

政治关联、分析师跟踪与内部人交易的信息含量*

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摘要

本文从信息不对称理论出发,研究了我国内部人交易行为对公司股票未来中长期超常回报的预测能力。经验证据表明,整体而言,内部人交易能够预测公司未来超常回报,但其预测能力受到公司政治关联、分析师跟踪、控股权性质等因素影响。具体而言,与无政治关联公司相比,高级别政治关联公司内部人交易信息含量更高,而低级别政治关联公司内部人交易信息含量不显著;高级别政治关联对公司内部人交易信息含量的影响与公司控股权性质有关,高级别政治关联的民营控股公司内部人交易信息含量显著高于高级别政治关联的国有控股公司;分析师跟踪显著降低了内部人交易的信息含量,但未能更多地降低高级别政治关联公司内部人交易的信息含量。本文主要贡献包括:第一,结合中国特殊的制度背景研究了政治关联对内部人交易行为的影响,拓展了国内外内部人交易研究的视角;第二,首次从内部人交易角度验证了证券分析师跟踪对降低我国上市公司信息不对称的积极意义,丰富了我国分析师研究文献。本文发现不仅可以提醒投资者甄别不同公司内部人交易的信息含量,以赚取中长期超常回报;而且为市场监管部门重点监督相关类型公司的内部人交易行为提供了借鉴意义。

关键词: 内部人交易、信息含量、政治关联、交易者职位

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一、引言

自 2006 年起,新修订的《公司法》允许我国上市公司内部人(即董事、监事、高级管理人员等)任职期间每年转让不超过其持有的本公司股份的 25%,内部人交易日益频繁,成为我国资本市场上一道新的风景线。据笔者不完全统计,2007 年至今沪深两市公开披露的内部人交易已经超过了 2 万人次。内部人交易引起了市场各方的广泛关注,“高管炒股”、“高管套现”等词语频繁见诸各大媒体报道。公司内部人交易之所以受到高度关注,是因为内部人参与公司经营决策和运营管理,能较早察觉出公司基本面及未来业绩的变化,提前获知公司重大消息,从而具有明显的信息优势,并可以利用这种信息优势买卖本公司股票赚取超常回报。为了限制内部人利用信息优势进行频繁短线交易,2006 年新修订的《证券法》规定上市公司内部人 6 个月内不得反向交易本公司股票(即买入后 6 个月内不得卖出,或卖出后 6 个月内不得买入)。

国外研究大多表明,上市公司内部人交易不仅能够获得短期的丰厚利润,而且也能够赚取中长期超常回报,并且总体而言,内部人买入股票的超常回报显著高于卖出股票(Finnerty, 1976; Gregory *et al.*, 1994; Pettit and Venkatesh, 1995; Seyhun, 1998; Ravina and Sapienza, 2010)。我国内部人交易历史短,交易规模较小,内部人交易相关研究主要聚焦于短窗口研究,证据显示内部人交易特别是卖出股票表现出很强的择时能力(曾庆生, 2008; 朱茶芬等, 2011)。我国内部人交易中长期回报的文献不仅少,而且很少对内部人交易信息含量的影响因素进行深入考察,特别是很少结合中国特殊的制度背景研究制度因素对内部人交易信息含量的影响。然而,中国资本市场是一个转型经济中的新兴市场,政府是市场经济的主导者,政府的“有形之手”依然对经济运行产生直接和间接的巨大影响,而法制建设的相对落后导致政府寻租现象较为普遍,从而企业与政府的关系成为企业的一种非常重要的关系。因为政治关联可以帮助我国企业特别是民营企业从政府获得融资便利、税收优惠等特殊资源(余明桂、潘红波, 2008; 吴文锋等, 2009; Chan *et al.*, 2012)。但是,有研究发现政治关联降低了我国上市公司的信息质量和透明度(Chaney *et al.*, 2011; 易玄等, 2012)。另一方面,作为新兴市场,我国资本市场近十年发展迅猛,规模扩张迅速,市场化监督力量日益强大。比如我国证券分析师行业发展迅速,作为资本市场上公共信息的重要提供者,分析师在降低上市公司信息不对称方面的积极意义逐步显现(张纯、吕伟, 2009; 徐欣、唐清泉, 2010)。然而,作为影响上市公司信息不对称程度的两股相反的力量,政治关联和分析师跟踪是否促进或抑制公司内部人利用信息优势交易获利的代理行为呢?对此问题,现有文献尚未涉及,正是本文的研究机会所在。

本文以 2007 年到 2011 年主板和中小板 A 股公司内部人交易为研究对象,采用公司月度内部人净买入比率(NPR: net purchase ratio)作为公司利好信息强度的代理变量,检验了 NPR 对公司股票中长期购买并持有超常回报的预测能力(即内部人交易的信息含量),以及公司政治关联、分析师跟踪和控股权性质等特征如何影响

内部人交易的信息含量。实证结果显示：整体而言，内部人交易的 NPR 能预测公司未来中长期回报，即内部人交易行为包含了影响公司未来股价的私有信息；高级别政治关联的公司特别民营控股公司内部人交易信息含量显著高于无政治关联公司，而低级别政治关联公司与无政治关联公司的内部人交易信息含量无差异；分析师跟踪显著降低了内部人交易的信息含量，但未对高级别政治关联公司的内部人交易信息含量表现出更强的抑制作用；高级别政治关联公司核心高管交易的信息含量可能高于其非核心高管交易，而其他公司的核心高管交易与非核心高管交易的信息含量无差异。

与以往文献相比较，本文的主要创新之处在于：第一，结合中国特殊的制度背景，通过检验政治关联对内部人交易回报的影响来研究政治关联对公司内部人代理问题的影响，拓展了国内外内部人交易研究的视角；第二，首次从内部人交易角度验证了证券分析师跟踪对降低我国上市公司信息不对称的积极意义，丰富了我国分析师研究文献。本文为投资者甄别不同类型公司的内部人交易的信息含量，从而模仿内部人交易行为以减少投资损失或增加投资收益提供了借鉴意义；同时为市场监管部门对不同公司的内部人交易行为进行有针对性的监管提供了经验证据。

二、文献回顾

对于上市公司内部人交易超常回报的来源，现有文献存在三种观点，即错误定价假说、信息优势假说和融合假说。错误定价假说认为内部人是在利用公司股票被错误定价的机会进行反转交易而获利，内部人交易是依据市场价格惯性而进行的择时行为，并非传达公司未来的价值信息。公司股票被错误定价是指外部投资者对信息反应过度或者反应不足（De Bondt and Thaler, 1985），内部人交易的超常收益可能来源于股价对公司特定信息的滞后反应，即来自于收益的时间序列变异性而非横截面的变异性（Jegadeesh and Titman, 1993, 2002）。已有文献证明，公司内部人能够识别并利用自己公司股票被错误定价的机会，在公司股价被高估时卖出股票，在股价被低估时买入股票，获得显著超常回报（Finnerty, 1976; Seyhun, 1986; Rozeff and Zaman, 1998; Lakonishok and Lee, 2001）。Jenter（2005）则进一步发现了公司高管会利用其所感觉到的公司市场价格偏离基本价值的机会进行反转交易的证据。他指出具有较低的市盈率、市净率，或者股价—现金流比率的公司似乎被低估，从而公司高管会大量买入，反之，那些比率较高的公司高管会大量卖出。

信息优势假说认为内部人是利用自己的信息优势获得超额交易回报，即在利用公司未来价值的信息进行交易，当认为公司未来价值增加时则买入股票，反之卖出股票。这种观点部分来自于法律对内部人利用优势信息进行短线交易的监管，如美国证券法规定内部人两次方向相反的交易之间的间隔期不能少于 6 个月。因此，内部人为了避免监管惩罚，需要利用长期价值信息优势进行交易获利，或者根据预知的价格相关信息选择法律危险低的期间进行交易（Huddart *et al.*, 2007）。Elliot *et al.*

(1984) 和 Ke *et al.* (2003) 通过研究内部人交易和信息公告之间的关系发现了内部人利用公司未来价值信息的证据，前者发现内部人在好消息公告前的 12 个月内增加（减少）买入量（卖出量），后者发现内部人在季度盈余开始长期连续增长（下降）的前 3 到 9 个季度就增加了买入量（卖出量）。

其实，这两种观点并非相互冲突，因为内部人在寻找公司错误定价机会时通常需要以公司基本价值的考量为参照点，在利用公司价值信息优势时也可以进行择时交易以利用错误定价机会。这便是融合假说了。De Bondt and Thaler (1985) 指出，发现错误定价机会并进行反转交易获利也离不开对公司基本价值的判断——对基本价值的长期偏离才会发生均值反转现象。Rozeff and Zaman (1998) 也将内部人利用反转交易策略获利的缘由归于内部人能够在交易中充分利用在估值判断方面的信息优势。后来的研究发现，虽然内部人是典型的反转交易策略者，但是内部人整体上对未来市场回报的预测能力强于简单的反转交易策略效应 (Lakonishok and Lee, 2001)。最后，将两种观点融合在一起的是 Piotroski and Roulstone (2005)。他们在 Rozeff and Zaman (1998) 基础上进一步区分了两种信息优势，用未来未预期盈余业绩表示未来业绩信息优势，市净率和近期股票回报表示错误定价，他们发现内部人交易所赚取的超常回报既来自其反转交易策略的择时能力，又来自对公司价值的信息优势，并且公司错误定价效应比信息优势更能解释内部人的买入行为。

已有经验证据表明，限制内部人利用信息优势（无论是估值方面的还是未来业绩方面的信息优势）交易获取超额利润的途径之一是降低公司的信息不对称程度，提高信息透明度。比如 Frankel and Li (2004) 发现，增加分析师跟踪可以减少内部人交易回报和内部人购买股票的频率；财务报告的信息含量与内部人买入股票频率显著负相关；Gu and Li (2012) 也发现公司信息透明度与内部人交易规模和交易回报显著负相关，且信息透明度与内部人交易信息的市场反应负相关。途径之二是加大内部人利用私有信息交易的成本，如 Gao *et al.* (2012) 发现信誉成本是约束内部人交易获利的一种非正式机制，即相对无公司社会责任意识的公司，有公司社会责任意识的公司高管买入股票的收益率更低，且高管利用公司未来信息交易的可能性更低；Chang and Corbitt (2012) 发现当公司在—个比本国监管更严、法律成本更高的境外市场交叉上市时，内部人交易的回报低于本国上市公司的内部人交易回报，这种差异源于交叉上市公司的投资者保护更强，从而约束了内部人攫取私利的行为。

前文已指出，由于交易历史比较短，交易规模偏小，我国内部人交易的相关研究仍处于起步阶段。部分文献检验了内部人交易的获利能力，比如，曾庆生 (2008) 发现我国上市公司内部人卖出股票获得了显著的短期超常回报；朱茶芬等 (2011) 发现高管卖出和大额买入对未来 6 个月的股票收益都具有很强的预测能力，而高管买入整体上在长期内并没有伴随正的股票收益。另一部分文献探讨了内部人交易中的代理问题，如曾亚敏、张俊生 (2009) 对上市公司高管违规短线交易（买入后短期内又卖出本公司股票）的检验发现，未对违规交易原因做解释和解释原因为“对

相关规定不了解”这两种具有主观意图的短线交易均获得超常收益，而解释原因为“误操作”的短线交易未获得超常收益，即违规交易的内部人存在内幕交易之嫌；曾庆生、张耀中（2012）则发现中小板上市公司内部人定期报告披露前窗口的交易回报显著高于其他窗口，表明内部人可能利用了即将公开的定期财务报告信息交易获利。此外，张俊生、曾亚敏（2011）发现深圳市场中的上市公司内部人亲属交易次数远多于内部人自身，并且内部人亲属交易可以获得超常收益。

以上经验证据表明，我国上市公司内部人同样具有获取超常回报的能力。但是，它们考察的基本上是内部人交易的短期或中期回报，且对于中期回报通常采用了与以市场模型估计的短期累计超常回报（CAR）相同或相似的度量方法，而已有研究表明公司的 β 波动性较大，不适合用来预测公司长窗口的未来回报，度量方法的局限将影响研究结论的稳健性。此外，更为遗憾的是，正如引言指出，现有文献没有结合中国特殊的经济制度背景等因素研究“中国元素”对上市公司内部人交易中的代理行为影响，影响了研究的现实意义。

三、 研究假说

在信息有效的市场上，内部人交易行为被当作他们向市场发出了某种信号，其中内部人买入（卖出）本公司股票是给投资者一个正（负）面的信号（John and Lang, 1991），因而净买入比率（NPR）被用来度量内部人传递其私有信息信号的强度。与国外研究结果相反，国内研究发现在短或中窗口内，内部人卖出股票具有显著超常回报，而买入股票超常回报不太明显（曾庆生，2008；朱茶芬等，2011）。换言之，在中短期内，内部人卖出股票的信号强而买入股票信号弱。如果在中长期内部人买、卖股票行为也传递相同的信息，那么在一定时期内的内部人卖出股票越多即净买入比率（NPR）越低，公司股票的未来超常回报就会越低；反之，内部人卖出股票越少即 NPR 越大，公司股票的未来超常回报就会越高。据此，提出第一个假说：

