后指标, 但是如果在实证分析中这一变量与补贴程度非常显著, 那么更加说明政府补贴的动机很大程度上是为了帮助企业实现扭亏, 而且越容易实现的政府的力度越强(当然是控制了其他补贴动机, 如企业对就业的贡献、重要程度等等)。其次, 本文也采用了Chen *et al.* (2008)定义的事前变量, 结果发现解释力度较本文的变量有一定的下降, 因此本文的指标至少较Chen *et al.* (2008)的事前变量能够更好的表征补贴的难易程度。

表 12 政府补贴力度与上市公司扭亏回归分析—亏损公司情况

自变量	符号	SUBSIDY _t		SUBSIDY _t > 0 SUBCHANGE _t	
LOSSGAIN _t	+	1.6483 (25.30)***		1.1694 (16.89)***	0.8074 (12.42)***
PRELOSSGAIN _t	+	2.4202 (21.82)***		1.1903 (9.98)***	1.0406 (9.30)***
PREPRELOSSPRELOSS _t	+		1.3700 (10.51)***	0.3945 (3.80)***	0.4572 (4.03)***
EMPLOYEE _t	+	0.0107 (0.36)	-0.0023 (-0.06)	-0.0045 (-0.16)	0.0396 (1.41)
SIZE _t	+	0.0281 (0.80)	0.1140 (3.15)***	0.0742 (2.29)**	-0.0754 (-0.754)
MARKET _t	?	-0.0057 (-0.41)	0.0067 (0.45)	0.0020 (0.15)	-0.0037 (-0.28)
CENTERGOV _t	?	0.0781 (0.95)	0.0455 (0.52)	0.0369 (0.50)	0.0477 (0.63)
LOCALGOV _t	?	0.0810 (1.26)	0.1154 (1.70)*	0.0554 (0.95)	0.0481 (0.80)
LEV _t	?	0.0942 (1.26)	-0.1994 (-2.47)**	-0.0630 (-0.89)	0.0765 (0.95)
GROWTH _t	?	-0.0047 (-0.08)	0.0750 (1.27)	-0.0110 (-0.21)	-0.0735 (-1.30)
SUBSIDY _{t-1}	+	0.3364 (8.70)***	0.6190 (15.72)***	0.4282 (12.00)***	0.4901 (13.14)***
YEARS & INDS		控制	控制	控制	控制
N		1124	1124	1124	701
LR chi ²		741.62	623.10	889.82	661.36
Pseudo R ²		0.2612	0.2195	0.8892	0.3336

注：回归采用Tobit模型；被解释变量SUBSIDY_t为当年政府补贴，采用期末总资产标准化；SUBCHANGE为当年政府补贴的变化，当年政府补贴减去上年政府补贴；LOSSGAIN_t哑变量，1表示政府补贴收入前净利润为负，而加入政府补贴后净利润为正，否则为0；PRELOSSGAIN_t哑变量，1表示前一年净利润为负，本年加入政府补贴后净利润为正，否则为0；PREPRELOSSPRELOSS_t哑变量，1表示企业已经连续两年亏损（指的是t-2及t-1两年），否则为0；EMPLOYEE_t为上市公司雇员人数，采用对数标准化；SIZE_t为期末总资产的自然对数；MARKET_t为各地市场化指数（2006年采用2005年代替）；CENTERGOV_t哑变量，1表示最终控制人为中央政府，否则为0；LOCALGOV_t哑变量，1表示最终控制人为地方政府，否则为0；LEV_t为期末总资产负债率；GROWTH_t为当年主营业务收入增长率；SUBSIDY_{t-1}为上年政府补贴，采用上期期末总资产标准化；YEARS为年度哑变量；INDS为行业哑变量，证监会行业分类13类，剔除金融保险行业，剩下12个行业采用11个行业变量控制行业特征。***，**，*分别表示在0.01，0.05，0.10水平上显著。

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Government Subsidy Decisions, Earnings Management Incentives, and Loss Reversals of Listed Firms*

Song Zhu¹ and Yunsen Chen²

Abstract

Local governments will give listed firms a “helping hand” by providing subsidisation, indicating the important role these governments play in China’s transitional economy. On the basis of a decision theory model and additional empirical evidence, we find that when firms face problems in performance, local governments usually take supportive steps to help them manipulate their earnings. The amount of government subsidy is determined to some extent by the loss that a firm will incur. Specifically, the government will provide more subsidies to firms that would suffer a loss without them but would be more likely to turn a profit with them, as well as to firms suffering a loss in the previous year. Moreover, the government will provide even larger subsidies to firms when it has a strong incentive to maintain their listing status in the capital market. Thus, government subsidies distort the real performance of listed firms in China.

Keywords: Government Subsidies, Earnings Management Incentives, Loss Reversal, Social Responsibility, Helping Hand

CLC codes: F12, F27, F81

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¹ PhD, Assistant Professor, School of Economics and Business Administration, Beijing Normal University, Haidian District, Beijing, China (100875). Email: zhusong@bnu.edu.cn.

² PhD Candidate, Department of Accountancy, School of Economics and Management, Tsinghua University, Haidian District, Beijing, China (100084). Email: chenyunsen@vip.sina.com.

I. Introduction

In emerging markets like China's, the government usually plays three roles: the invisible hand, the helping hand, and the grabbing hand (Frye and Shleifer, 1997). In the role of an invisible hand, the government is well organised, uncorrupted, and relatively benevolent. It restricts itself to providing basic public goods, such as contract enforcement, law and order, and some regulations, and it leaves most allocation decisions to the private sector. Playing the role of a helping hand, bureaucrats are intimately involved in promoting private economic activities; they support some firms and kill off others, pursue industrial policy, and often have close economic and family ties to entrepreneurs. In the role of a grabbing hand, a large number of substantially independent bureaucrats pursue their own agendas, including the taking of bribes. Subsidy provision to threatened firms is a direct way for the government (primarily the local government) to play the role of a helping hand. Providing them subsidies maximises the assets controlled by the government, increases the local employment rate, maintains the stability of the local economy, enhances the local government's reputation, and finally stimulates local development. So when listed firms get into trouble, the government tends to give them subsidies to help them out (Tang and Luo, 2007; Chen *et al.*, 2008). Moreover, in China, financing resources for firms are scarce, and so governments usually reduce taxes and provide subsidies and tax returns to local firms to meet the thresholds for IPOs, seasoned offerings, or other financing activities. Although since 2001, the China Securities Regulatory Commission (CSRC) has restricted earnings management via government subsidies, the shell resource of a listed firm is still valuable. Facing the threat of delisting, such stakeholders as the local government and parent company will use their own resources to protect the "shell". The government can achieve this objective directly through subsidisation. Finally, the local government's support can restrict the outflow of capital from its territory whilst attracting more inflow to it; this is called earnings management with Chinese characteristics (Chen and Li, 2001).

The global economic crisis that started in 2007 has been a disaster for all firms. Many governments around the world have initiated plans or projects to rescue the economy. The Chinese government has likewise implemented a plan using RMB4 trillion to stimulate the economy, as well as a policy to reinvigorate 10 industries. The total budget for the stimulation plans launched by all local governments amounts to more than RMB18 trillion. In China, it is often the responsibility of the central government to establish the policies, whilst the local government has direct control of the policies' implementation. Thus, in the face of the worldwide financial crisis and in view of the government's economic stimulation policies, a study of the helping hand effect of local governments and their incentives has strong implications for today's realities.

Local governments prefer to give subsidies to firms that are performing poorly, but since the resources they control are limited, they must consider the optimal distribution of these resources. Government subsidies are determined by the incentive as well as the ability to subsidise. Because lots of firms require a subsidy, local governments make their decisions on subsidisation based on the utility achieved thereby, their own financial position, and other policies and regulations at the national level. The utility is determined by the local employment rate, the stability of local taxation, and the importance of the firm, which are also considered to be incentive factors for the government. At the same time, the financial position of the local government and other policies and regulations at the national level will affect its ability to subsidise firms. As a result, the government will not subsidise all firms that suffer a loss. It is therefore important that local governments decide the extent of subsidisation to maximise the utility they will achieve thereby under the constraint of limited resources.

Using a decision theory model as well as additional empirical evidence based on the data of listed firms in China from 2001 to 2006, we find that when a firm's performance is at risk, the local government will usually take steps to help it manipulate its earnings. Government subsidies are determined to some extent by the loss that the firm will incur. Specifically, the government will provide subsidies to those firms that would suffer a loss without them but would turn a profit with them, and well as firms that have suffered a loss the previous year. The government will provide even higher subsidies to firms when it has a strong incentive to maintain their listing status. Therefore, government subsidies distort the real performance of listed firms, since about 19 per cent of the sample firms avoid a loss with the help of subsidies from the local government. Thus, the government plays a critical role in a firm's earnings management through external methods such as subsidisation.

The existing literature on the relationship between government subsidisation and firm performance lacks a theoretical basis, while the empirical evidence is inconsistent. Our study fills this void by setting up a logical theory for the government's process of decision making and using a large sample consisting of Chinese listed firms between 2001 and 2006 to test the theory, since China is a representative economy where resources are highly controlled and distributed by the government. Moreover, because of the start of the global economic crisis in 2007, a study of the helping hand effect of local governments and their incentives has strong implications for today's current situation. Finally, we emphasise the "loss reversal" and "earnings management" incentives of local governments, providing additional evidence for earnings management by external means. Our results also provide additional solid evidence for the existing literature connected to politics.

The rest of the paper is organised as follows. Section II discusses the related literature. Section III sets up the decision making theory and presents the hypotheses. Section IV provides a comprehensive analysis framework for the empirical tests. The empirical results are described in Section V, and Section VI concludes this paper.

II. Literature Review

Government subsidisation is a gratuitous but selective transfer from the government to the private sector (firms or individuals). In fact, the government will provide subsidies to entities such as listed firms only for some purposes, such as the pursuit of an economic benefit by interference in their behaviour (Wang and Chen, 2005). To optimise its interests, the local government has a motivation to improve the institution and protect the market in order to fight for limited resources (Sun, 2000). Government subsidisation can also significantly stimulate the development of the local economy and increase the local GDP via the attraction of large investment inflows (Hong and Cao, 1996). Furthermore, because interfering in the economy by administrative means is not suitable, subsidisation becomes an efficient and effective way to do so since it can serve as guidance to local firms to comply with the objectives the government has set (Wang and Chen, 2005). The firms' earnings performance can also influence the image of the local economy, and even the career records of the local governors. Because local governments must maintain the local image, when a listed firm gets into trouble, the government tends to help it out (Tang and Luo, 2007).

Local governments also provide subsidies to help firms boost their earnings above the regulatory threshold for rights offerings and delisting. Moreover, this collusion between the government and listed firms in earnings management takes place mainly in firms controlled by local governments (Chen *et al.*, 2008). Although Liu (2002) finds that firms do not use government subsidies to manipulate their earnings, and that the control right of the state is positively related to the subsidy, this is inconsistent with Chen and Li (2001), who suggest that in China it is very common for the government to help listed firms engage in earnings management. Chen (2003) shows that with dominant directors who have a local government background sitting on the board, listed companies can obtain more subsidies from the local government. But such research provides only descriptive statistics for the influence of government subsidies on a firm's earnings management and fails to consider other significant determinants of subsidisation.

Using data between 2002 and 2004, Tang and Luo (2007) find that there is no longer a strong motivation for stock allotments and financing in the capital market, which is also inconsistent with Chen and Li (2001), who use data between 1997 and 1999. Tang and Luo (2007) suggest that whereas subsidisation does not promote the economic benefit of listed firms, it does help to improve their social benefit. But the objective of subsidisation is not connected with future performance, since local governments are more concerned about the current performance of the firms in their territories, such as whether they will make a profit or suffer a loss. Thus, since the conclusions about government subsidisation are not unanimous, and since several empirical studies in this field also lack theoretical analyses, we set up a decision model for the government's subsidy decision and test the hypotheses based on that theory with data from Chinese listed firms.

III. Theory and Analysis

The government subsidies provided to firms maximise the assets the government controls, increase the local employment rate, maintain the stability of the local economy, enhance the reputation of the local government, and finally stimulate local economic development. Considering these benefits, the local government will subsidise a firm based on certain conditions, such as the social burden the firm bears, the firm's importance, the government's own financial position, and industry policies at the national level. But the most important incentive is to help firms avoid a loss since their bad performance will affect the assets controlled by the local government as well as its latent control of assets generated by seasoned equity offerings. One important objective of the local government is to maintain the stability of local development, of which employment is an important indicator. If a firm suffers a loss and the government fails to provide a subsidy, the firm may have to lay off employees and discontinue operations, driving up the local unemployment rate and reducing local economic development, or even harming social stability. Furthermore, whether firms are profitable or suffering a loss will send different signals to investors, based on which the investors will take different views of the firms, which in turn may affect or even damage the local government's reputation and image. Because listed firms are so important in China's local economies, the local government will thus give them greater consideration and subsidise them if they suffer a loss.

Table 1 shows the utility matrix of the subsidy decisions of local governments in terms of a firm's profit or loss. The first item in brackets is the utility for governments and the second is for firms.

Table 1 Government Subsidy Decision Matrix – Whether to Subsidise or Not

	Profit	Adjust to make a profit	Loss
Subsidise	$(-a+r, 0+a)$	$(-a+r+e, e)$	$(-a+r, -B+a)$
Not to subsidise	$(0, 0)$		$(0, -B)$

The “loss” situation can be categorised into “loss before subsidisation” and “loss after subsidisation”; the former means that the net income stated in the income statement is negative after deducting the government subsidy revenue, whilst the latter means that the net income stated in the income statement already includes the government subsidy. We assume that the utility of firms and local governments is monotonously and positively related to the amount of loss before subsidisation and to the amount of subsidy. If the loss before subsidisation is $-B$ ($B > 0$), then the utility for a firm will be $-B$. If the government subsidy is a ($a > 0$), then the utility for a firm after receiving the subsidy will increase by a , and the utility for the government will be reduced by a . $(-B+a)$ is the utility for a firm after receiving the subsidy but still suffering a loss (because $-B+a < 0$). The additional utility for the government and firm after subsidisation is r ; this would include reputation, profitability image, and so on. Moreover, subsidisation is beneficial for local gross domestic product (GDP) growth, because the local government is both the player and the referee in the local market economy (Zhou, 2007). Because these two roles involve some conflict, the local government has a greater likelihood of intervening in the operation of a firm. Since listed firms are very important for the local economy, contributing to the local employment rate, taxation, and local GDP, local governors have a strong incentive to give more subsidies to listed firms than to unlisted firms in order to increase accounting performance on behalf of their own political future. The additional utility for the government and firms if firms become profitable after receiving the subsidies is e . We assume that the additional utility is 0 for firms that are profitable before subsidisation for the ease of setting the model.^{3,4} It is obvious that e is greater than 0 since it is an image project for the local government that the firms in its territory be profitable so as to attract additional investors to invest in its territory. For the firms, profitability will attract more investors from the securities market, and they will receive better evaluations from institutions and analysts; they will thus find it easier to raise capital in the external capital markets using either debt or equity financing.

³ In fact, both firms and the local government will obtain additional utility when profitable firms are subsidised by the government, but the extra utility is lower. For the ease of model setting and explanation, we assume that the additional utility is 0 in this situation.

⁴ The local government can achieve a good reputation if it subsidises the firms in its territory so as to attract even more investments in its territory. But the signals for subsidising loss firms and profitable firms differ since the utility for the loss firm and local government will be higher. To explain the difference in utility between subsidising loss firms and profitable firms, we divide it into two parts, r and e .

Corollary 1: When $-a+r > 0$ or $r > a$, the benefit obtained from subsidisation will be higher than the cost of subsidisation, and so the government's best decision will be to subsidise the firm.⁵

Government subsidisation helps firms reduce their burden, which in turn improves the local government's reputation. Although the subsidy decreases the government's financial revenues, it does bring some benefits, such as an enhancement of the government's reputation and its officials' political future, and an increase in the growth of the local GDP. If the benefit of subsidisation exceeds the decrease in financial revenue, the local government will subsidise the loss firms. Because r is not observable, we cannot conduct an empirical test, but simply present the logical analysis and our propositions.

Government subsidisation is constrained by limited resources, because subsidisation, like education and healthcare, is one type of government disbursement. To achieve the objective of local development, the government will maximise benefits and minimise costs. That is to say, the subsidy will be determined not only by the government's incentives but also by its financial position. A local government determines selections for subsidisation among the large numbers of firms in its territory by the utility of subsidisation, its own financial position, and other policies at the national level. The utility achieved is assessed according to such incentive factors as the local employment rate and the importance of the firm. Therefore, not all loss firms will be subsidised; the local government needs to make selective subsidisation in order to maximise utility under limited resources.

Corollary 2: When $-B+a \geq 0$ or $a \geq B$, firms will avoid a loss. The government and firms will obtain additional utility e ($e > 0$), which will be $(-a+r+e)$ for the government and (e) for the firms.⁶ When $-B+a < 0$ or $a < B$, firms cannot avoid a loss even if they are subsidised, and the government cannot obtain the additional utility (e) .

According to the utility matrix in Table 1 and Corollary 2, the government will provide fewer subsidies for loss firms because these firms cannot avoid a loss even after subsidisation – meaning that subsidisation does not contribute much to firm performance – whereas the incentive for the government to subsidise firms is to keep them profitable and help them manage earnings. Therefore, the government will have a lower incentive to subsidise firms that cannot avoid a loss even if subsidised, and the amount of subsidy

⁵ The amount of subsidy is determined by the loss amount of a firm and also influenced by the firm's importance and the local government's financial position. For example, given firms A and B, A suffers a loss of RMB1 million, and it appears easy to help A avoid a loss. But the importance of A is less than that of B, which suffers a loss of RMB2 million; in addition, the financial position of the local government where B is located is better than that of where A is located. Thus B is more likely to be subsidised. Therefore, generally the local government will help firms avoid a loss through subsidisation, but not under just any circumstances of loss since the timing of subsidisation is also important for the government to obtain higher additional utility.