假说 1：内部人净买入比率（NPR）与公司股票未来超常回报显著正相关。

企业政治关联是学术界近十年来的一个研究热点问题。无论发展中国家还是发达国家，企业家具有政府背景或者企业聘请具有政府背景的官员担任高管的现象并不少见，并且越腐败的国家越普遍（Faccio, 2006）。根本原因是政府掌握了公共资源的分配权力，而政治关联可以帮助企业获得更多的政府资源。比如，政治关联更容易帮助企业从政府银行获得借款（Khwaja and Mian, 2005），在财务困境时得到更多的政府救助（Faccio *et al.*, 2006）。Goldman *et al.*, 2009 对美国大公司研究发现，公司披露提名具有政治关系的人进入董事会后公司股票具有正的非正常回报。中国是一个转型经济中的发展中国家，政府对微观经济的影响更加深远，政治关联可以帮助企业特别是民营企业从政府特别是地方政府获取独特的资源，如获得融资便利（余明桂、潘红波，2008；Chan *et al.*, 2012）、税收优惠（吴文锋等，2009），或更好

避税（罗党论、魏翥，2012），或进入垄断行业（罗党论、刘晓龙，2009）。但是，政治关联降低了公司的信息透明度。比如，政治关联公司更易获得融资，因而对市场要求提高信息质量的压力做出反应的动力不足，导致政治关联公司的盈余质量显著差于无政治关联公司（Chaney *et al.*, 2011）；企业与政府之间的非市场化交易也加大公司的信息不对称程度。在中国民营企业，具有政治关联的上市公司会计信息质量显著低于无政治关联的公司（易玄等，2012），有政治关联的民营企业高质量审计需求更低、审计质量也更低，但作为审计风险的应对，审计师对有政治关联的民营上市企业收取了风险溢价（聂新军、张阳，2012）。同样，在美国，审计师对政治关联公司的收费高于对非政治关联公司收费，且在公司治理弱、业务结构复杂的公司中这种关系更加显著（Kim *et al.*, 2012）。

政治关联除了帮助企业直接获取政府资源外，还可能降低了企业及其高管的违法违规成本。Khwaja and Mian（2005）发现在巴基斯坦，具有政治关联的公司贷款违约率比无政治关联公司高出 50%；游家兴等（2010）研究发现我国上市公司高管的政治关联越密切，因业绩低劣而被迫离职的可能性越小，即高管所拥有的政治资源成为其构筑职位壕沟的资本，弱化了公司治理对高管应有的监管和约束机制；郑军等（2010）发现对于前一期被出具非标审计意见的公司来说，政治关系能帮助公司对现任审计师实现审计意见购买；Berkman *et al.*（2011）发现中国中小投资者对更严格的新监管措施是否能够在政治关联公司被有效地实施存疑，因为监管者会偏袒这些大股东。总之，政治关联一方面降低公司的信息透明度，另一方面减少公司高管的违约成本。因此，当政治关联公司内部人买卖公司股票时，低信息透明度为交易获利提供了便利，而政府的保护也纵容其利用私有信息交易牟利的欲望。据此，提出本文第二个假说：

假说 2：与无政治关联公司相比，政治关联公司的内部人净买入比率（NPR）与公司股票未来超常回报的正相关关系更强。

中国政府机构层级较多，政府行政权力呈自上而下逐级分权的结构，级别越高的政府官员的权力越大，控制或可获取的各种资源能力越强。比如县市级政府官员对地方经济政策具有自由裁量权，而乡镇政府官员则不具有这种权利（魏娜、吴爱明，2002）。经验研究发现，民营企业家的政治地位越高，民营企业进入金融业的概率越高（胡旭阳，2006）；民营企业的政治地位越高，企业的多元化程度越高，越容易进入政府管制行业进行多元化（胡旭阳、史晋川，2008），越可能发生进行不相关的多元化（李善民等，2009）。王庆文、吴世农（2008）构建上市公司政治影响力指数后研究发现，民营控股公司的政治关系越强，公司经营业绩越好。因此，公司的政治关联级别越高，公司及其内部人通过政治关联从政府权利部门获取的好处越多。这种好处可能还体现在级别越高的政治关联公司违规时可能被处罚的概率越低、力度越小。因而推测，高级别政治关联公司内部人比低级别政治关联公司内部人更可能利用非公开信息交易获利。据此提出假说 2 的第一个辅助假说：

假说 2A: 与低级别政治关联公司相比, 高级别政治关联公司的内部人净买入比率 (NPR) 与公司股票未来超常回报的正相关关系更强。

政治关联的形成路径与企业的所有权性质有关, 国有企业的政治关联主要形成于政府委派现任或前任政府官员到公司中任职, 而民营企业的政治关联主要形成公司创业家族成员和聘用职业经理的政治背景。形成路径的差异导致政治关联对企业的影响不同, 国有企业的政治关联可能更多的表现为政府干预, 而民营企业的政治关联更多地表现为公司向政府寻租的一种手段, 利用其政治影响力帮助公司获取各种优惠待遇。经验研究表明, 政治关联损害了国有控股公司的业绩或价值和投资效率, 而政治关联可以帮助民营控股公司获得更多的财政补贴, 提升公司业绩或价值 (王庆文、吴世农, 2008; 余明桂等, 2010; Chen *et al.*, 2011; Wu *et al.*, 2012)。刘慧龙等 (2010) 发现在国有控股公司中, 政治关联公司的高管报酬业绩敏感性低于非政治关联企业, 且政治关联公司的员工冗余程度更高; 而在非国有控股公司中, 政治关联公司的高管报酬业绩敏感性高于非政治关联公司, 且政治关联公司的员工冗余程度较低。这表明, 公司聘用政治关联高管的目的不同, 决定了它们所采用的激励策略也不同, 而政治关联对员工配置效率的影响在不同公司中也有显著差异。

国有公司的政治关联通常来自于政府对公司董事长、总经理等核心高管的任命, 有政治关联的公司高管的违规行为容易被社会舆论归咎为政府失职, 因而其违规行为容易受到纪律处分或隐性处罚 (如撤职); 而民营公司政治关联一般来自于对原政府官员的聘用, 他们不受党政部门监督和约束, 但又与政府关系密切, 其违规行为更不容易被处罚。因此, 政治关联的民营公司内部人比政治关联的国有公司内部人利用非公开信息进行交易牟利的动机更强。据此, 提出假说 2 的第二个辅助假说:

假说 2B: 与政治关联的国有控股公司相比, 政治关联的民营控股公司内部人净买入比率 (NPR) 与公司股票未来超常回报的相关性更高。

证券分析师是资本市场上公开信息的重要提供者, 分析师跟踪上市公司是降低公司内部人与外部投资者之间信息不对称程度的一股重要力量。Roulstone (2003) 研究表明证券分析师跟踪提高了公司股票市场流动性, 降低了公司信息不对称性。分析师跟踪在资本市场上充当着信息提供者和公司监督者的双重角色。比如, Frankel and Li (2004) 发现, 增加分析师跟踪可以减少内部人交易回报和内部人购买股票的频率, 而 Lang *et al.* (2004) 发现尽管分析师不喜欢跟踪具有潜在的隐藏或操纵信息动机倾向的公司, 但在内部治理差和国家层面的外部治理弱的公司, 分析师跟踪提高了公司价值。国内的经验证据也验证了证券分析师跟踪对降低公司信息不对称的积极作用。如张纯、吕伟 (2009) 发现分析师跟踪降低了企业的信息不对称程度, 从而降低了企业的外部融资约束及其对内部资金的依赖, 提高了企业发放的现金股利水平; 徐欣、唐清泉 (2010) 发现我国分析师会跟踪企业 R&D 活动以提供深层次信息, 并且对 R&D 活动具备相当的分析甄别能力, 分析师的跟踪有

利于资本市场对企业 R&D 活动价值的认同；而周泽将、杜兴强（2012）发现分析师跟踪与我国公司会计信息透明度显著正相关。因此，在分析师跟踪越多的公司，内部人利用私有信息交易获利的行为越容易发现，据此，提出第三个研究假说：

假说 3：公司的证券分析师跟踪数量越多，内部人净买入比率（NPR）与公司股票未来超常回报的正相关关系越弱。

内部人交易的信息含量可能不仅与公司特征有关，而且与交易者的职位有关。信息层级假说认为掌握内幕信息越多的内部人（通常是管理级别越高的人）越容易利用其拥有的信息优势进行交易并获得更高的超常回报。国外研究发现，处于信息层级的顶层 CEO 交易获利程度较其他高管和非执行董事要高（Seyhun, 1998; Jeng *et al.*, 2003）。曾庆生（2008）的证据部分支持了信息层级假说，即我国上市公司一般高管和董事卖出股票的短期回报显著高于监事和独立董事卖出股票的短期回报，但董事长和总经理卖出股票的短期回报与监事和独立董事无明显差异。这可能说明董事长、总经理位居高位，其交易行为更容易被市场关注，他们尽量回避在信息敏感期间交易而赚取短期回报。正因为如此，核心高管³ 应该更加考虑的是其交易的中长期回报。据此，提出第四个假说：

假说 4：与公司其他内部人相比，核心高管的净买入比率（NPR）与公司股票未来超常回报的正相关关系更强。

四、 研究设计

4.1 样本选择与数据来源

本文选择深圳和上海两个证券交易所网站披露的 2007 年 1 月至 2011 年 12 月之间上市公司董事、监事和高管人员在二级市场买卖本公司股票的交易为研究对象。⁴ 以公司交易月份为单位，若某月公司出现一个或多个内部人买入或卖出股票，则该月份为一个观测值，得到初始观测值 4003 个。样本筛选过程如表 1：剔除因净资产为负无法计算市净率的样本 64 个；因控制股票收益动量效应，剔除内部人交易月份前 6 个月股票收益数据不完整样本 14 个；为控制噪音交易的影响，剔除内部人月买卖股份总数小于 2000 股样本 619 个；⁵ 最后得到有效研究样本 3306 个。

³ 本文将核心高管定义为董事长、总经理和财务总监，除此以外的高管为非核心高管。理由是：董事长和总经理是公司最核心的决策者和领导者，掌握公司最重要的私密信息；财务总监虽然不是最高决策者，但对公司的财务状况、盈利能力及其未来变化趋势掌握最及时、最全面，理解也最深刻。

⁴ 深圳证券交易所披露了内部人直系亲属的交易信息，但由于亲属交易不受 6 个月内禁止反向交易（即先买后卖或先卖后买）的限制，内部人亲属交易的中长期回报的研究意义相对较少，故未包含在研究样本中。

⁵ 将噪音交易标准设为 1000 股、3000 股，本文所有研究结论不变。

表 1 样本筛选过程

初始样本	4003
减：年初净资产为负的公司样本	(64)
内部人交易月之前 6 个月股票收益数据不完整的样本	(14)
所有内部人当月买卖股份数之和小于 2000 股的样本	(619)
最终样本	3306

内部人交易原始数据系笔者从深圳和上海证券交易所网站下载得到，股票收益率及相关数据均来自深圳国泰安信息技术有限公司的 CSMAR 数据库。

4.2 内部人交易回报的描述

表 2 将全样本分为净买入组和净卖出组，分别统计了内部人交易月后未来 6 个月购买并持有原始回报 (BHR) 和经组合收益调整后的超常回报 (BHAR，定义见下文的“模型及变量定义”)。从样本量 (N) 看，内部人净卖出组样本量是净买入组的近 4 倍，说明我国内部人交易主要以卖出股票为主，存在较强的变现动机，这与 2006 年前法律禁止在任高管人员转让其持有的公司股票，内部人变现需求长期被压制有关。从原始回报 (BHR) 均值来看，内部人交易后买入股票在未来 6 个月内平均获得了 15.1% 的收益，卖出股票则出现了 5.5% 的损失，即内部人买入股票有正的原始回报，而卖出股票则有负的原始回报。但从经组合资产收益调整的超常回报 (BHAR) 均值来看，内部人卖出股票后 6 个月避免了非正常损失即获得了 1.9% 显著的超常回报；而买入股票在 6 个月的收益则为 1.7%。这一结果表明从中期来看，内部人买卖股票均有明显的信息含量。若模仿内部人买入、卖出构建投资组合，6 个月内可获得 3.6% 的超常回报。

表 2 内部人交易回报的描述性统计

	净买入样本				净卖出样本			
	N	均值	中值	标准差	N	均值	中值	标准差
BHR	668	15.1%	2.6%	47.7%	2638	5.5%	-2.1%	40.8%
BHAR	668	1.7%	-2.2%	27.9%	2638	-1.9%	-4.6%	26.8%

表 3 分别按照不同标准分组统计了净卖出组和净买入组的未来 6 个月的经组合收益调整的购买并持有超常回报 (BHAR)，以及模拟内部人买卖的资产组合收益率。可见，政治关联 (定义见下文的“模型及变量定义”) 组的模拟资产组合收益率为 7.9%，而无政治关联组为 3.1%；以是否曾任或现任处级 (含副处级) 及以上的党政领导职务为标准定义为高级别政治关联，发现高级别政治关联公司的模拟组合收益率为 15.2%，远高于无高级别政治关联公司的模拟组合收益率 (2.7%)。两个标准的

分组结果表明，政治关联公司内部人交易的平均非正常回报主要来自副处级及以上的政治关联公司，而科级及以下政治关联公司的内部人交易可能无明显非正常回报。按公司是否民营控股分组统计显示，民营控股公司的内部人交易模拟组合回报未 2.9%，而国有控股公司为 4.1%，似乎国有控股公司的内部人交易信息含量更高。按分析师跟踪数量的分组表明，在分析师跟踪少的样本组，内部人交易模拟组合收益率高达 7.3%，而分析师跟踪多的公司内部人交易模拟组合收益率为 -0.1%，这表明分析师跟踪显著降低了公司内部人交易的获利能力。