⁶ Assuming that the minimal subsidy for a firm is to avoid a loss, then $a = B$ and the profit for the firm is zero.

will thus be reduced. According to the analysis in Table 1, we hypothesise as follows:

H1: Government subsidisation is influenced by the amount of loss a firm suffers, and a loss firm will receive fewer subsidies in general.

Corollary 2 shows that the subsidy is significantly determined by the real operating performance before subsidisation. The government's incentive will be higher for firms that can easily avoid a loss with subsidisation, and the subsidy will also be larger. Table 2 shows the utility matrix for the government subsidy decision when considering the accounting performance of the previous year. The parameters are the same as those in Table 1. The first item in brackets is the utility for the government, and the second is the utility for the firms.

Table 2 Government Subsidy Decision Matrix – Utility of the Current Year

The state of loss/profit	Consequences of subsidisation	Utility function
Loss (before subsidisation) (0, -B)	Loss (after subsidisation)	$(-a+r, -B+a)$
	Profit (after subsidisation)	$(-a+r+e, e)$
	Not to subsidise	$(0, -B)$
Profit (before subsidisation) (0, 0)	Subsidise	$(-a+r, 0+a)$
	Not to subsidise	$(0, 0)$

One role of government subsidisation is to help a firm maintain a good reputation for persistent profitability. For loss firms (earnings before subsidisation is negative), the local government can give a helping hand by providing subsidies. Although the authorities have required that subsidies be deducted from performance indicators for seasoned equity offerings, firm performance is still decisive in determining the ability to finance from other channels besides the equity market. Helping firms to avoid loss is actually one method of assisting them in financing, since it is easier for better-performing firms to raise capital so that they face less pressure from other parties. Therefore, the “helping hand” will improve the reputation and promote the image of a firm. The utility is higher for the government when a firm suffers a loss before subsidisation but makes a profit after subsidisation. Certainly, not all loss firms will be subsidised. The choice of firms will be determined under several conditions as mentioned above. Therefore, we hypothesise as follows:

H2: Ceteris paribus, the probability of subsidisation and the amount thereof will be higher for firms that can easily avoid a loss via subsidisation.

The subsidy may also be given according to the performance of the previous year, since firms suffering a loss for two consecutive years would be under threat of special

treatment. Table 3 shows the utility after considering previous-year performance, and items in brackets are as defined in Table 1. The potential benefit of avoiding a loss for two consecutive years, or the potential cost, is c . It is obvious that c is greater than r , since a loss for two consecutive years would put a lot of pressure on both management and the local government.

Table 3 Government Subsidy Decision Matrix – Utility after Considering Previous-Year Performance

The state of loss/profit	Consequences of subsidisation		Utility function
Loss (before subsidisation) (0,-B)	Loss (after subsidisation)	Loss for previous year	$(-a+r-c, -B+a-c)$
		Profit for previous year	$(-a+r, -B+a)$
	Profit (after subsidisation)	Loss for previous year	$(-a+r+e+c, e+c)$
		Profit for previous year	$(-a+r+e, e)$
	Not to subsidise	Loss for previous year	$(-c, -B-c)$
		Profit for previous year	$(0, -B)$
Profit (before subsidisation) (0, 0)	Profit (after subsidisation)	Loss for previous year	$(-a+r, 0+a)$
		Profit for previous year	$(-a+r, 0+a)$
	Not to subsidise	Loss for previous year	$(0, 0)$
		Profit for previous year	$(0, 0)$

Corollary 3: When $-B+a \geq 0$ (or $a \geq B$) and $-a+r-c \geq 0$ (or $a \geq c-r$), the firm will be profitable and the government will have a higher incentive to subsidise it. At this point, the utility is $(-a+r+e+c)$ for the government and $(e+c)$ for the firm. But when $-B+a < 0$ or $a < B$, government subsidisation cannot help the firm avoid a loss; the government cannot obtain the extra utility (e) , and so the subsidy for such a firm will be reduced.

Although the delisting mechanism in China is unsound, firms suffering a loss for two consecutive years face the threat of special treatment. Once a firm is specially treated, the management and local government are under stronger pressure; in particular, the operating performance for the third year will be closely scrutinised. To alleviate these pressures in the third year, management will have a greater incentive to manage earnings to avoid a loss in the second year. Some firms may take a big bath in the second year for reversals in the third year. But as the regulations become more stringent, this sort of method is being criticised by both the authorities and the market. Therefore, avoiding a loss in the second year is very important. If the firm cannot make a profit in the second year on its own, the government will help it via subsidisation. Therefore, we hypothesise as follows:

H3: Ceteris paribus, the local government will use subsidisation to help firms avoid a loss so as to avoid consecutive losses.

If a firm suffers a loss for three consecutive years, it will be specially treated with its stock name marked “ST”. Once the stock is specially treated, both management and the local government will have to face higher pressures owing to the delisting regulations. Table 4 shows the utility of the government subsidy decision if a firm suffers a loss for two consecutive years; the parameters are the same as those in Table 1. To be concise, we assume the utility for the local government and the firm is 0 when the firm can avoid a loss in the current year and prevent special treatment. Both the local government and the firm will obtain a negative utility ($-D$) if the firm suffers a loss for two consecutive years.⁷

Table 4 Government Subsidy Decision Matrix – Subsidisation for Firms Suffering a Loss for Two Consecutive Years

	Profit	Adjust to make a profit	Loss
Subsidise	$(-a+r, 0+a)$	$(-a+r+e, e)$	$(-D-a+r, -D-B+a)$
Not to subsidise	$(0, 0)$		$(-D, -D-B)$

Corollary 4: When $-B+a \geq 0$ (or $a \geq B$) and $-a+r > 0$ (or $r > a$), a firm will start turning a profit instead of a loss; hence, both the government and the firm can eliminate the negative utility ($D, D > 0$) owing to consecutive losses and obtain an additional positive utility e ($e > 0$). The government will have a greater incentive to subsidise the firm, and its utility will be $(-a+r+e)$, while the firm’s utility will be (e) .⁸

To avoid special treatment, firms have a very strong incentive to engage in earnings management. The firm’s management will seek help from the government, and the government will help them via subsidisation, playing the role of a helping hand. Therefore, we hypothesise as follows:

H4: Ceteris paribus, the higher the incentive to avoid consecutive losses for a firm, the higher will be the government’s incentive to subsidise them, and the more subsidies the government will provide.

⁷ Once specially treated, firms will face more pressure in normal operations and external financing, which will also be a problem for the local government.

⁸ Assuming that the minimal subsidy is provided for the firm to avoid a loss, then $a = B$, and the firm’s profit is 0.

IV. Research Design

4.1 Model and Variables

Since the subsidy is positive, we use the Tobit model as follows:

$$\begin{aligned}
 SUBSIDY_t = & a + \beta_1 LOSS_t + \beta_2 LOSSGAIN_t + \beta_3 PRELOSSLOSSGAIN_t \\
 & + \beta_4 PREPRELOSSPRELOSS_t + \beta_5 EMPLOYEE_t + \beta_6 SIZE_t \\
 & + \beta_7 MARKET_t + \beta_8 STATE_t + \beta_9 LEV_t + \beta_{10} GROWTH_t \\
 & + \beta_{11} SUBSIDY_{t-1} + \beta_j \Sigma YEARS_j + \beta_i \Sigma INDS_i + \varepsilon
 \end{aligned} \quad (1)$$

The dependent variable $SUBSIDY_t$ is the government subsidy at year t , which is the subsidy revenue in the income statement standardised by total assets at year end. We also use (subsidy revenue + government reimbursement + tax reimbursement) standardised by total assets at year end in the robustness test, and the results are basically the same. To reduce the influence of outliers, we winsorise the data for the upper 1 per cent and bottom 1 per cent of the sample.

Performance variables include $LOSS_t$, a dummy variable taking the value of 1 when the net income (income after government subsidisation) is negative, and 0 otherwise; $LOSSGAIN_t$, a dummy variable taking the value of 1 when income is negative before government subsidisation and positive after government subsidisation, and 0 otherwise; $PRELOSSLOSSGAIN_t$, a dummy variable taking the value of 1 when previous-year income is negative and current-year income after subsidisation is positive, and 0 otherwise; and $PREPRELOSSPRELOSS_t$, a dummy variable taking the value of 1 when income is negative for the last two consecutive years (for years $t-2$ and $t-1$), and 0 otherwise.

Government subsidisation is significantly influenced by the social responsibility borne by a firm, which is exhibited by the employment problem (Tang and Luo, 2007); thus we use the number of employees to control for this effect (the natural logarithm of the number of employees). The incentive and the strength of government subsidisation are also determined by the importance of a firm, and large firms are more important to the local economy. The government will be more concerned about large firms and give them greater help when they have problems; therefore, we use firm size ($SIZE_t$) to proxy for this effect (the natural logarithm of total assets at year end). The financial position of the local government and the level of marketisation of the local economy will also determine the government's ability to subsidise firms, and so we use the marketisation index ($MARKET_t$) to control for this effect (Fan *et al.*, 2007). This index proxies for the level of market development and also reflects the level of government intervention.⁹ Because government subsidisation may persist as a result of both industry and technology policies at the national level, we also control for the subsidisation level of the previous

⁹ Since the index for 2006 is not available, we use that for 2005 to enlarge our sample. The regressions for each year show that this substitution does not affect our results.

year. $SUBSIDY_{t-1}$ is the government subsidy provided in the previous year, standardised by total assets at year end.

Other control variables include $STATE_i$, a dummy variable taking the value of 1 when the ultimate shareholder is the government (state-owned enterprises [SOEs]), and 0 otherwise (non-state-owned enterprises [NSOEs]). Jian and Wong (2009) find that the propping up and tunnelling of listed firms is significantly different between firms controlled by the central government and those controlled by local governments. To control for the difference in subsidisation between governments, we divide the SOEs into two groups: $CENTERGOV_i$, a dummy variable taking the value of 1 when the ultimate shareholder is the central government, and 0 otherwise, and $LOCALGOV_i$, a dummy variable taking the value of 1 when the ultimate shareholder is the local government, and 0 otherwise. LEV_i is the debt ratio at year end (total debt divided by total assets), $GROWTH_i$ is the revenue growth rate for the current year, $YEARS$ represents the five dummy variables for the six sample years, and $INDS$ is the 12 industry categories adopted by the *CSRC* after excluding the financial industry.

4.2 Sample and Data

We use the data of listed firms in China from 2001 to 2006.¹⁰ After excluding firms in the financial industry, firms not disclosing subsidy information, and firms with fewer than 50 employees, we finally obtain 6,861 observations, comprising 1278 for year 2006, 1273 for year 2005, 1180 for year 2004, 1117 for year 2003, 1047 for year 2002, and 966 for year 2001. We take the data for ultimate shareholders from the CCER database and the annual financial reports of listed firms, the financial information from the CSMAR database, and the market index from the *NERI Index of Marketisation of China Provinces 2006 Report* (Fan *et al.*, 2007).

V. Empirical Results

5.1 Descriptive Statistics

Table 5 shows the change in accounting performance before and after government subsidisation between 2001 and 2006. The fourth column contains the proportions of firms with negative income before government subsidisation (suffering a loss) in the total sample, the sixth column the proportions of firms with negative income after government subsidisation (still suffering loss) in the total sample, and the eighth column the proportions of firms with positive income after government subsidisation (loss is avoided) in the total sample. The ninth column presents the proportions of firms with positive income after government subsidisation (loss is avoided) in firms with negative income before government subsidisation, that is, the proportions of firms that can avoid a loss through government subsidisation.

¹⁰ We choose sample firms after 2001 because disclosure requirements have been more restrictive since 2001, and in 2001 the accounting reporting system underwent many changes. Moreover, the new accounting standards were implemented on 1 January 2007 and differ from those used before 2007. Therefore, the accounting data between 2001 and 2006 are more consistent.

Table 5 Government Subsidisation and the Profit and Loss Situation of Firms

	$LOSSPRESUB_t$			$LOSS_t$		$LOSSGAIN_t$		
	N1	N2	N2/N1 (%)	N3	N3/N1 (%)	N4	N4/N1 (%)	N4/N2 (%)
All	6861	1124	16.38	910	13.26	214	3.12	19.04
2001	966	140	14.49	118	12.22	22	2.28	15.71
2002	1047	158	15.09	137	13.09	21	2.01	13.29
2003	1117	153	13.70	118	10.56	35	3.13	22.88
2004	1180	191	16.19	152	12.88	39	3.31	20.42
2005	1273	281	22.07	229	17.99	52	4.08	18.51
2006	1278	201	15.73	156	12.21	45	3.52	22.39

Note: $LOSSPRESUB_t$ is a dummy variable taking the value of 1 when net income in the income statement is negative after deducting the government subsidy revenue, and 0 otherwise; $LOSS_t$ is a dummy variable taking the value of 1 when net income after government subsidisation is negative, and 0 otherwise; $LOSSGAIN_t$ is a dummy variable taking the value of 1 when net income is negative before government subsidisation and positive after government subsidisation, and 0 otherwise.

In respect of the total sample between 2001 and 2006, about 16 per cent of listed firms suffer a loss if the government subsidy is deducted from their earnings. Of these firms, about 19 per cent avoid suffering a loss through the helping hand of the government; net income is negative before subsidisation and positive after subsidisation. In other words, government subsidisation distorts the accounting performance of one-fifth of the total firms and misleads investors, meaning that the government is helping one-fifth of listed firms manage earnings.

Furthermore, some firms still suffer a loss even if they have been subsidised by the government. The subsidisation has not helped the firm erase the loss completely, but it has reduced the extent of the loss. This may be because, although firm performance is strongly related to the stability of local employment and tax revenue, the question of whether the government will help the firm avoid a loss is also determined by its own financial position and the importance of the firm.

Although the government has an incentive to help firms avoid losses, some firms still suffer a loss as a result of the financial position of the local government or the extent of loss if they are a listed firm. Therefore, we control for such influence and for the importance of a firm. Another reason for subsidisation is that the central government compulsorily requires continuity of certain subsidisation policies, such as specific tax

rates and technology subsidies for high technology firms. Although the local government may not want to subsidise firms with large losses, some may still receive some subsidies owing to the persistence and compulsory requirements of these policies.

Table 6 shows a statistical comparison of government subsidisation for different levels of firm performance.

Table 6 Comparison of Government Subsidisation for Different Levels of Firm Performance

		0	1	Diff	t/Z
$LOSS_t$	Mean	0.2292	0.1475	0.0818	4.3868***
	Median	0.0129	0.0021	0.0108	4.4660***
$LOSSGAIN_t$	Mean	0.1729	1.6306	-1.4577	-45.7241***
	Median	0.0081	1.5015	-1.4934	-22.9190***
$PRELOSSLOSSGAIN_t$	Mean	0.1985	2.3991	-2.2006	-35.8458***
	Median	0.0100	2.5934	-2.5834	-13.2590***
$PREPRELOSSPRELOSS_t$	Mean	0.2060	0.5541	-0.3481	-10.2619***
	Median	0.0110	0.0133	-0.0023	-1.0420

Note: Table 6 presents the percentages of subsidy divided by total assets at year end ($SUBSIDY_t$); $LOSS_t$ is a dummy variable taking the value of 1 when net income (the income after government subsidisation) is negative, and 0 otherwise; $LOSSGAIN_t$ is a dummy variable taking the value of 1 when income is negative before government subsidisation and positive after government subsidisation, and 0 otherwise; $PRELOSSLOSSGAIN_t$ is a dummy variable taking the value of 1 when income for the previous year is negative and income after subsidisation for the current year is positive, and 0 otherwise; $PREPRELOSSPRELOSS_t$ is a dummy variable taking the value of 1 when income for the last two years is negative for both (for years $t-2$ and $t-1$), and 0 otherwise. The t-statistics are for mean comparison, and Z for median comparison.

The average proportion of government subsidy in total assets is 0.1475 per cent for firms suffering a loss after subsidisation, and 0.2292 per cent for profitable firms; the difference between the two is 0.0818 per cent, significant at the 0.01 level. The median comparison shows the same phenomenon. Therefore, we can posit that firms suffering a loss receive fewer subsidies from the government, consistent with Hypothesis 1.

The average proportion of firms that become profitable after subsidisation but suffer a loss before subsidisation is 1.6306 per cent, significantly higher than the 0.1729 per cent for other firms; the statistics for median and mean comparisons are all significant at the 0.01 level. For the government, a small loss can be reversed by giving the firm

more subsidies, whilst the government gains additional utility by helping the firm avoid a loss. Statistical comparisons are consistent with Hypothesis 2.

If a firm suffers a loss in the previous year, the government will help it prevent a loss for two consecutive years to relieve the pressures of the third year by providing additional subsidies. The statistics show that the differences are significant at the 0.01 level, thus supporting Hypothesis 3.

If a firm suffers a loss for two consecutive years (years $t-2$ and $t-1$), it will face the threat of special treatment or delisting. Management will exert greater efforts to improve the firm's operating performance, or make it profitable through other channels such as re-organisation or earnings management. The government will also provide the firm with help, if necessary, to prevent special treatment or delisting. Therefore, firms with these kinds of incentives receive more subsidies than other firms; the statistics are significant at the 0.01 level, thus consistent with Hypothesis 4.

The statistical comparisons in Table 6 show the analysis only from the perspective of earnings management, whereas government subsidies are also determined by many factors, such as the financial position of the local government and the importance of a firm. Thus, to provide strong evidence for our hypotheses, we should control for other incentives of government subsidisation.

5.2 Regression Analysis

Table 7 investigates the relation between government subsidisation and the loss reversals of listed firms using the regression method. The first four models test the four hypotheses individually, while the last combines all factors in one regression. All regressions use the Tobit model.