按交易者是否核心高管的统计表明，核心高管交易的模拟组合收益（6.5%）高于非核心高管交易的模拟组合收益（4.3%），说明核心高管可能利用了其更好的信息优势交易获利。⁶ 按照公司年初市净率的分组统计表明，高市净率组内部人交易模拟组合收益率为 4.1%，且主要来自买入股票；而低市净率组内部人交易模拟组合收益率为 3.7%，主要来自卖出股票；总体而言，两类公司内部人交易信息含量差异不明显。最后，按照公司年初股票市值分组表明，公司规模对内部人交易信息含量的影响不稳定，在小规模和大规模组，内部人交易模拟组合收益率较大，分别为 3.4% 和 4.8%，而中规模公司内部人交易则无明显收益。

表 3 不同分组下的内部人交易回报的描述性统计

分组类型	净买入样本			净卖出样本			模拟资产组合的收益率
	N	均值	标准差	N	均值	标准差	
政治关联组	73	4.7%	29.1%	260	-3.1%	27.7%	7.9%
无政治关联组	595	1.3%	27.8%	2378	-1.7%	26.7%	3.1%
高级别政治关联组	60	6.7%	28.9%	147	-8.4%	21.5%	15.2%
无高级别政治关联组	608	1.2%	27.8%	2491	-1.5%	27.1%	2.7%
民营控股	241	1.1%	28.1%	1695	-1.8%	25.5%	2.9%
国有控股	427	2.0%	27.9%	943	-2.1%	29.0%	4.1%
分析师跟踪少	357	2.1%	31.1%	1295	-5.2%	28.2%	7.3%
分析师跟踪多	311	1.2%	23.8%	1343	1.3%	25.0%	-0.1%
核心高管	153	3.8%	28.0%	267	-2.6%	25.4%	6.5%
非核心高管	368	2.5%	29.3%	1970	-1.8%	26.8%	4.3%
高市净率公司	285	3.6%	27.3%	1368	-0.5%	23.8%	4.1%
低市净率公司	383	0.3%	28.4%	1270	-3.4%	29.7%	3.7%
小规模公司	157	-1.4%	28.3%	943	-4.7%	26.0%	3.4%
中规模公司	209	-0.8%	27.5%	893	-0.8%	26.9%	0.0%
大规模公司	302	5.0%	27.7%	802	0.2%	27.5%	4.8%

⁶ 由于要求每个公司交易月只发生一类高管即核心高管或非核心高管交易，删除了核心高管与非核心高管同月交易的样本，该样本组总样本量为 2758。

4.3 检验模型和变量定义

本文构建如下模型检验研究假说：

$$\begin{aligned}
 BHAR = & \alpha + \beta_1 NPR + \beta_2 GL + \beta_3 NPR * GL + \beta_4 GH + \beta_5 NPR * GH \\
 & + \beta_6 PRVT + \beta_7 NPR * PRVT + \beta_8 NPR * PRVT * GL \\
 & + \beta_9 NPR * PRVT * GH + \beta_{10} ANALYST + \beta_{11} NPR * ANALYST \\
 & + \beta_{12} NPR * ANALYST * GL + \beta_{13} NPR * ANALYST * GH \\
 & + \beta_{14} MB + \beta_{15} NPR * MB + \beta_{16} MV + \beta_{17} NPV * MV \\
 & + \beta_{18} MOMENTUM + \sum YEAR_t + \varepsilon
 \end{aligned}$$

因变量：*BHAR* 是内部人交易月后 6 个月的经 Fama-French 5×5 公司规模与市净率组合资产收益率调整后的购买并持有超常回报。⁷ 根据我国证券法，内部人买卖本公司股票的反向交易之间至少应间隔 6 个月，因而考察内部人交易后的 6 个月内的超常回报比短期回报能更好的刻画内部人交易行为的信息含量。

自变量：

NPR：公司内部人月交易次数的净买入比率，度量的是内部人交易行为所传递的私有信息的信号强度。净买入比例的计算通常有三种方法：内部人交易次数、交易股份数和交易金额，即在一定期间的公司内部人买入次数（/股份数/买入金额）与内部人卖出次数（/股份数/买入金额）之差在交易总次数（/交易总股数/交易总金额）中所占的比例。因为月度内公司股价的变动不是很大，按交易金额计算的净买入比例与按交易股份数计算的净买入比例结果相近，所以在敏感性分析中仅以月交易股数的净买入比例替换 *NPR* 重复检验。可以看出，*NPR* 的取值介于 -1 与 1 之间，1 表示公司观测窗口内的内部人交易均为买入股票，-1 则表示内部人交易均为卖出股票；*NPR* 大于 0 表示公司观测窗口买入次数大于卖出次数即净买入股票，小于 0 则表示有净卖出股票。*NPR* 越大表示内部人净买入交易比例越高，若内部人交易包含公司未来盈利能力的信息含量，那么公司股票的未来越常回报越高（Lakonishok and Lee, 2001; Piotroski and Roulstone, 2005），故预测 *NPR* 与 *BHAR* 正相关。

GL 和 *GH*：分别为低级别政治关联和高级别政治关联的哑变量。当公司董事长或总经理现任或曾任科级及以下政府官员或普通科员时 *GL* = 1，否则 *GL* = 0；当董事长或总经理现任或曾任处级（含副处级）及以上政府官员时 *GH* = 1，否则 *GH* =

⁷ 即以内部人交易月后 6 个月的公司购买并持有回报减去对应组合资产的购买并持有回报。资产组合的划分是以月初的市净率将所有 A 股公司分为 5 组，同时按月初股票总市值分为 5 组（即每月所有 A 股公司被分为 25 个资产组合），然后找到样本公司对应月份的市净率和规模相同的分组。由于样本公司每月的市净率和总股本市值都在变化，样本公司每月对应的组合资产收益率都是当月重新分组的组合资产平均收益率。

0。⁸ 根据研究假说 2 和 2A, 预测 $NPR*GL$ 、 $NPR*GH$ 均与 $BHAR$ 正相关, 且 $NPR*GH$ 与 $BHAR$ 的关系更显著。

PRVT: 公司实际控制人所有制性质哑变量, 当实际控制人为个人或民营企业时取 1, 否则取 0。在不控制内部人交易方向时, $PRVT$ 与 $BHAR$ 关系不明确。由于民营控股公司和国有控股公司内部人交易的动机都是最大化个人利益, 交叉变量 $NPR*PRVT$ 与 $BHAR$ 的关系难以预测。根据假说 2B, 预测 $NPR*PRVT*GL$ 、 $NPR*PRVT*GH$ 均与 $BHAR$ 显著正相关, 且 $NPR*PRVT*GH$ 与 $BHAR$ 的关系更显著。

ANALYST: 分析师跟踪数量变量, 以上一年对公司进行盈利预测的分析师数加 1 的自然对数表示。在不控制内部人交易方向时, $ANALYST$ 与 $BHAR$ 关系不明确。根据研究假说 3, 预测 $NPR*ANALYST$ 与 $BHAR$ 显著负相关。分析师跟踪可能对政治关联公司内部人利用信息优势牟利的抑制效果更佳明显, 故预测 $NPR*ANALYST*GL$ 、 $NPR*ANALYST*GH$ 均与 $BHAR$ 显著负相关。

MB: 公司年初的市净率, 衡量公司的成长性。通常, 成长性越高的公司信息不对称性越高, 内部人越容易利用信息优势交易获利, 故预测 $NPR*MB$ 与 $BHAR$ 显著正相关, 而 MB 与 $BHAR$ 不确定。

MV: 公司年初股票总市值的自然对数, 衡量公司规模。一般而言, 小规模公司信息不对称性较大规模公司, 故预测 $NPR*MV$ 与 $BHAR$ 显著负相关, 而 MV 与 $BHAR$ 关系不明确。

MOMENTUM: 内部人交易月份之前 6 个月的公司股票购买并持有原始回报, 衡量股票收益动量。公司内部人可能既是反转交易者又是公司未来价值信息优势交易者 (Piotroski and Roulstone, 2005), 故控制收益动量效应, 并预期 **MOMENTUM** 与 $BHAR$ 负相关。

最后, 控制年度哑变量 **YEAR**。本文研究期间是 2007 年至 2011 年 5 个年度, 在这五年中, 中国经济条件和资本市场行情发生很大的变化, 因此加入了 4 个年度哑变量来控制年度之间的差异。

需说明的是, 在检验研究假说 4 时, 我们加入了核心高管哑变量 **CORE** (当交易者均为董事长、总经理或财务总监时取 1, 否则取 0) 及交叉变量 $NPR*CORE$ 、 $NPR*GL*CORE$ 、 $NPR*GH*CORE$, 限于篇幅, 不列示变量增加后的模型。

⁸ 中国政府官员级别由上至下分为: 总理级、省部级 (正副省长、部长)、地厅级 (地级市和厅级部门正副职)、县处级 (县、处级部门正副职)、乡科级 (乡镇正副职和其他正副科级)。之所以县处级及以上定义为高级别政治关联, 是因为在中国县级的党政领导已经掌握了较多的资源支配权并对当地司法有较大的影响力, 而在中央部委和省市机关, 处长具有具体项目的实质性审批权或影响力, 素有“处长经济”之称; 从录用程序来看, 科级及以下公务员是通过全国或全省/市统一的公务员考试选拔、聘用, 而副处级及以上干部是相关层级的组织部公开招聘选拔或内部任命产生; 从样本比例来看, 县处级及以上政治关联样本主要在县处级, 而厅局级及以上的政治关联相对较少。这里, 政治关联除了狭义的政府机构任职, 还包括在党委机构、人大常设机构、政协常设机构、军队任职等, 但不包括普通的党代会代表、人大代表和政协委员。因为两类政治关联的影响可能不一样, 如郝项超、张宏亮 (2011) 研究发现, 民营企业家的政府官员背景可以帮助银行获得更多贷款, 而人大代表和政协委员政治身份的影响并不显著。在稳健性检验时, 加入公司董事长、总经理仅任各级党代会代表、人大代表和政协委员的政治关联变量。

五、 实证检验

(一) 单变量分析

表 4 列示了模型主要变量的描述性统计结果。可见，样本公司交易后 6 个月的平均超常回报为 -1.16%，这可能与近 80%样本是卖出交易有关，*NPR* 为 -0.588 也说明卖出样本占主体；3.8%的样本来自低级别政治关联 (*GL*) 的公司，6.3%的样本来自有高级别政治关联 (*GH*) 公司；58.6%样本来自民营控股公司 (*PRVT*)。在分类高管交易样本中，15.2%的样本为核心高管交易。其他变量特征不赘述。

表 4 模型主要变量描述性统计

	N	均值	标准差	中位数	1%	99%
<i>BHAR</i>	3306	-1.16%	27.1%	-3.98%	-59.77%	98.23%
<i>NPR</i>	3306	-0.588	0.801	-1	-1	1
<i>GL</i>	3306	0.038	0.191	0	0	1
<i>NPR*GL</i>	3306	-0.030	0.192	0	-1	0
<i>GH</i>	3306	0.063	0.242	0	0	1
<i>NPR*GH</i>	3306	-0.026	0.247	0	-1	1
<i>PRVT</i>	3306	0.586	0.493	1	0	1
<i>NPR*PRVT</i>	3306	-0.436	0.623	-1	-1	1
<i>NPR*PRVT*GL</i>	3306	-0.013	0.132	0	-1	0
<i>NPR*PRVT*GH</i>	3306	-0.004	0.119	0	0	0
<i>ANALYST</i>	3306	1.741	1.104	1.946	0.000	3.738
<i>NPR*ANALYST</i>	3306	-1.071	1.746	-1.386	-3.584	3.584
<i>NPR*ANALYST*GL</i>	3306	-0.045	0.343	0	-2.398	0
<i>NPR*ANALYST*GH</i>	3306	-0.051	0.536	0	-2.773	1.386
<i>MB</i>	3306	4.617	3.024	3.920	0.953	16.081
<i>NPR*MB</i>	3306	-2.839	4.690	-3.101	-14.923	10.268
<i>MV</i>	3306	22.03	1.035	21.92	20.15	25.10
<i>NPR*MV</i>	3306	-12.80	-21.53	17.78	-24.50	25.03
<i>MOMENTUM</i>	3306	33.5%	65.3%	18.6%	-63.3%	274.6%
<i>CORE</i>	2758	0.152	0.359	0	0	1
<i>NPR*CORE</i>	2758	-0.039	0.388	0	-1	1
<i>NPR*CORE*GL</i>	2758	0.000	0.050	0	0	0
<i>NPR*CORE*GH</i>	2758	-0.001	0.095	0	0	0

在进行回归检验前，表 5 先对模型主要变量进行了相关性分析。可见，内部人交易回报 (*BHAR*) 与内部人净买入比率 (*NPR*) 显著正相关；科级及以下的政治关

表 5 主要变量的相关性分析 (N=3306)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 BHAR	1													
2 NPR	0.05***	1												
3 GL	0.03*	-0.05***	1											
4 NPR*GL	-0.03**	0.13***	-0.79***	1										
5 GH	-0.03	0.06***	-0.05***	0.04**	1									
6 NPR*GH	0.07***	0.24***	0.02	-0.02	-0.40***	1								
7 PRIT	-0.01	-0.23***	-0.05***	0.04***	-0.19***	0.09***	1							
8 NPR*PRIT	0.03	0.65***	0.03	0.04**	0.15***	0.02	-0.59***	1						
9 ANALYST	0.10***	-0.05***	-0.07***	0.04**	0.02	-0.02	0.07***	-0.10***	1					
10 NPR*ANALYST	-0.02	0.78***	-0.01	0.06***	0.04**	0.19***	-0.24***	0.53***	-0.35***	1				
11 MB	0.06***	-0.05***	0.04***	-0.03*	-0.04**	0.02	0.16***	-0.10***	0.17***	-0.13***	1			
12 NPR*MB	0.03	0.77***	-0.05***	0.13***	0.07***	0.16***	-0.23***	0.57***	-0.13***	0.66***	-0.43***	1		
13 MV	0.10***	0.18***	-0.06***	0.06***	0.13***	-0.04***	-0.21***	0.21***	0.57***	-0.01	0.35***	-0.03*	1	
14 NPR*MV	0.05***	0.998***	-0.05***	0.13***	0.05***	0.24***	-0.23***	0.64***	-0.07***	0.80***	-0.07***	0.78***	0.16***	1
15 MOMENTUM	-0.04**	-0.09***	0.04**	-0.01	0.03	-0.05***	-0.14***	0.06***	-0.20***	-0.02	-0.26***	0.02	-0.28***	-0.09***