Government subsidisation is mainly determined by the social responsibility the firms bear, which is demonstrated by local employment (Tang and Luo, 2007), as supported by the significance of the coefficients for $EMPLOYEE_t$. Subsidisation is also influenced by the importance of a firm, since large firms play a more important role in local economic development than small firms. Thus when they run into problems, the government will tend to help them; this is supported by the significantly positive coefficients for $SIZE_t$. The financial position of the local government and the level of marketisation of the local economy will also have an effect, and so we find that the market index is positively related to government subsidisation, consistent with the suggestion of Chen and Li (2001). Moreover, firms controlled by the central government have less connection to the local government and are thus at a disadvantage compared with firms controlled by the local government and non-state entities; in this regard we find that the coefficients of $SUBSIDY_{t-1}$ are significantly positive, suggesting that the subsidisation policy has persistence.

After we control for the influence of employment incentives, the financial position of the local government, the importance of a listed firm, the persistence of subsidisation policies, and other fundamental characteristics of firms such as debt ratio, ownership,

Table 7 Regressions on Government Subsidisation and Loss Reversals of Listed Firms

Independent variables	Expected sign	Model 1	Model 2	Model 3	Model 4	Model 5
$LOSS_t$	-	-0.2138 (-8.02)***				-0.0700 (-3.10)***
$LOSSGAIN_t$	+		1.3359 (35.12)***			0.8728 (20.35)***
$PRELOSSLOSSGAIN_t$	+			2.3786 (34.54)***		1.4135 (17.90)***
$PREPRELOSSPRELOSS_t$	+				0.5252 (11.91)***	0.2250 (5.70)***
$EMPLOYEE_t$	+	0.0219 (2.36)**	0.0156 (1.90)*	0.0132 (1.61)	0.0190 (2.08)**	0.0122 (1.56)
$SIZE_t$	+	0.0070 (0.62)	0.0283 (2.85)***	0.0373 (3.75)***	0.0394 (3.52)***	0.0404 (4.18)***
$MARKET_t$?	0.0144 (3.18)***	0.0202 (5.00)***	0.0191 (4.73)***	0.0160 (3.55)***	0.0196 (5.10)***
$CENTERGOV_t$?	-0.0167 (-0.65)	-0.0476 (-2.10)**	-0.0451 (-1.99)**	-0.0212 (-0.84)	-0.0530 (-2.46)**
$LOCALGOV_t$?	0.0271 (1.33)	-0.0001 (-0.00)	0.0113 (0.62)	0.0255 (1.26)	-0.0015 (-0.08)
LEV_t	?	0.2158 (5.97)***	0.0403 (1.32)	-0.0088 (-0.29)	0.0072 (0.21)	-0.0233 (-0.72)
$GROWTH_t$?	-0.0255 (-1.60)	0.0204 (1.49)	0.0125 (0.91)	-0.0101 (-0.66)	0.0070 (0.53)
$SUBSIDY_{t-1}$	+	0.7625 (48.47)***	0.6547 (46.26)***	0.7386 (52.96)***	0.7724 (49.49)***	0.6806 (50.23)***
$YEARS$ and $INDS$		Control	Control	Control	Control	Control
N		6861	6861	6861	6861	6861
LR chi ²		2259.55	3298.09	3258.81	2331.91	3708.47
Pseudo R ²		0.1747	0.2550	0.2519	0.1803	0.2867

Note: Regression models use the Tobit model. $SUBSIDY_t$ is the subsidy divided by total assets at year end; $LOSS_t$ is a dummy variable taking the value of 1 when net income (the income after government subsidisation) is negative, and 0 otherwise; $LOSSGAIN_t$ is a dummy variable taking the value of 1 when income is negative before government subsidisation and positive after government subsidisation, and 0 otherwise; $PRELOSSLOSSGAIN_t$ is a dummy variable taking the value of 1 when income for the previous year is negative and income after subsidisation for the current year is positive, and 0 otherwise; $PREPRELOSSPRELOSS_t$ is a dummy variable taking the value of 1 when income for the last two years is negative for both (for years $t-2$ and $t-1$), and 0 otherwise; $EMPLOYEE_t$ is the natural logarithm of total employees; $SIZE_t$ is the natural logarithm of total assets at year end; $MARKET_t$ is the market index (the index for 2005 is substituted for the 2006 index); $CENTERGOV_t$ is a dummy variable taking the value of 1 when the ultimate shareholder is the central government, and 0 otherwise; $LOCALGOV_t$ is a dummy variable taking the value of 1 when the ultimate shareholder is the local government, and 0 otherwise; LEV_t is the debt ratio, which is equal to total debt divided by total assets at year end; $GROWTH_t$ is the growth of revenue for the current year; $SUBSIDY_{t-1}$ is the subsidy for the previous year, scaled by total assets at the end of the previous year; $YEARS$ are five dummies for six years; $INDS$ are dummy variables for the 12 industry categories after excluding the financial industry. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

growth rate, and industry and year effects, the regression results show that for both individual regressions and the combined regression, the coefficients of $LOSS_t$ are significantly negative, indicating a lower tendency to subsidise loss firms. This may be because the accounting performance of these firms remains negative even after being provided with subsidies. Under this condition, the government will subsidise these firms less because it is unable to obtain additional utility through subsidisation. But if the subsidy could change the firm's performance from loss to profit, then the government will provide additional subsidies. Thus, Hypothesis 1 is supported.

The coefficients of $LOSSGAIN_t$ are significantly positive at the 0.01 level, showing that government subsidisation helps firms maintain a profitable image. If the local government can help a firm avoid a loss, it will provide subsidisation to ensure a better reputation and better image for the firm. Although the subsidy is deducted from the indicator for seasoned offerings as required by authorities since 2001, operating performance still determines the financing ability of a firm from channels besides the equity market. Therefore, a helping hand from the government can improve the firm's image, thereby increasing financing ability. The results of Model 2 thus support Hypothesis 2.

The coefficients of $PRELOSSLOSSGAIN_t$ are significantly positive at the 0.01 level, showing that the mechanism of special treatment does put pressure on management and the local government, especially in the third year after two consecutive years of loss. Management will engage in earnings management in the second year to prevent a loss for two consecutive years. But if the firm cannot achieve a profit in the second year, the local government will help it by providing additional subsidies. The results of Model 3 thus support Hypothesis 3.

The coefficients of $PREPRELOSSPRELOSS_t$ are also significantly positive at the 0.01 level, indicating that the local government plays an important role in preventing a firm from delisting. To maintain their listing status, firms suffering a loss for two consecutive years will turn to the local government for additional subsidies to change the loss situation. The results of Model 4 thus support Hypothesis 4, consistent with Chen and Li (2001) and inconsistent with Tang and Luo (2007).

In the combined regression of Model 5, the results for $LOSS_t$, $LOSSGAIN_t$, $PRELOSSLOSSGAIN_t$, and $PREPRELOSSPRELOSS_t$ are basically consistent with those of previous regressions and support our hypotheses. The incentive of government subsidisation is derived from the need to support listed firms, consistent with Chen and Li (2001). In sum, the results in Table 7 support the four hypotheses, indicating that the local government plays an important role in the earnings management of listed firms.

5.3 Robustness Test

We first regress for each year to eliminate the influence of the difference in the macro economy between various years. The results are shown in Table 8.

Table 8 Regressions on Government Subsidisation and Loss Reversals of Listed Firms – Annual Regression

Sample year	2006	2005	2004	2003	2002	2001
<i>LOSS_t</i>	-0.0217 (-0.42)	0.0161 (0.35)	-0.0787 (-1.48)	-0.2087 (-3.45)***	-0.1288 (-2.38)**	-0.1143 (-1.53)
<i>LOSSGAIN_t</i>	0.7960 (7.91)***	0.8945 (10.92)***	0.9167 (9.52)***	1.0534 (10.29)***	0.5219 (4.34)***	0.7266 (4.61)***
<i>PRELOSSLOSSGAIN_t</i>	1.4750 (9.56)***	1.6609 (9.25)***	1.3584 (7.33)***	1.1386 (6.27)***	1.1797 (4.90)***	1.3171 (4.57)***
<i>PREPRELOSSPRELOSS_t</i>	0.0754 (0.99)	0.2596 (2.37)**	0.2519 (5.45)***	0.2373 (2.77)***	-0.0335 (-0.31)	0.2781 (2.11)**
<i>EMPLOYEE_t</i>	0.0081 (0.48)	0.0120 (0.67)	0.0305 (1.70)*	0.0529 (2.92)***	-0.0071 (-0.37)	-0.0487 (-1.88)*
<i>SIZE_t</i>	0.0488 (2.42)**	0.0553 (2.59)**	0.0250 (1.02)	-0.0084 (-0.36)	0.0223 (0.93)	0.0883 (2.59)**
<i>MARKET_t</i>	0.0320 (3.91)***	0.0234 (2.72)***	0.0152 (1.69)*	0.0218 (2.46)**	0.0120 (1.30)	-0.0003 (-0.02)
<i>CENTERGOV_t</i>	-0.0508 (-1.15)	0.0077 (0.16)	-0.1320 (-2.67)***	-0.0672 (-1.31)	-0.0312 (-0.58)	-0.0751 (-0.98)
<i>LOCALGOV_t</i>	0.01436 (0.41)	0.0474 (1.26)	-0.0499 (-1.30)	0.0339 (0.83)	-0.0425 (-0.96)	-0.0458 (-0.72)
<i>LEV_t</i>	-0.0916 (-1.38)	-0.1517 (-2.20)**	-0.0194 (-0.26)	0.0322 (0.40)	0.1845 (2.11)**	0.2203 (1.88)*
<i>GROWTH_t</i>	-0.0334 (-1.05)	0.0974 (2.66)***	-0.0767 (-2.52)**	0.0151 (0.48)	-0.0072 (-0.23)	0.0119 (0.31)
<i>SUBSIDY_{t-1}</i>	0.7779 (25.81)***	0.6342 (20.00)***	0.6440 (20.58)***	0.6595 (19.37)***	0.7079 (22.80)***	0.6874 (16.15)***
<i>YEARS</i> and <i>INDS</i>	Control	Control	Control	Control	Control	Control
<i>N</i>	1278	1273	1180	1117	1047	966
<i>LR chi²</i>	941.38	707.12	682.20	645.64	559.62	392.33
<i>Pseudo R²</i>	0.3640	0.2937	0.3066	0.3136	0.3069	0.2186

Note: Regression models use the Tobit model. *SUBSIDY_t* is the subsidy divided by total assets at year end; *LOSS_t* is a dummy variable taking the value of 1 when net income (the income after government subsidisation) is negative, and 0 otherwise; *LOSSGAIN_t* is a dummy variable taking the value of 1 when income is negative before government subsidisation and positive after government subsidisation, and 0 otherwise; *PRELOSSLOSSGAIN_t* is a dummy variable taking the value of 1 when income for the previous year is negative and income after subsidisation for the current year is positive, and 0 otherwise; *PREPRELOSSPRELOSS_t* is a dummy variable taking the value of 1 when income for the last two years is negative for both (for years *t-2* and *t-1*), and 0 otherwise; *EMPLOYEE_t*, *SIZE_t*, *MARKET_t*, *CENTERGOV_t*, *LOCALGOV_t*, *LEV_t*, and *GROWTH_t* are natural logarithm of total employees, the natural logarithm of total assets at year end; *MARKET_t* is the market index (the index for 2005 is substituted for the 2006 index); *CENTERGOV_t* is a dummy variable taking the value of 1 when the ultimate shareholder is the central government, and 0 otherwise; *LOCALGOV_t* is a dummy variable taking the value of 1 when the ultimate shareholder is the local government, and 0 otherwise; *LEV_t* is the debt ratio, which is equal to total debt divided by total assets at year end; *GROWTH_t* is the growth of revenue for the current year; *SUBSIDY_{t-1}* is the subsidy for the previous year, scaled by total assets at the end of the previous year; *YEARS* are four dummies for five years; *INDS* are dummy variables for the 12 industry categories after excluding the financial industry. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

The coefficients of $LOSS_t$ are significant only in 2002 and 2003, while those of $LOSSGAIN_t$ and $PRELOSSLOSSGAIN_t$ are significant in all individual years. The coefficients of $PREPRELOSSPRELOSS_t$ are significant except for 2002 and 2006. Yearly regressions are consistent with the results in Table 7, supporting the four hypotheses.

Table 9 shows the results of other robustness tests. First, we run regressions for the sample where government subsidisation is positive. Then we investigate the influence of the political connections of chairmen or CEOs in obtaining subsidies (Chen, 2003; Chen and Zhu, 2009). Finally we use the change in subsidies as the dependent variable to test our hypotheses.

As shown in the third column, the coefficient of $LOSS_t$ is -0.0329, which is not significant at the 0.1 level. The signs and significance levels for the coefficients of $LOSSGAIN_p$, $PRELOSSLOSSGAIN_p$, and $PREPRELOSSPRELOSS_t$ are basically the same as those in previous results, further supporting Hypotheses 2 to 4 and showing that the incentive for government subsidisation is closely related to earnings management and the loss reversals of listed firms.

Since the data on political connection are available only for 2004 to 2006, the sample size for that regression is 3,584. The regression coefficients of $LOSS_t$ are negative but not significant, while the signs and significance levels for the coefficients of $LOSSGAIN_p$, $PRELOSSLOSSGAIN_p$, and $PREPRELOSSPRELOSS_t$ are basically the same as those in previous results. We also note that the political connection of chairmen or CEOs does not significantly affect government subsidisation at least for the sample of 2004 to 2006. The coefficients of POL_t are not significant, inconsistent with Chen (2003); this may be because Chen (2003) draws conclusions based on the unit variable comparison only and does not take into consideration other factors, such as earnings management incentives and industry effects.

The last column presents the analysis on the relation between the change in government subsidies and earnings management. Again, the coefficients of $LOSS_t$, $LOSSGAIN_p$, $PRELOSSLOSSGAIN_p$, and $PREPRELOSSPRELOSS_t$ are consistent with expectations and significant at the 0.01 level, showing that (1) fewer subsidies are given to firms that still suffer a loss after subsidisation; (2) more subsidies are provided for firms that will become profitable after subsidisation, meaning that the government's helping hand is able to improve the image of a firm; (3) since it is important for firms to avoid a loss in the second year, the government will help them do so if the real operating income before subsidisation is negative; and (4) if a firm suffers a loss for two consecutive years, the government will help it maintain its listing status by providing additional subsidies. In sum, the results in Table 9 further support our hypotheses.

Although the local government has an incentive to help firms avoid delisting and potential financial constraints, the strength of the subsidy may vary for different firms. First, since SOEs assume greater social responsibilities such as employment, taxation, and social stability, it is natural that the local government would promptly help financially

Table 9 Regressions on Government Subsidisation and Loss Reversals of Listed Firms – Robustness Test

Independent variable	Expected sign	$SUBSIDY_t$	
		$SUBSIDY_t > 0$	Sample with political connection data
$LOSS_t$	-	-0.0329 (-1.43)	-0.0254 (-0.85)
$LOSSGAIN_t$	+	0.6344 (17.17)***	0.8748 (16.26)***
$PRELOSSGAIN_t$	+	1.2822 (18.71)***	1.4657 (14.63)***
$PREPRELOSS_t$	+	0.3436 (8.16)***	0.2662 (4.90)***
$EMPLOYEE_t$	+	0.0098 (1.26)	0.0116 (1.11)
$SIZE_t$	+	-0.0245 (-2.48)**	0.0505 (3.98)***
$MARKET_t$?	-0.0035 (-0.91)	0.0241 (4.65)***
$CENTERGOV_t$?	-0.0479 (-2.23)**	-0.0578 (-2.05)**
$LOCALGOV_t$?	-0.0195 (-1.13)	0.0037 (0.17)
LEV_t	?	-0.0517 (-1.47)	-0.1080 (-2.62)***
$GROWTH_t$?	0.0213 (1.48)	-0.0005 (-0.03)
$SUBSIDY_{t-1}$	+	0.6397 (49.04)***	0.6919 (37.15)***
POL	+		-0.0311 (-1.55)
$YEARS$ and $INDS$		Control	Control
N		4018	3584
LR chi ²		3220.17	2143.86
Pseudo R ²		0.4108	0.3090

Note: Regression models use the Tobit model. $SUBSIDY_t$ is the subsidy divided by total assets at year end; $LOSS_t$ is a dummy variable taking the value of 1 when net income (the income after government subsidisation) is negative, and 0 otherwise; $LOSSGAIN_t$ is a dummy variable taking the value of 1 when income is negative before government subsidisation and positive after government subsidisation, and 0 otherwise. $PRELOSSGAIN_t$ is a dummy variable taking the value of 1 when income for the previous year is negative and income after subsidisation for the current year is positive, and 0 otherwise; $PREPRELOSS_t$ is a dummy variable taking the value of 1 when income for the last two years is negative for both (for years $t-2$ and $t-1$), and 0 otherwise; $EMPLOYEE_t$ is the natural logarithm of total employees; $SIZE_t$ is the natural logarithm of total assets at year end; $MARKET_t$ is the market index (the index for 2005 is substituted for the 2006 index); $CENTERGOV_t$ is a dummy variable taking the value of 1 when the ultimate shareholder is the central government, and 0 otherwise; $LOCALGOV_t$ is a dummy variable taking the value of 1 when the ultimate shareholder is the local government, and 0 otherwise; LEV_t is the debt ratio, which is equal to total debt divided by total assets at year end; $GROWTH_t$ is the growth of revenue for the current year; $SUBSIDY_{t-1}$ is the subsidy for the previous year, scaled by total assets at the end of the previous year; POL_t is a dummy variable taking the value of 1 when the chairman or CEO of the listed firm has ever worked for the central government, the local government, or the military, and 0 otherwise. $YEARS$ are five dummies for six years; $INDS$ are dummy variables for the 12 industry categories after excluding the financial industry. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

distressed SOEs, for which subsidisation is a direct and efficient method. Second, SOEs are similar to the government in terms of ownership, so the government will provide them with greater subsidies. Table 10 shows the difference in subsidisation between firms of different ownership types. We run regressions using the total sample and the samples with positive subsidies, and examine the government's incentive to help loss firms using the change in subsidies.