联公司的 NPR 与 $BHAR$ 显著负相关, 而副处级以上政治关联 (GH) 公司的 NPR 与 $BHAR$ 显著正相关, 表明具有高级别政治关系的公司内部人可能利用了私有信息交易获利, 而具有低级别政治关系 (GL) 的公司内部人甚至发生非正常损失; 民营控股公司的内部人交易 ($NPR*PRVT$) 信息含量没有显著高于国有控股公司; $NPR*ANALYST$ 与 $BHAR$ 负相关, 但不显著, 即单变量检验未显示分析师跟踪降低了内部人交易的获利能力; $NPR*MV$ 与 $BHAR$ 显著正相关, 表明公司规模越大内部人交易获利能力越强; $MOMENTUM$ 与 $BHAR$ 显著负相关, 表明内部人交易可能具有明显择时能力。此外, 表 5 还显示, 由于模型中交叉变量多, 自变量之间有一定的共线性, 特别是 $NPR*MV$ 与 NPR 存在很强的相关性, 因此在回归检验中对该交叉变量进行技术处理, 即把全部样本按照规模分成 3 组, 用哑变量 $MV1$ 和 $MV2$ 分别表示中规模公司和大规模公司, 然后模型中以 $NPR*MV1$ 和 $NPR*MV2$ 两个交叉变量替换 $NPR*MV$, 以减少模型的共线性问题。

(二) 回归分析

表 6 是全样本的回归结果。回归 (1) 仅控制公司规模 ($MV1$ 、 $MV2$)、成长性 (MB)、收益动量 ($MOMENTUM$) 和交易年度, 检验内部人净买入比率 NPR 对公司未来 6 个月的经组合收益调整的购买并持有超常回报 $BHAR$ 的影响, 发现 NPR 与 $BHAR$ 在 5% 水平上显著正相关, 回归系数 0.016 表明若模拟内部人买卖股票构建投资组合, 6 个月内可以获得 3.2% 的超常回报, 因此总体而言内部人交易传递了未来 6 个月公司股票回报的信息。回归 (2) 是在控制公司成长性 (MB)、公司规模 ($MV1$ 、 $MV2$) 对 NPR 与 $BHAR$ 的关系影响基础上, 检验政治关联对内部人交易回报的影响, 发现 $NPR*GL$ 与 $BHAR$ 关系不显著, $NPR*GH$ 与 $BHAR$ 在 1% 水平上显著正相关, 回归系数 0.066 表明与无政治关联公司内部人交易相比, 具有高级别政治关联的公司内部人交易的模拟组合 6 个月能获得 13.2% 的超常回报, 而低级别政治关联内部人交易与无政治关联公司无显著差异。因此, 假说 2 和 2A 得到部分验证。回归 (3) 在回归 (2) 的基础上加入民营控股变量 $PRVT$ 及其与 NPR 的交叉变量, 可见两者与因变量 $BHAR$ 均不显著, 说明民营控股公司内部人交易的信息含量与国有控股公司无明显差异。回归 (4) 在回归 (3) 的基础上继续加入分析师跟踪数量变量 $ANALYST$ 及其与 NPR 的交叉变量, 结果显示 $NPR*ANALYST$ 与因变量 $BHAR$ 在 1% 水平上显著负相关, 说明分析师跟踪越多的公司, 内部人交易的信息含量越低。因此, 假说 3 得到验证。回归 (5) 在回归 (4) 的基础上进一步加入民营控股、政治关联与 NPR 的交叉变量, 以及分析师跟踪、政治关联与 NPR 的交叉变量, 结果显示 $NPR*PRVT*GH$ 与因变量 $BHAR$ 在 5% 水平上显著正相关, $NPR*PRVT*GL$ 与 $BHAR$ 关系不显著, 而 $NPR*GH$ 与 $BHAR$ 的显著性水平有所下降; $NPR*ANALYST$ 与 $BHAR$ 仍在 1% 水平上显著, 而 $NPR*ANALYST*GL$ 、 $NPR*ANALYST*GH$ 的系数为负, 但均未达到统计意义上的显著。这表明, 相对国有控股公司而言, 高级别政治关联对民营控股公司内部人交易信息含量的影响更加显著, 即当拥有高级别政治关联时,

表 6 全样本回归检验

自变量	符号	因变量 = <i>BHAR</i>				
		(1)	(2)	(3)	(4)	(5)
<i>NPR</i>	+	0.016** (2.23)	0.003 (0.15)	0.006 (0.32)	0.024 (1.16)	0.024 (1.11)
<i>GL</i>	?		-0.001 (-0.03)	0.000 (0.00)	-0.006 (-0.13)	-0.017 (-0.37)
<i>NPR*GL</i>	+		-0.062 (-1.21)	-0.062 (-1.23)	-0.073 (-1.40)	-0.064 (-1.10)
<i>GH</i>	?		-0.015 (-0.56)	-0.014 (-0.53)	-0.017 (-0.67)	-0.021 (-0.83)
<i>NPR*GH</i>	+		0.066*** (2.69)	0.065** (2.58)	0.062*** (2.60)	0.072* (1.88)
<i>PRVT</i>	?			-0.003 (-0.17)	-0.010 (-0.61)	-0.010 (-0.66)
<i>NPR*PRVT</i>	?			-0.009 (-0.57)	-0.004 (-0.24)	-0.012 (-0.75)
<i>NPR*PRVT*GL</i>	+					0.077 (0.85)
<i>NPR*PRVT*GH</i>	+					0.084** (1.99)
<i>ANALYST</i>	?				0.004 (0.42)	0.003 (0.30)
<i>NPR*ANALYST</i>	-				-0.024*** (-3.48)	-0.021*** (-2.95)
<i>NPR*ANALYST*GL</i>	-					-0.039 (-0.79)
<i>NPR*ANALYST*GH</i>	-					-0.019 (-1.32)
<i>MB</i>	?	0.004* (1.77)	0.006** (2.10)	0.006** (2.12)	0.006** (2.07)	0.006** (2.24)
<i>NPR*MB</i>	+		0.004 (1.62)	0.005* (1.71)	0.005* (1.84)	0.005* (1.82)
<i>MV</i>	?	0.022*** (3.15)	0.025*** (3.36)	0.025*** (3.26)	0.022** (2.18)	0.022** (2.22)
<i>NPR*MV1</i>	?		-0.022 (-1.29)	-0.023 (-1.31)	-0.006 (-0.37)	-0.007 (-0.38)
<i>NPR*MV2</i>	?		-0.006 (-0.32)	-0.007 (-0.41)	0.027 (1.36)	0.027 (1.40)
<i>MOMENTUM</i>	-	-0.05 (0.41)	-0.004 (-0.35)	-0.004 (-0.30)	-0.002 (-0.13)	-0.001 (-0.13)
N		3,306	3,306	3,306	3,306	3,306
Adj R-sq		0.014	0.022	0.023	0.030	0.032

注：括号内是按公司对异方差进行 cluster 处理后 T 值；***、**、* 分别表示 1%、5% 和 10% 的显著水平；表中未报告截距项和交易年度哑变量结果（下文其他回归结果与此相同）。所有模型 VIF 均值 < 2.78，最大值 < 5.16。

民营控股公司内部人比国有控股公司内部人更可能利用了信息优势交易获利。因此,假说 2B 基本得到验证。但是,分析师跟踪并不能显著约束政治关联公司内部人利用信息优势交易获利的能力。

此外,表 6 还显示 $NPR*MB$ 与因变量在 10%水平上显著正相关,而公司规模哑变量 $MV1$ 、 $MV2$ 与 NPR 的交叉变量与因变量关系不显著。这表明,在成长性越高的公司,内部人交易的信息含量越高,与经典理论相符,即成长性越高的公司信息不对称程度越高,内部人利用信息优势交易获利越容易;与国外文献结论不一致,小规模公司内部人信息含量并不显著高于大规模公司。

表 7 是对交易月份只有核心高管交易或非核心高管交易的样本(即剔除核心高管与非核心高管同月交易的样本)的回归结果。其中,回归(1)和(2)是重复表 6 的相关回归,结论不变。回归(3)加入核心高管交易哑变量 $CORE$ 及其与 NPR 交叉变量,发现 $NPR*CORE$ 与因变量并不显著,说明在控制其他因素后,核心高管交易与非核心高管交易的信息含量无差异。回归(4)在回归(3)的基础上加入了政治关联、核心高管与 NPR 的交叉变量,发现 $NPR*GH*CORE$ 在 5%水平上与因变量显著, $NPR*GL*CORE$ 与因变量不显著,而 $NPR*GH$ 与因变量显著性略有下降,但仍在 5%水平上显著。这表明高级别政治关联可以帮助公司内部人获取交易超常回报,且对核心高管交易回报的影响比对非核心高管更强。

总之,表 7 结果表明,总体而言,核心高管交易的信息含量并未高于非核心高管交易的信息含量;但在高级别政治关联公司,核心高管交易信息含量高于非核心高管交易信息含量。假说 4 部分得到验证。

(三) 稳健性检验

为了增强上述研究结论的说服力,我们进行了如下稳健性检验:

首先,用内部人月交易股数计算的净买入比率(即净买入股数比率)替换表 6 和 7 中的内部人月净买入次数比率;考虑到交易后 12 个月是长窗口研究中一个典型测窗口(Clacher *et al.*, 2009),采用内部人交易月份后 12 个月的经组合收益率调整在购买并持有回报(即 12 个月的 $BHAR$)替换原 6 个月的经组合资产收益率调整在购买并持有超常回报($BHAR$)。表 8 重复了表 6 的主要回归检验,可见,以净买入股数比率替换原净买入次数比率、12 个月的 $BHAR$ 替换原 6 个月的 $BHAR$ 后,表 6 的结论不变,但高级别政治关联公司内部人交易的 12 个月超常回报没有 6 个月超常回报显著。这可能与现行制度仅禁止内部人 6 个月内反向交易有关,因为内部人交易后 6 个月内不可反向交易以获得超出回报,所以内部人对未来 6 个月的股票回报关注要多于对未来 12 个月的股票回报。

对分类高管交易样本以净买入股数比率替换原净买入次数比率、以 12 个月超常回报替换原 6 个月的超常回报后的重复检验,仍未发现核心高管交易比非核心高管交易的信息含量更高;当采用内部人净买入股数计算 NPR 时,由于共线性问题交叉变量 $NPR*GH*CORE$ 被统计软件 STATA 自动剔除模型;当以 12 个月的 $BHAR$ 为因

变量、内部人净买入次数计算 NPR 时, $NPR*GH*CORE$ 与因变量在 10%水平上显著。为精简篇幅, 未列示分类高管交易样本的回归结果。

表 7 分类高管交易样本的回归检验

自变量	因变量 = $BHAR$			
	(1)	(2)	(3)	(4)
NPR	0.022*** (2.89)	0.026 (1.12)	0.025 (1.07)	0.027 (1.14)
GL		0.025 (0.52)	0.025 (0.51)	0.018 (0.39)
$NPR*GL$		-0.031 (-0.56)	-0.031 (-0.57)	-0.041 (-0.76)
GH		-0.022 (-0.82)	-0.022 (-0.80)	-0.028 (-1.02)
$NPR*GH$		0.094** (2.48)	0.094** (2.50)	0.080** (2.01)
$PRVT$		-0.001 (-0.03)	-0.001 (-0.09)	-0.001 (-0.05)
$NPR*PRVT$		-0.006 (-0.33)	-0.006 (-0.39)	-0.007 (-0.39)
$CORE$			0.004 (0.22)	0.002 (0.12)
$NPR*CORE$			0.010 (0.54)	0.001 (0.06)
$NPR*GL*CORE$				0.057 (0.35)
$NPR*GH*CORE$				0.110** (1.98)
$ANALYST$		0.006 (0.59)	0.005 (0.55)	0.006 (0.60)
$NPR*ANALYST$		-0.021** (-2.56)	-0.021** (-2.57)	-0.021** (-2.52)
$NPR*ANALYST*GL$		-0.017 (-0.37)	-0.017 (-0.37)	-0.017 (-0.37)
$NPR*ANALYST*GH$		-0.023 (-1.53)	-0.023 (-1.54)	-0.025* (-1.68)
MB	0.004 (1.46)	0.006* (1.84)	0.006* (1.84)	0.006* (1.83)
$NPR*MB$		0.006* (1.95)	0.006* (1.91)	0.006* (1.93)
MV	0.024*** (3.30)	0.024** (2.20)	0.024** (2.23)	0.024** (2.19)
$NPR*MV1$		-0.013 (-0.72)	-0.013 (-0.72)	-0.013 (-0.71)
$NPR*MV2$		0.027 (1.26)	0.027 (1.27)	0.027 (1.24)
$MOMENTUM$	-0.008 (-0.63)	-0.003 (-0.25)	-0.003 (-0.21)	-0.003 (-0.22)
N	2,758	2,758	2,758	2,758
Adj R-sq	0.017	0.037	0.037	0.038