The results in Table 10 indicate that although firms can be categorised into SOEs and NSOEs, the local government shows no preference for ownership type when subsidising firms in its territory. When listed firms face problems, the local government will help them engage in earnings management. The strength of the helping hand also varies according to the performance of listed firms. Government subsidisation is an external method of earnings management. Because firms controlled by the central government do not have close connections with the local government, the subsidies provided for these firms differ somewhat from those for firms controlled by the local government and firms controlled by non-state entities.

We should note that firms suffering a loss before subsidisation that become profitable after subsidisation may receive more subsidies than other firms, which may be the cause of the mechanical relation between the dependent variable and the measures *LOSSGAIN* and *PRELOSSLOSSGAIN*.¹¹ But the measure *PREPRELOSSPRELOSS* does not have this problem, because it is not based on subsidies in the current year. To solve this issue, we use the measure proposed by Chen *et al.* (2008) suggesting that it is easier for firms with a return on equity (ROE) in the range between -1 per cent and 0 to avoid a loss. This measure is not based on the subsidy in the current year, thereby eliminating the mechanical relation. But this paper differs from Chen *et al.* (2008), who focus on the local government's participation in earnings management; instead we investigate the different incentives for government subsidisation based on the fact that the local government participates in the earnings management of listed firms. The measure of Chen *et al.* (2008) also has some problems. For example, the subsidy is determined by the particular amount of loss. If the ROE for a firm that suffers a loss of RMB1 million is -2 per cent, while that for a firm suffering a loss of RMB2 million is -1 per cent, it would be more reasonable to subsidise the former than the latter as suggested by Chen *et al.* (2008). But we still use their measure for further regressions, as shown in Table 11. We run regressions using the total sample and the sample consisting of loss firms only; we also test for the change in subsidies and for samples with positive subsidies.

¹¹ In fact, regressions using the samples where subsidies are positive already solve this problem.

Table 10 Regressions on Government Subsidisation and Loss Reversals of Listed Firms – By Different Types of Firm Ownership

Independent variable	Sign	SOEs			NSOEs		
		All	$SUBSIDY_t > 0$	$SUBCHANGE_t$	All	$SUBSIDY_t > 0$	$SUBCHANGE_t$
$LOSS_t$	-	-0.0499 (-1.89)*	0.0001 (0.00)	-0.0285 (-1.47)	-0.1067 (-2.43)**	-0.1216 (-2.73)***	-0.1018 (-2.94)***
$LOSSGAIN_t$	+	0.8735 (18.71)***	0.6561 (16.18)***	0.4996 (13.34)***	0.8424 (8.48)***	0.5434 (6.41)***	0.3010 (3.51)***
$PRELOSSGAIN_t$	+	1.1706 (13.29)***	1.0748 (13.94)***	1.2889 (17.92)***	2.1128 (12.39)***	1.8998 (12.95)***	2.3578 (15.86)***
$PREPRELOSSPRELOSS_t$	+	0.2140 (4.46)***	0.3483 (6.77)***	0.2685 (7.45)***	0.2551 (3.67)***	0.3095 (4.22)***	0.2699 (4.92)***
$EMPLOYEE_t$	+	0.0057 (0.64)	0.0076 (0.84)	0.0144 (2.17)**	0.0439 (2.72)***	0.0262 (1.61)	-0.0015 (-0.12)
$SIZE_t$	+	0.0353 (3.26)***	-0.0106 (-0.96)	0.0084 (1.04)	0.0443 (2.07)**	-0.0756 (-3.48)***	0.0101 (0.60)
$MARKET_t$	+	0.0143 (3.18)***	-0.0053 (-1.16)	0.0036 (1.09)	0.0336 (4.46)***	0.0055 (0.75)	0.0083 (1.37)
$CENTERGOV_t$?	-0.0465 (-2.50)***	-0.0311 (-1.63)	-0.0130 (-0.94)			
LEV_t	?	0.0175 (0.44)	-0.0672 (-1.55)	-0.1019 (-3.52)***	-0.0829 (-1.45)	-0.0362 (-0.59)	-0.0472 (-1.08)
$GROWTH_t$?	0.0175 (1.05)	0.0265 (1.49)	0.0137 (1.11)	-0.0017 (-0.07)	0.0181 (0.72)	-0.0147 (-0.85)
$SUBSIDY_{t-1}$	+	0.7110 (44.88)***	0.6521 (42.93)***		0.5957 (23.02)***	0.5975 (23.42)***	
YEARS and INDS		Control	Control	Control	Control	Control	Control
N		5065	2956	5065	1796	1062	1796
LR chi ²		2800.04	2386.66	1115.20	1024.69	902.28	542.78
Pseudo R ²		0.2974	0.4225	0.1765	0.2919	0.4137	0.1848

Note: Regression models use the Tobit model. $SUBSIDY_t$ is the subsidy divided by total assets at year end; $LOSS_t$ is a dummy variable taking the value of 1 when net income (the income after government subsidisation) is negative, and 0 otherwise; $LOSSGAIN_t$ is a dummy variable taking the value of 1 when net income is negative before government subsidisation and positive after government subsidisation, and 0 otherwise; $PRELOSSGAIN_t$ is a dummy variable taking the value of 1 when income for the previous year is negative and income after subsidisation for the current year is positive, and 0 otherwise; $PREPRELOSSPRELOSS_t$ is a dummy variable taking the value of 1 when income for the last two years is negative for both (for years $t-2$ and $t-1$), and 0 otherwise; $EMPLOYEE_t$ is the natural logarithm of total employees; $SIZE_t$ is the natural logarithm of total assets at year end; $MARKET_t$ is the market index (the index for 2005 is substituted for the 2006 index); $CENTERGOV_t$ is a dummy variable taking the value of 1 when the ultimate shareholder is the central government, and 0 otherwise; $LOCALGOV_t$ is a dummy variable taking the value of 1 when the ultimate shareholder is the local government, and 0 otherwise; LEV_t is the debt ratio, which is equal to total debt divided by total assets at year end; $GROWTH_t$ is the growth of revenue for the current year; $SUBSIDY_{t-1}$ is the subsidy for the previous year, scaled by total assets at the end of the previous year; $YEARS$ are five dummies for six years; $INDS$ are dummy variables for the 12 industry categories after excluding the financial industry. ***, **, * and * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

Table 11 Regressions for Another Measurement

Independent variables	Sign	All		Loss firms	
		$SUBSIDY_t > 0$	$SUBCHANGE_t$	$SUBSIDY_t > 0$	$SUBCHANGE_t$
$LOSS_t$	-	-0.2005 (-7.39)***	-0.1671 (-6.16)***	-0.1438 (-7.61)***	-0.0518 (-0.52)
$DUMROE_t$	+	0.3086 (5.14)***	0.1026 (1.93)*	0.0892 (1.96)**	0.2964 (2.52)**
$PRELOSS_t$	+	0.1049 (3.35)***	0.1225 (3.88)***	0.1411 (6.42)***	0.1552 (4.23)***
$PREPRELOSS_t$	+	0.4254 (8.30)***	0.6088 (11.29)***	0.3725 (10.15)***	1.4267 (9.85)***
$EMPLOYEE_t$	+	0.0198 (2.14)**	0.0179 (1.96)**	0.0130 (1.99)**	0.0523 (1.36)
$SIZE_t$	+	0.0340 (2.96)***	-0.0466 (-4.04)***	0.0024 (0.30)	-0.0616 (-1.33)
$MARKET_t$?	0.0147 (3.24)***	-0.0132 (-2.95)***	0.0001 (0.02)	-0.0175 (-0.99)
$CENTERGOV_t$?	-0.0273 (-1.07)	-0.0144 (-0.57)	0.0113 (0.63)	0.1929 (1.85)*
$LOCALGOV_t$?	0.0211 (1.04)	0.0001 (0.01)	0.0161 (1.11)	0.1297 (1.57)
LEV_t	?	0.0718 (1.88)*	0.0787 (1.91)*	-0.0370 (-1.40)	-0.1713 (-1.52)
$GROWTH_t$?	-0.0321 (-2.03)**	-0.0208 (-1.24)	-0.0245 (-2.24)**	0.0412 (0.52)
$SUBSIDY_{t-1}$	+	0.7803 (49.07)***	0.7011 (46.70)***	0.7148 (3.64)***	0.6798 (13.77)***
$YEARS$ and $INDS$		Control	Control	Control	Control
N		6861	4018	6861	701
LR chi ²		2404.81	2089.16	346.66	316.72
Pseudo R ²		0.1824	0.2576	0.0365	0.1520