表 8 全样本稳健性检验

自变量	因变量 = <i>BHAR</i>			因变量 = 12 个月的 <i>BHAR</i>			因变量 = 12 个月的 <i>BHAR</i>		
	<i>NPR</i> = 净买入股数比率			<i>NPR</i> = 净买入次数比率			<i>NPR</i> = 净买入股数比率		
<i>NPR</i>	0.006 (0.31)	0.024 (1.15)	0.024 (1.09)	-0.001 (-0.03)	0.023 (0.71)	0.026 (0.77)	-0.001 (-0.03)	0.023 (0.72)	0.026 (0.78)
<i>GL</i>	0.001 (0.01)	-0.006 (-0.12)	-0.017 (-0.36)	-0.002 (-0.03)	-0.005 (-0.07)	-0.018 (-0.26)	-0.002 (-0.02)	-0.005 (-0.07)	-0.018 (-0.26)
<i>NPR*GL</i>	-0.062 (-1.21)	-0.072 (-1.39)	-0.064 (-1.10)	-0.080 (-1.22)	-0.092 (-1.33)	-0.037 (-0.51)	-0.080 (-1.20)	-0.092 (-1.32)	-0.037 (-0.51)
<i>GH</i>	-0.014 (-0.54)	-0.017 (-0.68)	-0.021 (-0.84)	-0.016 (-0.37)	-0.017 (-0.41)	-0.021 (-0.53)	-0.016 (-0.38)	-0.018 (-0.42)	-0.021 (-0.55)
<i>NPR*GH</i>	0.065 ** (2.58)	0.062 *** (2.60)	0.072 * (1.88)	0.078 * (1.87)	0.074 * (1.81)	0.005 (0.12)	0.077 * (1.85)	0.073 * (1.79)	0.005 (0.12)
<i>PRVT</i>	-0.003 (-0.18)	-0.010 (-0.61)	-0.010 (-0.67)	0.036 (1.37)	0.020 (0.75)	0.016 (0.64)	0.036 (1.36)	0.020 (0.74)	0.016 (0.63)
<i>NPR*PRVT</i>	-0.009 (-0.57)	-0.004 (-0.23)	-0.012 (-0.75)	-0.024 (-0.89)	-0.013 (-0.49)	-0.025 (-0.92)	-0.024 (-0.90)	-0.013 (-0.50)	-0.025 (-0.94)
<i>NPR*PRVT*GL</i>			0.077 (0.85)			0.028 (0.34)			0.028 (0.34)
<i>NPR*PRVT*GH</i>			0.084 ** (1.99)			0.182 ** (2.34)			0.183 ** (2.35)
<i>ANALYST</i>		0.004 (0.40)	0.002 (0.28)		0.030 ** (2.02)	0.027 * (1.85)		0.030 ** (2.00)	0.027 * (1.83)
<i>NPR*ANALYST</i>		-0.024 *** (-3.50)	-0.021 *** (-2.96)		-0.031 *** (-2.90)	-0.030 *** (-2.66)		-0.032 *** (-2.94)	-0.030 *** (-2.69)
<i>NPR*ANALYST*GL</i>			-0.039 (-0.79)			-0.057 (-1.39)			-0.057 (-1.40)
<i>NPR*ANALYST*GH</i>			-0.019 (-1.33)			0.013 (0.66)			0.013 (0.64)
N	3,306	3,306	3,306	3,129	3,129	3,129	3,129	3,129	3,129
Adj R-sq	0.022	0.029	0.032	0.038	0.049	0.052	0.038	0.049	0.052

注：模型均包含了表 6 中的所有控制变量，为精简篇幅，未列示其结果。

其次，分别采用3个月和6个月作为内部人交易净买入比率的计算窗口替换上文中内部人月净买入比率，重复表6和7的回归检验，结论基本不变。为精简篇幅，未列示该结果。

最后，鉴于国内部分政治关联的经验研究文献将共产党代表大会代表（简称党代表）、政协委员和人大代表也作为一种政治关联，稳健性检验中加入该代表委员型政治关联变量。将公司董事长或总经理现任和曾任地级市及以上的党代表、政协委员或人大代表定义为“高级别代表”，县级及以下的党代表、政协委员或人大代表定义为“低级别代表”；⁹然后将“高级别代表”、“低级别代表”及其与NPR的交叉变量加入模型。结果表明，不论是高级别还是低级别的代表委员型政治关联均未对内部人交易的信息含量造成影响。为精简篇幅，未列示检验结果。

六、 结论与启示

内部人交易之所以受到市场各方的普遍关注，是因为内部人可能利用其天然的信息优势赚取超常回报。现有文献主要验证了中国上市公司内部人交易短期超常回报的存在性问题，少数文献检验内部人交易后的中期超常回报，但超常回报的度量方法不够严谨，并且没有结合中国独特的经济制度背景探讨“中国元素”对内部人交易中长期回报的影响。本文改进度量方法，研究了一段时间内的内部人交易行为对公司中长期经组合收益调整后的购买并持有超常回报的预测能力，以及公司政治关联、分析师跟踪、控股权性质和交易者职位等因素对内部人交易信息含量的影响。主要结论如下：第一，在控制公司规模和反转交易效应等基本因素后，内部人交易行为（净买入比率）能够预测未来中长期超常回报，即内部人交易利用了影响公司未来中长期价值的私有信息；进一步控制政治关联、分析师跟踪等因素后，内部人交易行为对未来回报的预测能力变得不显著。第二，政治关联、控股权性质和分析师跟踪等显著影响了公司内部人交易行为对未来回报的预测能力。具体而言，高级别政治关联公司的内部人交易具有显著的信息含量，而低级别政治关联公司与无政治关联公司的内部人交易信息含量不明显；民营控股公司与国有控股公司的内部人交易信息含量无差异，但高级别政治关联的民营控股公司内部人交易信息含量高于高级别政治关联的国有控股公司；分析师跟踪显著降低了内部人交易的信息含量，但分析师跟踪对政治关联公司和无政治关联公司内部人利用信息优势交易获利的抑制作用无差异。第三，对分类高管交易的样本检验表明，核心高管（包括董事长、总经理、财务总监）交易与非核心高管交易的信息含量无差异，但高级别政治关联公司的核心高管交易信息含量可能高于非核心高管交易信息含量。

⁹ 中国党代会、政协和人大通常包括五级：全国、省或直辖市、地级市、县级或县级市、乡镇。若将地级市的三类代表或委员划入低级别代表，结论不变。需说明的是，若董事长或总经理有党政机关全职工作背景或担任领导职务，则按划入政府官员类型的政治关联；只有公司董事长或总经理仅担任三类代表、委员而无党政机关工作背景才划入代表委员类型的政治关联。

此外,我们还发现,成长性越高的公司,内部人交易的信息含量越高,而公司规模对内部人交易信息含量的影响不明显;高级别政治关联对内部人交易信息含量的影响仅限于党政部门任职背景的官员型政治关联,而仅担任党代会代表、人大代表和政协委员类型的政治关联不影响内部人交易的信息含量。

本文研究结论带给投资者的启示是:首先,我国上市公司内部人交易代表了公司未来中长期超常回报的信息含量,投资者应该关注和模仿上市公司特别是具有高级别政治关联公司的内部人交易行为构建投资组合以获得中长期超常回报;从控制权性质来看,投资者应该重点关注和模仿具有高级别政治关联的民营控股公司的内部人交易行为。其次,市场监管部门应该大力培育和发展壮大证券分析师行业,通过分析师的市场监管来降低股票市场的信息不对称;同时重点监督有高级别政治关联公司特别是民营控股公司的内部人(特别是核心高管)的交易行为,既严厉打击内部人买卖股票中的内幕交易行为,又要因利势导地保护合法内部人交易的价格发现功能,促进市场定价效率提高。

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Political Connections, Analyst Following, and the Informativeness of Insider Trading in China^{*}

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Abstract

Based on the theory of information asymmetry, this paper studies the predictive power of Chinese insider trading on a stock's future medium- and long-term abnormal returns. The evidence shows that as a whole, Chinese insider trading can predict a stock's future return in the medium term as well as in the long term, but this predictive ability is affected by factors such as the company's political connections and analyst following and the ownership nature of its controller. In detail, the insider trading of companies with high-level political connections has significantly higher informativeness than that of non-politically connected companies, but the insider trading of companies with low-level political connections is not informative. Moreover, the effect of high-level political connections on the informativeness of insider trading is related to the ownership nature of the corporate controller. Among high-level politically connected companies, privately controlled companies' insider trading has significantly higher informativeness than that of state-controlled companies. Analyst following significantly decreases the informativeness

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of corporate insider trading, but it fails to decrease to a larger extent the informativeness of the insider trading of companies with high-level political connections. This paper makes two main contributions to the literature. First, considering China's special institutional background, it studies the impact of political connections on corporate insider trading, thereby expanding the perspective of insider trading research worldwide. Second, it is the first time in Chinese research that the positive effect of analyst following on reducing corporate information asymmetry has been tested from the perspective of insider trading, and thus the paper enriches China's literature on securities analysts. What is more, our findings not only remind investors about the different levels of informativeness among different types of insider trading to help them in obtaining medium- to long-term abnormal returns but also give suggestions to securities market regulators on the types of corporate insider trading that should be monitored more.

Keywords: Political Connections, Analyst Following, Insider Trading, Informativeness

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I. Introduction

Since 2006, the newly revised *Company Law* has allowed insiders (including directors, supervisors, and executives) of listed companies in China to transfer up to 25 per cent of the shares held by them in the company each year during their term of office. Thus, insider trading has become a new and increasingly frequent phenomenon in China's capital markets. According to our incomplete statistics, there have been more than 20,000 insider transactions since 2007, as shown by the public disclosures on the Shanghai and Shenzhen securities markets. Insider trading has drawn much attention from different parties in society, and phrases such as "corporate executives speculate on the stock market" and "executives cash out" are frequently seen in various media reports. The reason why corporate insider trading has drawn so much attention is that insiders participate in the operating decisions and management of a company and so they can nose out changes in corporate fundamentals and future performance and obtain important news about the company in advance. Therefore, they possess obvious information superiority, and by making use of such an advantage, they can earn abnormal returns through corporate stocks transactions. In order to restrict insiders from frequent short-swing trading via information superiority, the *Securities Law* revised in 2006 prohibits insiders of a listed company from conducting reverse transactions of their company's stocks within 6 months (which means that insiders cannot sell stocks within 6 months of buying in or purchase stocks within 6 months of selling out).

Most of the international literature shows that corporate insiders can gain not only short-term fat profits but also medium- and long-term abnormal returns from trading their own companies' stocks. Moreover, and in general, the abnormal returns obtained from stock buying by insiders are obviously higher than those obtained from stock selling (Finnerty, 1976; Gregory *et al.*, 1994; Pettit and Venkatesh, 1995; Seyhun, 1998; Ravina and Sapienza, 2010). Insider trading in China has a short history and the scale of transactions is small. Studies about insider trading in China mainly focus on short-window research, and the evidence on insider trading, especially stock selling, indicates the very strong timing ability of the dealers (Zeng, 2008; Zhu *et al.*, 2011). There is little literature about the medium- and long-term returns of insider trading in China, and there is a lack of in-depth investigation on the factors that influence the informativeness of insider trading, let alone studies about the influence of institutional factors on the informativeness of insider trading with reference to the special institutional background in China. As the Chinese capital market is still in its emerging stage and China's economy is still in transition, the government plays a dominant role in the market, and its "visible hand" still imposes direct and indirect influences on various economic operations. In addition, due to the fact that development in the legal system is lagging behind comparatively, rent-seeking behaviour is commonly found among government authorities, and thus relations with the government are important to enterprises. Political connections can help Chinese enterprises, especially private enterprises, to gain special resources, such as financing convenience and preferential tax treatment, from the government (Yu and Pan, 2008; Wu *et al.*, 2009; Chan *et al.*, 2012). However, some studies show that political connections have reduced the information quality and transparency of Chinese listed companies (Chaney *et al.*, 2011; Yi *et al.*, 2012). On the other hand, as an emerging market, China's capital market has developed rapidly; its scale has expanded quickly, and supervisory powers over the market have been increasingly enhanced during the past 10 years. For instance, the securities analyst industry in China has developed rapidly, and as an important provider of public information on the capital market, analysts have gradually demonstrated their positive significance in reducing the information asymmetry of listed companies (Zhang and Lui, 2009; Xu and Tang, 2010). However, political connections and analyst following are two adverse forces that influence the information asymmetry of listed companies; so do these forces promote or restrain the agency act of gaining profit via information superiority among corporate insiders? The prior literature has not covered this issue, and this provided an opportunity for us to conduct this paper's study.

The insider trading of companies listed on the Main Board and the Small and Medium Enterprise Board of China's stock exchanges from 2007 to 2011 is set as the

research object, and the monthly net purchase ratio (*NPR*) of corporate insiders is used as the proxy variable for positive information intensity. With this setting, we inspect the predictive ability of *NPR* for corporate buy-and-hold abnormal return in the medium and long term (i.e. the informativeness of insider trading) and examine how political connections, analyst following, and the ownership nature of the corporate controller affect the informativeness of insider trading. The empirical results show that in general, the *NPR* of insider trading can predict the future medium- and long-term returns of a company, meaning that insider trading includes private information that affects the future stock price of a company. The results also show that the insider trading of companies with high-level political connections, especially private enterprises, is obviously more informative than that of companies without political connections, while there is no significant difference between companies with lower-level political connections and companies without political connections in terms of the informativeness of insider trading. Analyst following greatly reduces the informativeness of insider trading but does not have any strong restrictive effect on the informativeness of insider trading of companies with high-level political connections. Among companies with high-level political connections, the informativeness of core executives' trading may be higher than that of non-core executives' trading, while there is no difference in the informativeness of trading between core and non-core executives of other types of companies.

Compared with the prior literature, this paper makes the following new contributions. First, the influence of political connections on the agency issue of corporate insiders is studied with reference to the special institutional background of China and by inspecting the influence of political connections on insider trading returns, thus expanding the perspective of research on insider trading worldwide. Second, the positive significance of analyst following in reducing the information asymmetry of Chinese listed companies is proved from the perspective of insider trading for the first time, thus enriching the research literature about analysts in China. This paper provides a reference for outside investors to distinguish the informativeness of insider trading among different types of companies and to imitate insiders' trade behaviour to avoid investment loss or increase investment return. Meanwhile, it also provides empirical evidence for securities market regulators to effectively monitor the insider trading of different companies.

II. Literature Review

According to the prior literature, there are three perspectives on the source of abnormal returns from corporate insider trading, namely the mispricing hypothesis, the information superiority hypothesis, and the fusion hypothesis. The mispricing hypothesis

considers that insiders utilise the opportunity of corporate share mispricing to gain profits from contrarian transactions and that rather than conveying information of future corporate value, insider transaction is a timing behaviour conducted according to market value inertia. The mispricing of corporate stocks means the overreaction or under-reaction of external investors towards information (De Bondt and Thaler, 1985) and the abnormal returns of insider trading may come from delayed stock price reactions to specific company information, that is, the abnormal returns come from the time-series variability rather than the cross-sectional variability of income (Jegadeesh and Titman, 1993, 2002). Some studies prove that corporate insiders can identify and utilise the opportunity of corporate stocks being mispriced to obtain abnormal returns by selling out stocks that are overrated and buying in stocks that are underrated (Finnerty, 1976; Seyhun, 1986; Rozeff and Zaman, 1998; Lakonishok and Lee, 2001). Jenter (2005) further finds evidence that executives will utilise the opportunity of a corporate stock price deviating from its fundamental value to make contrarian transactions. He points out that the stock price of a company with a low price-earnings ratio, price-to-book ratio, or price-to-cash flow ratio seems to be underestimated and that its executives will buy in a large quantity of the company's stocks, and vice versa.

The information superiority hypothesis considers that insiders take advantage of their information superiority to obtain abnormal trading returns, which means that they utilise information about the company's future value to make transactions; when they consider that the company's future value will increase, they will buy in the company's stocks, and vice versa. The development of this hypothesis is partly based on regulations on short-swing trading via information superiority among insiders. For example, the US Securities Act stipulates that two reverse transactions cannot occur within an interval of 6 months. Therefore, in order to avoid regulatory punishment, insiders choose to use long-term value information superiority to gain a profit or to conduct transactions with predictable price relevant information in a period with low legal risk (Huddart *et al.*, 2007). Elliot *et al.* (1984) and Ke *et al.* (2003) provide evidence that insiders take advantage of the company's future value information by studying the relation between insider trading and information announcements. The former study finds that insiders increase (reduce) their purchase (sale) amount within 12 months before good news is announced, and the latter study shows that insiders increase stock purchases (sales) three to nine quarters before quarterly earnings start to grow (decline) consecutively over the long term.

In fact, these two perspectives are not contradictory because when corporate insiders seek mispricing opportunities, they often refer to the measurement of the company's fundamental value; meanwhile, they can also conduct timing transactions, making use of

their information superiority with respect to corporate value to grab these mispricing opportunities. De Bondt and Thaler (1985) point out that to discover mispricing opportunities and gain a profit through contrarian transactions cannot be done without judgements about the corporate fundamental value – only long-term deviation from the fundamental value will cause the phenomenon of mean reversion. Rozeff and Zaman (1998) also attribute the fact that insiders gain profit via contrarian transactions to the information superiority possessed by insiders in terms of estimations and judgement. Later studies find that insiders are typical contrarian strategists, but using insiders' ability to predict future returns is stronger than simply using the effect of contrarian strategies (Lakonishok and Lee, 2001). On the basis of Rozeff and Zaman (1998), Piotroski and Roulstone (2005) further define two kinds of information superiority. Using future unexpected earnings as the proxy for information superiority with respect to future performance and the price-to-book ratio and recent stock return to indicate mispricing, they find that an abnormal return gained by insiders is due to the timing ability of contrarian strategies as well as corporate value information superiority and that insiders' purchasing behaviour is better explained by the corporate share mispricing effect than by information superiority.

The empirical evidence shows that one of the approaches to restricting insiders from gaining excess profit via information superiority, whether in valuation or future performance, is to reduce the company's level of information asymmetry and increase information transparency. For instance, Frankel and Li (2004) find that increasing analyst following could reduce the return on insider trading and the frequency of insider purchases and that the informativeness of financial reports is negatively related to the frequency of stock purchases. Gu and Li (2012) also find that corporate information transparency is negatively related both to the scale of and return on insider trading and to market reactions to insider trading information. Another approach is to increase the cost of utilising private information for transactions. For example, Gao *et al.* (2012) show that reputation cost is an informal mechanism for restraining insider trading profit. That is to say, compared with executives in companies unaware of corporate social responsibility, executives in companies aware of corporate social responsibility gain a lower return from stock purchases, and the possibility of these companies' executives trading via future corporate information is also lower. Chang and Corbitt (2012) find that when a firm is cross-listed on an exchange with higher regulatory and legal costs compared with its home exchange, its insiders' return from buying and selling shares is lower than that of insiders from the domestic firm; this is because the increased shareholder protection provided by the cross-listed firm constrains insiders from extracting private benefits.

As previously described, relevant studies about insider trading in China are still at

the starting phase owing to the short transaction history and small transaction scale. Some studies have tested the profitability of insider trading. For example, Zeng (2008) finds that insiders of China's listed companies gain significant short-term abnormal returns from selling out stocks. Zhu *et al.* (2011) find that executives' sales and large-scale purchases of stocks have strong predictive ability for stock returns in the subsequent 6 months, but on the whole, the purchases of executives do not bring positive stock returns in the long term. Other studies discuss the agency problem in insider trading. For instance, the study of Zeng and Zhang (2009) on non-compliant short-swing trading (selling out corporate stocks a short time after purchase) by executives in listed companies shows that short-swing trading with subjective intentions (that is, the dealers have not provided their reasons for the transactions or have given the excuse of being "unfamiliar with relevant regulations") by these executives gained abnormal returns, while short-swing trading on the grounds of "misoperation" did not gain any abnormal return. This means that the executives involved in these non-compliant short-swing transactions may have conducted insider trading. Zeng and Zhang (2012) find that for companies listed on the Small and Medium Enterprise Board, the trading returns gained by insiders during a time window before the disclosure of periodic financial reports are significantly higher than those gained during other windows, showing that insiders may have gained profits by making use of soon to be published information on periodic financial reports. In addition, Zhang and Zeng (2011) find that for Shenzhen-listed companies, trading by the relatives of insiders is much more frequent than that by the insiders themselves and that the former's trading can gain abnormal returns.

The above empirical evidence shows that insiders in China's listed companies also have the ability to gain abnormal returns. However, most of these studies only examine the short- or medium-term returns of insider trading and measure the medium-term returns using a method similar to or the same as the market model for estimating short-term cumulative abnormal returns. Prior studies show that corporate β volatility is great, and so it is not suitable for predicting long-term future returns, and that the limitations of measurement methods will affect the robustness of conclusions. In addition, as previously mentioned in the introduction, the prior literature has not considered the special economic institutions of China in order to study the influence of Chinese factors on agency behaviour in the insider trading of listed companies, and this affects the practical implications of studies.

III. Research Hypotheses

In an efficient market, insider trading behaviour is regarded as a signal sent out to

the market in which insiders' purchases (sales) of their corporate stocks gives a positive (negative) signal to investors (John and Lang, 1991), and so the *NPR* is used to measure the intensity of the private information signal delivered by insiders. Contrary to the results of Western studies, Chinese studies find that for short- or medium-term windows, insiders can gain abnormal returns by selling out stocks, while abnormal returns from buying in stocks are not obvious (Zeng, 2008; Zhu *et al.*, 2011). In other words, in the short to medium term, the signal of selling out stocks by insiders is strong while that of buying in stocks is weak. If insiders' purchases and sales convey the same information in the medium and long terms, then for a certain period, the more stocks insiders sell, the lower *NPR* is and the lower the future abnormal return of corporate stocks is; on the contrary, the less stocks insiders sell, the higher *NPR* is and the higher the future abnormal return of corporate stocks is. Our first hypothesis is therefore developed as follows:

Hypothesis 1: The *NPR* of insiders is positively related to the future abnormal return of corporate stocks.

A hot issue in the past 10 years has been the political connections of enterprises. Whether in developing or developed countries, it is common to find that entrepreneurs come from government backgrounds or that enterprises hire executives from government backgrounds, and such a phenomenon is quite widespread in corrupt countries (Faccio, 2006). The primary reason for this phenomenon is that governments hold the distribution power for public resources and political connections can help enterprises to gain more governmental resources. For instance, political connections can help enterprises obtain loans from government-owned banks (Khwaja and Mian, 2005) and more government bailouts during financial distress (Faccio *et al.*, 2006). Using a sample of large US companies, Goldman *et al.* (2009) find that after disclosing board of director nominees with political relations, corporate stocks post positive abnormal returns.

As China is a developing country and a transition economy, the government has a deeper influence on the micro economy, and political connections can help enterprises, especially private enterprises, to gain unique resources from the government, especially local government, such as financing convenience (Yu and Pan, 2008; Chan *et al.*, 2012), preferential tax treatment (Wu *et al.*, 2009), tax avoidance (Luo and Wei, 2012), or entry into monopolised industries (Luo and Liu, 2009). However, political connections can reduce the information transparency of a company. For instance, since companies with political connections can obtain financing easily, they lack the incentive to respond to the market's demand to improve information quality, resulting in the fact that the earnings quality of companies with political connections is significantly lower than that of

companies without political connections (Chaney *et al.*, 2011). Non-market transactions between enterprises and the government also increase the degree of information asymmetry. Among private enterprises in China, the accounting information quality of listed private enterprises with political connections is significantly lower than that of companies without political connections (Yi *et al.*, 2012). The demand of private enterprises with political connections for high-quality audit is lower, as is their audit quality; however, auditors will charge a risk premium against listed private enterprises with political connections to address the audit risk (Nie and Zhang, 2012). Similarly, auditors in the US will charge companies with political connections a higher fee compared to companies without political connections, and such a relation is more significant in companies with weak corporate governance and a complicated business structure (Kim *et al.*, 2012).

Political connections can also reduce the penalty cost for enterprises and their executives. Khwaja and Mian (2005) find that in Pakistan, the loan default rate of companies with political connections is 50 per cent higher than that of companies without political connections. You *et al.* (2010) find that in Chinese listed companies, the possibility that executives with close political connections will be forced to leave office due to poor performance is lower, meaning that the political resources possessed by executives weaken the supervision and constraint mechanism of corporate governance and are the executives' capital for building their careers. Zheng *et al.* (2010) find that for companies that have received modified audit opinions from former auditors, political connections can help them to obtain a low ball fee quote from incumbent auditors. Berkman *et al.* (2011) find that Chinese small investors are doubtful whether stricter regulatory measures can be effectively implemented in companies with political connections because regulators would protect the blockholders of these companies. In short, political connections can reduce the transparency of corporate information and decrease the cost to executives of breaking the law. Therefore, the low degree of information transparency facilitates insiders of a company with political connections to gain a profit from trading corporate stocks, and protection from the government also encourages them to make profits via private information. Accordingly, we put forward the second hypothesis as follows:

Hypothesis 2: Compared with companies without political connections, the positive relation between the NPR of insiders and the future abnormal return of corporate stocks is stronger for companies with political connections.

The Chinese government is structured in a multiple-level hierarchy, and its executive power is decentralised level by level from top to bottom. Government officials at the

higher levels have greater power and a stronger ability to control and obtain various resources. For instance, government officials at the county and municipal levels have discretionary power over local economic policies, while government officials at the township level do not have such power (Wei and Wu, 2002). Empirical research finds that the higher the political status a private entrepreneur has, the higher the possibility of the private enterprise entering the financial industry (Hu, 2006). The higher the political status a private entrepreneur has, the higher the degree of business diversification, the easier it is for the enterprise to enter into government-regulated industries for diversification (Hu and Shi, 2008), and the more possible it is for the enterprise to undergo irrelevant diversification (Li *et al.*, 2009). By constructing a political influence index for listed companies, Wang and Wu (2008) find that stronger political connections of a private enterprise lead to better operating performance. Therefore, the higher the level of political connections a company has, the more benefits insiders can obtain from government authorities via these political connections. Such benefits may be reflected in the lower probability and smaller intensity of punishment when a company with high-level political connections violates regulations. Therefore, it is more possible for the insiders of a company with high-level political connections to gain profit via non-public information than it is for insiders of a company with low-level political connections. Accordingly, the first auxiliary hypothesis of Hypothesis 2 is given below:

Hypothesis 2A: Compared with companies with low-level political connections, the positive relation between the NPR of insiders and the future abnormal return of corporate stocks is more significant for companies with high-level political connections.