Note: Regression models use the Tobit model. $SUBSIDY_t$ is the subsidy divided by total assets at year end; $LOSS_t$ is a dummy variable taking the value of 1 when net income (the income after government subsidisation) is negative, and 0 otherwise; $DUMROE_t$ is a dummy variable taking the value of 1 when the ROE before government subsidisation is in the range between -1% and 0, and 0 otherwise; $PRELOSS_t$ is a dummy variable taking the value of 1 when the firm suffers a loss in the previous year, and 0 otherwise; $PREPRELOSS_t$ is a dummy variable taking the value of 1 when income for the last two years is negative for both (for years $t-2$ and $t-1$), and 0 otherwise; $EMPLOYEE_t$ is the natural logarithm of total employees; $SIZE_t$ is the natural logarithm of total assets at year end; $MARKET_t$ is the market index (the index for 2005 is substituted for the 2006 index); $CENTERGOV_t$ is a dummy variable taking the value of 1 when the ultimate shareholder is the central government, and 0 otherwise; $LOCALGOV_t$ is a dummy variable taking the value of 1 when the ultimate shareholder is the local government, and 0 otherwise; LEV_t is the debt ratio, which is equal to total debt divided by total assets at year end; $GROWTH_t$ is the growth of revenue for the current year, and 0 otherwise; $SUBSIDY_{t-1}$ is the subsidy for the previous year, scaled by total assets at the end of the previous year; $YEARS$ are five dummies for six years; $INDS$ are dummy variables for the 12 industry categories after excluding the financial industry. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

$DUMROE_i$ is a dummy variable, which takes the value of 1 when the ROE before government subsidisation is in the range between -1 per cent and 0, and 0 otherwise. $PRELOSS_i$ is also a dummy variable, which takes the value of 1 when the firm suffers a loss in the previous year, and 0 otherwise. If the amount of loss is small and easily reversible, the government will provide the firm with additional subsidies to help them avoid the loss. If the firm suffers a loss in the previous year, the government will provide additional subsidies for the firm to avoid consecutive losses. The results using the method of Chen *et al.* (2008) are consistent with the results found herein. However, the explanatory power of Table 11 is lower than that of Table 7, since R^2 is reduced from 28.67 per cent to 18.24 per cent, showing that Chen *et al.*'s (2008) method underestimates the influence of government subsidisation on the loss reversal phenomenon. Overall, the results for Table 11 indicate that in terms of subsidisation levels, the results for changes in subsidies or for firms suffering a loss before government subsidisation using the method of Chen *et al.* (2008) are consistent with the conclusions mentioned above.

As shown by the robustness regressions from Tables 8 to 11, our hypotheses are all strongly supported.

5.4. Additional Analysis for Loss Firms

The government will subsidise a firm according to its social responsibility and its importance, while also taking into consideration its financial position and the persistence of policy. If a firm suffers a loss, the government will consider whether it can help it out of red through additional subsidies. Therefore, our hypotheses will be more strongly supported if we investigate subsidisation for firms that would have suffered a loss if they had not received government subsidisation; the regression results are shown in Table 12. Since we use the samples of firms suffering a loss, the variable $LOSS_i$ is deleted on account of multicollinearity. The first five columns show the results for the regressions on the level of subsidisation, while the last column shows the results for regressions on the change in subsidies.

Table 12 shows that for individual regressions and the combined regression using samples with positive subsidies or changes in subsidies, the signs and significance levels for the coefficients of $LOSSGAIN_p$, $PRELOSSLOSSGAIN_p$, and $PREPRELOSSPRELOSS_i$ are highly consistent with our expectations, further supporting Hypotheses 2, 3, and 4. This suggests that if a firm suffers a loss, the government will consider subsidising it to help it out of red and manage earnings. Furthermore, the government's helping hand will differ for firms with different levels of performance.

Table 12 Regressions on the Relation between Government Subsidisation and Firms Avoiding Loss Behaviour – Loss Firms

Independent variables	sign	<i>SUBSIDY_t</i>	<i>SUBSIDY_t > 0</i>	<i>SUBCHANGE_t</i>
<i>LOSSGAIN_t</i>	+	1.6483 (25.30)***	1.1694 (16.89)***	0.8074 (12.42)***
<i>PRELOSSGAIN_t</i>	+		2.4202 (21.82)***	1.0406 (9.30)***
<i>PREPRELOSSPRELOSS_t</i>	+		1.3700 (10.51)***	0.4572 (4.03)***
<i>EMPLOYEE_t</i>	+	0.0107 (0.36)	-0.0023 (-0.06)	0.0396 (1.41)
<i>SIZE_t</i>	+	0.0281 (0.80)	0.1427 (3.15)***	-0.0754 (-2.23)**
<i>MARKET_t</i>	?	-0.0057 (-0.41)	0.0067 (0.45)	-0.0037 (-0.28)
<i>CENTERGOV_t</i>	?	0.0781 (0.95)	0.0455 (0.52)	0.0477 (0.63)
<i>LOCALGOV_t</i>	?	0.0810 (1.26)	0.1154 (1.70)*	0.0481 (0.80)
<i>LEV_t</i>	?	0.0942 (1.26)	-0.3440 (-3.48)***	0.0765 (0.95)
<i>GROWTH_t</i>	?	-0.0047 (-0.08)	0.0750 (1.27)	-0.0735 (-1.30)
<i>SUBSIDY_{t-1}</i>	+	0.3364 (8.70)***	0.6190 (15.72)***	0.4901 (13.14)***
<i>YEARS</i> and <i>INDS</i>		Control	Control	Control
<i>N</i>		1124	1124	701
<i>LR chi²</i>		741.62	339.24	661.36
<i>Pseudo R²</i>		0.2612	0.1195	0.3336

Note: Regression models use the Tobit model. *SUBSIDY_t* is the subsidy divided by total assets at year end; *LOSSGAIN_t* is a dummy variable taking the value of 1 when income is negative before government subsidisation and positive after government subsidisation, and 0 otherwise; *PRELOSSGAIN_t* is a dummy variable taking the value of 1 when income for the previous year is negative and income after subsidisation for the current year is positive, and 0 otherwise; *PREPRELOSSPRELOSS_t* is a dummy variable taking the value of 1 when income for the last two years is negative for both (for years *t-2* and *t-1*), and 0 otherwise; *EMPLOYEE_t* is the natural logarithm of total employees; *SIZE_t* is the natural logarithm of total assets at year end; *MARKET_t* is the market index (the index for 2005 is substituted for the 2006 index); *CENTERGOV_t* is a dummy variable taking the value of 1 when the ultimate shareholder is the central government, and 0 otherwise; *LOCALGOV_t* is a dummy variable taking the value of 1 when the ultimate shareholder is the local government, and 0 otherwise; *LEV_t* is the debt ratio, which is equal to total debt divided by total assets at year end; *GROWTH_t* is the growth of revenue for the current year; *SUBSIDY_{t-1}* is the subsidy for the previous year, scaled by total assets at the end of the previous year; *YEARS* are five dummies for six years; *INDS* are dummy variables for the 12 industry categories after excluding the financial industry. ***, **, and * denote significance at the 0.01, 0.05, and 0.10 levels, respectively.

VI. Conclusions and Limitations

To maintain a good image for purposes of local economic development, the local government will usually give a helping hand to firms located within its region through subsidisation. The subsidy decision depends on both the incentive and the ability of the local government. With so many firms in the region, the local government will provide subsidies selectively owing to its limited resources, and the choice of firms will depend on the utility the government will obtain from subsidisation. Therefore, not all loss firms will receive enough subsidies to avoid a loss. It is highly important that the government selectively give subsidies in order to achieve maximum benefit. In this paper, we find that when firms face problems in performance, the local government usually takes supportive steps to help them manipulate earnings. Government subsidies are determined to some extent by the loss suffered by a firm. The government will give subsidies to those deficit firms that would become profitable if subsidies were provided. If a firm suffers a loss in the previous year, the government will also offer it subsidies. The extent of subsidisation is even greater for those firms for which the government has a strong incentive to keep them trading high in the capital market. Thus, the government plays a significant role in helping firms to manage earnings, using subsidisation as an external method.

But government subsidisation is only a part of the helping hand. A firm's mergers and acquisitions could also give us a picture of the government's actions and their economic effects.

This paper has several shortcomings. First, although the decision theory model gives us an intuitive picture, the lack of strict mathematic ratiocination makes our persuasion weaker; second, our loss-to-profit measure seems to be ex-post and consists of various factors that do not represent the subsidisation probability only;¹² and third, our decision theory model does not include cheating by firms to obtain subsidies, whereas this condition could help us better understand the games between firms and local governments. Finally, China began the reform of non-tradable shares in 2005; since then the government may want to help majority shareholders improve a firm's financial performance and obtain a better position in exchange for tradable rights. Although the reform could result in another motivation for the government to help firms, we have not investigated this influence in this paper.

References

Please refer to p. 114.

¹² We appreciate the anonymous referees for pointing out this problem. We also use the ex-ante measure in Chen *et al.* (2008) as a robustness test, and the results are basically the same. Moreover, the explanatory power of our measure is much stronger than that of Chen *et al.* (2008), acting as a better proxy.