The formation path of political connections is related to the ownership structure of the enterprise. The political connections of state-owned enterprises (SOEs) are mainly formed through incumbent or former government officials when they are appointed by the government to take office in SOEs, while the political connections of private enterprises are mainly formed through entrepreneurs and professional managers from political backgrounds. This difference in formation paths leads to different influences of political connections on an enterprise. The political connections of an SOE are mainly seen in government intervention, while the political connections of a private enterprise are mainly seen as a means for seeking rent from the government, helping the company to obtain various preferential treatments. Empirical research shows that political connections can damage the performance, firm value, and investment efficiency of SOEs but can help private enterprises to obtain more fiscal subsidies and promote company performance or value (Wang and Wu, 2008; Yu *et al.*, 2010; Chen *et al.*, 2011; Wu *et al.*, 2012). Liu *et al.*

(2010) find that in respect to SOEs, the pay-performance sensitivity of executives is lower for companies with political connections than it is for companies without political connections and that the level of staff redundancy is higher for companies with political connections, whereas in respect to private enterprises, the pay-performance sensitivity of executives is higher for companies with political connections than it is for companies without political connections and the level of staff redundancy is lower for companies with political connections. This shows that the different purposes of employing executives with political connections result in different incentive strategies, and there is also a significant difference in the influence of political connections on employee allocation efficiency.

As the political connections of SOEs are often generated through the appointment of core executives like the president and chief executive officer (CEO) by the government, the public will blame the government for dereliction of duty if executives of SOEs violate the regulations; therefore, these executives are subject to disciplinary actions or covert punishment (such as dismissal) for their misconduct. On the other hand, the political connections of private enterprises are often built by employing former government officials, who will not be supervised and constrained by the authorities but will still maintain close relationships with the government, and so it is not easy to punish the executives of such private enterprises for misconduct. Therefore, insiders of private enterprises with political connections often have a stronger motivation to trade corporate shares to gain profits using non-public information than insiders of SOEs with political connections. Accordingly, the second auxiliary hypothesis of Hypothesis 2 is given below:

Hypothesis 2B: Compared with SOEs with political connections, the positive relation between the NPR of insiders and the future abnormal return of corporate stocks is more significant for private enterprises with political connections.

Securities analysts are important providers of public information on the capital market, and their tracking of listed companies is an important power to reduce information asymmetry between corporate insiders and external investors. Roulstone (2003) shows that securities analyst following could increase a company's stock liquidity and decrease information asymmetry between the company and investors. Analyst following plays the dual role of information provider and company supervisor. For example, Frankel and Li (2004) find that an increase in analyst following can decrease the return on insider trading and insiders' frequency of buying stocks. Lang *et al.* (2004) find that although analysts do not like to track companies with a potential tendency to hide and manipulate information, analyst following increases corporate value for companies with

poor internal governance and weak external governance at the state level. Empirical evidence provided by Chinese studies also proves the positive effect of securities analyst following on the reduction of corporate information asymmetry. For instance, Zhang and Lu (2009) find that analyst following decreases information asymmetry, thus reducing external financing constraints and companies' dependence on internal finance, thereby increasing the level of cash dividends. Xu and Tang (2010) find that Chinese analysts track the research and development (R&D) activities of enterprises to provide deep information and have very strong analytical and screening ability for R&D activities; thus, analyst following can facilitate the capital market's recognition of the value of enterprises' R&D activities. Zhou and Du (2012) find that analyst following has a significantly positive correlation with the accounting information transparency of Chinese companies. Therefore, the greater the analyst following a company has, the easier it is to discover transactions by insiders to gain profit via private information. Accordingly, the third hypothesis is developed as follows:

Hypothesis 3: The greater the number of securities analysts following a company, the stronger the positive relation between the NPR of insiders and the future abnormal return of corporate stocks.

Not only is the informativeness of insider trading related to corporate characteristics, it is also related to the job position of the dealer. According to the information hierarchy hypothesis, insiders possessing more inside information (often people at a higher management level) find it easier to gain a higher abnormal return via their information superiority. Western studies show that the trading profit of CEOs, who are at the top of the information hierarchy, is higher than that of other executives and non-executive directors (Seyhun, 1998; Jeng *et al.*, 2003). The evidence of Zeng (2008) partially supports the information hierarchy hypothesis, which means that the short-term return on stocks sold by executives and directors of Chinese listed companies is significantly higher than the short-term return on stocks sold by supervisors and independent directors, but there is no significant difference in terms of short-term return between stocks sold by the president and CEO and stocks sold by supervisors and independent directors. This might show that since the president and CEO are in higher positions, their transactions are much easier for the market to notice, and thus they try hard to avoid short-term returns gained during an information-sensitive period. Therefore, core executives³ should pay more

³ In this paper, core executives include the president, CEO, and chief financial official (CFO), and others are non-core executives. The reasons for this distinction are that the president and CEO are the core decision makers and leaders and have the most important private information about the company and the CFO, although not the highest-ranking decision-maker, has timely and comprehensive information about the company's financial conditions, profitability, and future change trend.

attention to medium- and long-term returns on their transactions. Accordingly, the fourth hypothesis is developed as follows:

Hypothesis 4: Compared with other insiders of the company, the positive relation between the NPR and the future abnormal return of corporate stocks is more significant for core executives.

IV. Research Design

4.1 Sample and Data

We select the stock transactions made by the president, supervisors, and executives of listed companies on the secondary market from January 2007 to December 2011 and disclosed on the the websites of the Shenzhen Stock Exchange and the Shanghai Stock Exchange as the research object.⁴ The transaction month is set as the unit. If one or more than one insider of a company buys or sells corporate stocks in a certain month, then that month is regarded as one observation; 4,003 initial observations are obtained. As summarised in Table 1, the following observations are excluded from our sample: 64 observations whose price-to-book ratios cannot be calculated due to negative net assets; 14 observations without complete stock return data for the 6 months before the insider trading month in order to control for the stock return momentum effect; and 619 observations in which the total number of shares traded monthly is less than 2,000 in order to control for the influence of noise trading.⁵ The final sample consists of 3,306 effective observations.

Table 1 Sample Selection Process

Initial observations	4003
Eliminate:	
Observations from companies whose equity is negative	(64)
Observations with incomplete return data 6 months before the transaction month	(14)
Observations in which the total number of transaction shares is less than 2,000	<u>(619)</u>
Observations in the final sample	3306

⁴ The Shenzhen Stock Exchange also discloses trade information about the direct relatives of corporate insiders. However, since trading by relatives is not restricted by the regulation that reverse transactions are not allowed within 6 months, a study on the medium- and long-term returns of trading by insiders' relatives does not have much significance. Therefore, such transactions are not included in our sample.

⁵ All of the research conclusions remain unchanged when the noise trading standard is set at 1,000 stocks and 3,000 stocks, respectively.

Raw data on insider trading are downloaded from the websites of the Shenzhen Stock Exchange and the Shanghai Stock Exchange. Stock return and other relevant data are taken from the CSMAR database of Shenzhen GTA Information Technology Co., Ltd.

4.2 Description of Insider Trading Return

In Table 2, the sample is divided into a net purchase group and a net sale group to summarise the buy-and-hold return (BHR) and buy-and-hold abnormal return (BHAR) adjusted by portfolio return (please refer to “Model and Variable Definitions” in the following section for its definition) in the 6 months after insider trading. Regarding the sample scale (N), the size of the net sale group is almost four times that of the net purchase group, showing that insider trading in China is dominated by stock sales and that executives have a strong motivation to cash out their stocks, which is related to the fact that insiders’ liquidity demand has been restricted for a long time. This is because before 2006, the law prohibited incumbent executives from transferring their stocks. The BHR mean value indicates that on average, stock purchases post a gain of 15.1 per cent for the 6 months after the insider trading month, while stock sales post a loss of 5.5 per cent, which means that insiders can gain positive BHR by purchasing stocks and obtain negative BHR by selling stocks. However, in regard to the mean value of BHAR adjusted by portfolio return, insiders are able to avoid abnormal loss for the 6 months after stock sales, which means that they gain an abnormal return of 1.9 per cent, while the profit in 6 months from purchasing stocks is 1.7 per cent. This result shows that in terms of the medium term, stock trading among insiders has significant informativeness. If an investment portfolio is constructed by imitating the purchase and sale behaviour of insiders, the portfolio is expected to post an abnormal return of 3.6 per cent in a 6-month period.

Table 2 Descriptive Statistics of Insider Trading Return

	Net purchase group				Net sale group			
	N	Mean	Median	Std. Dev.	N	Mean	Median	Std. Dev.
BHR	668	15.1%	2.6%	47.7%	2638	5.5%	-2.1%	40.8%
BHAR	668	1.7%	-2.2%	27.9%	2638	-1.9%	-4.6%	26.8%

Table 3 summarises the BHAR adjusted by portfolio return of the net sale group and the net purchase group for a period of 6 months and the return rates of a simulation investment portfolio of insider trading according to different grouping standards. It shows that the return rate of the simulation investment portfolio of the political connections group is 7.9 per cent and that of the no political connections group is 3.1 per cent. A

political connection at a high level is defined as follows: the executive was or is a party or government leader or deputy leader at or above the divisional level. According to Table 3, the return rate of the simulation investment portfolio of the group with high-level political connections is 15.2 per cent, much higher than that of the group without high-level political connections (2.7 per cent). The results under the two grouping standards show that the average abnormal return of insider trading for companies with political connections is mainly generated by companies with political connections at or above the deputy divisional level and that there is no significant return on insider trading for companies with political connections at or below the sectional level. With regard to the privately controlled group, the return rate is 2.9 per cent for the simulation portfolio and 4.1 per cent for the state-controlled group, showing that the insider trading of state-controlled companies may be more informative. With regard to the low analyst following group, the return rate of the simulation portfolio is 7.3 per cent, but that of the high analyst following group is -0.1 per cent, indicating that analyst following reduces the profitability of insider trading to a large extent.

Table 3 Descriptive Statistics of Insider Trading Return by Groups

Grouping types	Net purchase group			Net sale group			Return on simulation investment
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	
With political connections	73	4.7%	29.1%	260	-3.1%	27.7%	7.9%
Without political connections	595	1.3%	27.8%	2378	-1.7%	26.7%	3.1%
With high-level political connections	60	6.7%	28.9%	147	-8.4%	21.5%	15.2%
Without high-level political connections	608	1.2%	27.8%	2491	-1.5%	27.1%	2.7%
Privately controlled	241	1.1%	28.1%	1695	-1.8%	25.5%	2.9%
State-controlled	427	2.0%	27.9%	943	-2.1%	29.0%	4.1%
With low analyst following	357	2.1%	31.1%	1295	-5.2%	28.2%	7.3%
With high analyst following	311	1.2%	23.8%	1343	1.3%	25.0%	-0.1%
Core executives	153	3.8%	28.0%	267	-2.6%	25.4%	6.5%
Non-core executives	368	2.5%	29.3%	1970	-1.8%	26.8%	4.3%
High M/B ratio	285	3.6%	27.3%	1368	-0.5%	23.8%	4.1%
Low M/B ratio	383	0.3%	28.4%	1270	-3.4%	29.7%	3.7%
Small-sized companies	157	-1.4%	28.3%	943	-4.7%	26.0%	3.4%
Medium-sized companies	209	-0.8%	27.5%	893	-0.8%	26.9%	0.0%
Large-sized companies	302	5.0%	27.7%	802	0.2%	27.5%	4.8%

For the groups divided according to whether the dealer is a core executive, the return rate of the simulation portfolio for the core executives group is 6.5 per cent, which is higher than that of the non-core executives group (4.3 per cent). This shows that core executives might utilise their information superiority to gain profit.⁶ For the groups divided according to the market-to-book (M/B) ratio of the company at the beginning of the year, the return rate of the simulation portfolio for the high M/B ratio group is 4.1 per cent, which is mainly generated from stock purchases. The return rate of the simulation portfolio for the low M/B ratio group is 3.7 per cent, which is mainly generated from stock sales. In general, there is no significant difference between these two types of companies in terms of the informativeness of insider trading. Finally, for the groups divided according to the equity value of the company at the beginning of the year, the results indicate that the influence of company size on the informativeness of insider trading is unstable: The return rates of the simulation portfolios are high for both the large cap and small cap groups (3.4 per cent and 4.8 per cent, respectively), but there is no significant return on insider trading for medium-sized companies.

4.3 Model and Variable Definitions

The following model is constructed to test the research hypotheses:

$$\begin{aligned}
 BHAR = & \alpha + \beta_1 NPR + \beta_2 GL + \beta_3 NPR * GL + \beta_4 GH + \beta_5 NPR * GH \\
 & + \beta_6 PRVT + \beta_7 NPR * PRVT + \beta_8 NPR * PRVT * GL \\
 & + \beta_9 NPR * PRVT * GH + \beta_{10} ANALYST + \beta_{11} NPR * ANALYST \\
 & + \beta_{12} NPR * ANALYST * GL + \beta_{13} NPR * ANALYST * GH \\
 & + \beta_{14} MB + \beta_{15} NPR * MB + \beta_{16} MV + \beta_{17} NPV * MV \\
 & + \beta_{18} MOMENTUM + \sum YEAR_t + \varepsilon
 \end{aligned}$$

Dependent variable: *BHAR*, which is the 6-month buy-and-hold abnormal return after the event month of insider trading adjusted by the Fama-French 5×5 size-B/M portfolio return.⁷ According to the *Securities Law* of China, the reverse transactions of insiders should have an interval of at least 6 months, so examining the abnormal return 6 months after the event month of insider trading can describe the informativeness of

⁶ It is defined that for each transaction month, there is only one type of transactions, either by core or by non-core executives, so observations involving transactions by core and non-core executives in the same month are eliminated. The sample size of these two groups totals 2,758.

⁷ This means the corporate BHR for the 6 months after the month of insider trading subtracted by the BHR of the corresponding portfolio. All A-share companies are divided into five groups according to their M/B ratios at the beginning of the month and then further divided into five groups according to the total market value of stocks at the beginning of the month, meaning that all A-share companies are divided into 25 asset portfolios. Then we find the asset portfolio that corresponds to the sample group on the basis of the same M/B ratio and equity size in the corresponding month. As the M/B ratio and market value of the sample company change monthly, the corresponding portfolio return rate in each month is the average return rate of the portfolio after regrouping for the current month.

insider trading behaviour better than using the short-term return.

Independent variables:

NPR: The net purchase ratio in terms of insider transactions monthly which is used to measure the signal intensity of private information delivered by insider trading. In general, there are three measurement methods of *NPR*: in terms of the number of transactions, the number of shares traded, and the transaction amount. It is the ratio of the difference between corporate insider purchases and corporate insider sales to total insider transactions in a month when at least one insider buys or sells corporate stocks. As the share price will not change too much in a month, the *NPR* calculated on the basis of transaction shares is similar to the *NPR* calculated on the basis of transaction amount, and so *NPR* in terms of shares traded is adopted to replace *NPR* in terms of transactions to duplicate all tests in the robustness analysis. The value of *NPR* is between -1 and 1: 1 means that the insider only purchases stocks within the observation window, and -1 means that the insider only sells stocks within the observation window. $NPR > 0$ means that there are net purchases within the observation window, while $NPR < 0$ means that net sales exist. A greater value of *NPR* indicates a higher proportion of net purchase by insiders. If insider trading includes information content on the company's future profitability, the future abnormal return of corporate stocks will be higher (Lakonishok and Lee, 2001; Piotroski and Roulstone, 2005). Therefore, it is predicted that *NPR* is positively related to *BHAR*.

GL and *GH*: Dummy variables for lower-level political connections and high-level political connections, respectively. When the president or CEO of the company is or was a government official at or below the sectional level or an ordinary civil servant, $GL = 1$; otherwise, $GL = 0$. When the president or CEO of the company is or was a government leader or deputy leader at or above the divisional level, $GH = 1$; otherwise, $GH = 0$.⁸

⁸ The hierarchy of Chinese government officials from top to bottom is as follows: Premier level, Ministerial and Deputy Ministerial (Provincial) level, Department Director and Deputy Director level, Divisional Head and Deputy Head (County) level, and Sectional Head and Deputy Head (Township) level. The reason for defining high-level political connections at or above the county level is that Chinese party and government leaders at the county level have greater control over resources and have great influence on the local judiciary. According to the employment procedure, civil servants at or below the sectional level should pass the nationwide or provincial/municipal uniform civil service examination before employment, while cadres at or above the divisional deputy head level are selected by open recruitment held by relevant organisations or by internal appointment. In view of the sample distribution proportion, observations with political connections at or above the divisional level are mainly connections at the county level, while there are less political connections at or above the department level. In this paper, political connections also include positions in party committees, the standing institutions of the National People's Congress (NPC) and Chinese People's Political Consultative Conference (CPPCC), and the military services, apart from positions in governmental agencies, but exclude ordinary communist party congress representatives, NPC delegates, and members of the CPPCC because the latter types of political connections may have different influences. For instance, Hao and Zhang (2011) find that the government background of private entrepreneurs can help them obtain more bank loans, but the influence of the political identity of NPC delegates and members of the CPPCC is not significant. During the robustness tests, political connection variables are added to proxy for the fact that the president or CEO is or was a Communist Party Congress representative, an NPC delegate, or a member of the CPPCC.

According to hypotheses 2 and 2A, it is predicted that both $NPR*GL$ and $NPR*GH$ are positively related to $BHAR$ and that the relation between $NPR*GH$ and $BHAR$ is more significant.

PRVT: Dummy variable for the ownership nature of the ultimate controller; it takes the value of 1 when the ultimate controller is an individual person or private enterprise and 0 otherwise. When the direction of insider trading is not controlled for, the relation between *PRVT* and $BHAR$ is not clear. The motivation for insider trading in private enterprises and SOEs is to maximise personal interests, so the relation between the interactive variable $NPR*PRVT$ and $BHAR$ is hard to predict. According to Hypothesis 2B, it is predicted that both $NPR*PRVT*GL$ and $NPR*PRVT*GH$ have significant and positive correlations with $BHAR$ and that the relation between $NPR*PRVT*GH$ and $BHAR$ is more significant.

ANALYST: The variable for the number of analysts following which is equal to the natural logarithm of the number of securities analysts who make earnings forecasts for the company during the past year plus 1. When the direction of insider trading is not controlled for, there is no certain relation between *ANALYST* and $BHAR$. According to Hypothesis 3, it is predicted that $NPR*ANALYST$ has a significant and negative relation with $BHAR$. Analyst following might have a more significant effect on restricting the insiders of companies with political connections from gaining profit via information superiority, so it is predicted that both $NPR*ANALYST*GL$ and $NPR*ANALYST*GH$ are negatively related to $BHAR$.

MB: The ratio of market value to the book value of corporate equity at the beginning of the year which is used to measure the company's growth. In general, companies with high growth also have high information asymmetry, and it is much easier for insiders to gain profit via information superiority. Therefore, it is predicted that $NPR*MB$ is positively related to $BHAR$, while the relation between *MB* and $BHAR$ is uncertain.

MV: The natural logarithm of total stock market value at the beginning of the year, which is used to measure the company size. Generally speaking, the information asymmetry of small-sized companies is more serious than that of large-sized companies, so $NPR*MV$ may be negatively related to $BHAR$, while the relation between *MV* and $BHAR$ is uncertain.

MOMENTUM: The variable for the 6-month BHR before the insider trading month, which is used to measure stock return momentum. Corporate insiders might be both contrarian traders and traders with information superiority with respect to future corporate value (Piotroski and Roulstone, 2005), so the return momentum effect is controlled for. It is predicted that there is a negative correlation between *MOMENTUM* and $BHAR$.

Finally, we control for the year dummy variable in the model. The sample period

consists of the 5 years from 2007 to 2011. During these years, the economic fundamentals and capital market conditions of China changed greatly, so four year dummy variables are added to control for the differences among different years.

When Hypothesis 4 is tested, we add a dummy variable *CORE* (which takes the value of 1 when dealers are the president, CEO, or CFO and 0 otherwise) for core executives and the interactive variables *NPR*CORE*, *NPR*GL*CORE*, and *NPR*GH*CORE*. To save space, the model after adding these variables is not shown.

V. Test of Hypotheses

5.1 Univariate analysis

Table 4 lists the descriptive statistics results of the main variables. It shows that the average abnormal return of the sample companies in the 6 months after insider

Table 4 Descriptive Statistics of the Main Variables of the Model

	N	Mean	Std. Dev.	Median	1%	99%
<i>BHAR</i>	3306	-1.16%	27.1%	-3.98%	-59.77%	98.23%
<i>NPR</i>	3306	-0.588	0.801	-1	-1	1
<i>GL</i>	3306	0.038	0.191	0	0	1
<i>NPR*GL</i>	3306	-0.030	0.192	0	-1	0
<i>GH</i>	3306	0.063	0.242	0	0	1
<i>NPR*GH</i>	3306	-0.026	0.247	0	-1	1
<i>PRVT</i>	3306	0.586	0.493	1	0	1
<i>NPR*PRVT</i>	3306	-0.436	0.623	-1	-1	1
<i>NPR*PRVT*GL</i>	3306	-0.013	0.132	0	-1	0
<i>NPR*PRVT*GH</i>	3306	-0.004	0.119	0	0	0
<i>ANALYST</i>	3306	1.741	1.104	1.946	0.000	3.738
<i>NPR*ANALYST</i>	3306	-1.071	1.746	-1.386	-3.584	3.584
<i>NPR*ANALYST*GL</i>	3306	-0.045	0.343	0	-2.398	0
<i>NPR*ANALYST*GH</i>	3306	-0.051	0.536	0	-2.773	1.386
<i>MB</i>	3306	4.617	3.024	3.920	0.953	16.081
<i>NPR*MB</i>	3306	-2.839	4.690	-3.101	-14.923	10.268
<i>MV</i>	3306	22.03	1.035	21.92	20.15	25.10
<i>NPR*MV</i>	3306	-12.80	-21.53	17.78	-24.50	25.03
<i>MOMENTUM</i>	3306	33.5%	65.3%	18.6%	-63.3%	274.6%
<i>CORE</i>	2758	0.152	0.359	0	0	1
<i>NPR*CORE</i>	2758	-0.039	0.388	0	-1	1
<i>NPR*CORE*GL</i>	2758	0.000	0.050	0	0	0
<i>NPR*CORE*GH</i>	2758	-0.001	0.095	0	0	0

transactions is -1.16 per cent, which may be related to the fact that 80 per cent of the observations involve the selling out of stocks. The *NPR* of -0.588 also shows that observations of sales are dominant; 3.8 per cent of the observations come from companies with low-level political connections (*GL*), 6.3 per cent from companies with high-level political connections (*GH*), and 58.6 per cent from privately controlled companies (*PRVT*). In the sample where transactions are classified by types of executives, 15.2 per cent of the observations are transactions involving core executives (*CORE*). The characteristics of other variables are not stated in detail.

Table 5 presents the Pearson correlation test for the main variables of the model. It can be seen that there is a significantly positive correlation between *BHAR* and *NPR*. There is a significantly negative correlation between *NPR* and *BHAR* in companies with high-level political connections (*GH*), but this correlation is positive in companies with low-level political connections (*GL*). This means that insiders of companies with high-level political connections may utilise private information to gain abnormal profits, while insiders of companies with low-level political connections may incur abnormal losses. The informativeness of insider trading in private enterprises (*NPR*PRVT*) is not significantly higher than that in SOEs. There is a negative correlation between *NPR*ANALYST* and *BHAR*, but it is not significant, which means that the univariate test does not show that analyst following reduces the profitability of insider trading. There is a significantly positive correlation between *NPR*MV* and *BHAR*, showing that profitability of the insider trading of larger-sized companies is higher. There is a significantly negative correlation between *MOMENTUM* and *BHAR*, showing that insiders may have the ability to time their transactions. In addition, Table 5 also shows that owing to the interactive variables in the model, collinearity exists among the independent variables and a high correlation exists between *NPR*MV* and *NPR*, so a technical adjustment is made for this interactive variable in the regression test. That is to say, in order to reduce the model's multicollinearity, the sample is divided into three groups; the dummy variables *MV1* and *MV2* are adopted to indicate medium- and large-sized companies, respectively; and then *NPR*MV* is replaced by two interactive variables, *NPR*MV1* and *NPR*MV2*.

5.2 Regression analysis

Table 6 presents the regression results of the entire sample. Regression (1) only controls for company size (*MV1*, *MV2*), growth (*MB*), return momentum (*MOMENTUM*), and transaction year to test the influence of insiders' *NPR* on *BHAR*. It shows that there is a significant correlation between *NPR* and *BHAR* at the 5 per cent level, and the coefficient of 0.016 means that an abnormal return of 3.2 per cent can be gained within 6 months after the month of insider trading by constructing an investment portfolio that

Table 5 Pearson Correlation Matrix (N = 3306)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 BHAR	1													
2 NPR	0.05***	1												
3 GL	0.03*	-0.05***	1											
4 NPR*GL	-0.03**	0.13***	-0.79***	1										
5 GH	-0.03	0.06***	-0.05***	0.04**	1									
6 NPR*GH	0.07***	0.24***	0.02	-0.02	-0.40***	1								
7 PRVT	-0.01	-0.23***	-0.05***	0.04***	-0.19***	0.09***	1							
8 NPR*PRVT	0.03	0.65***	0.03	0.04**	0.15***	0.02	-0.59***	1						
9 ANALYST	0.10***	-0.05***	-0.07***	0.04**	0.02	-0.02	0.07***	-0.10***	1					
10 NPR*ANALYST	-0.02	0.78***	-0.01	0.06***	0.04**	0.19***	-0.24***	0.53***	-0.35***	1				
11 MB	0.06***	-0.05***	0.04***	-0.03*	-0.04**	0.02	0.16***	-0.10***	0.17***	-0.13***	1			
12 NPR*MB	0.03	0.77***	-0.05***	0.13***	0.07***	0.16***	-0.23***	0.57***	-0.13***	0.66***	-0.43***	1		
13 MV	0.10***	0.18***	-0.06***	0.06***	0.13***	-0.04***	-0.21***	0.21***	0.57***	-0.01	0.35***	-0.03*	1	
14 NPR*MV	0.05***	0.998***	-0.05***	0.13***	0.05***	0.24***	-0.23***	0.64***	-0.07***	0.80***	-0.07***	0.78***	0.16***	1
15 MOMENTUM	-0.04**	-0.09***	0.04**	-0.01	0.03	-0.05***	-0.14***	0.06***	-0.20***	-0.02	-0.26***	0.02	-0.28***	-0.09***

imitates insider trading, so in general, insider trading can convey information about stock return in the subsequent 6 months. Regression (2) tests the influence of political connections on insider trading on the basis of controlling for the influence of company growth (MB) and company size ($MV1$, $MV2$) on the relation between NPR and $BHAR$. It finds that there is no significant relation between $NPR*GL$ and $BHAR$ and that there is a significantly positive relation between $NPR*GH$ and $BHAR$ at the 1 per cent level; the regression coefficient of 0.066 shows that compared with the insider trading of companies without political connections, imitating the trading of insiders of companies with high-level political connections can gain an abnormal return of 13.2 per cent within 6 months, while there is no significant difference in insider trading between companies with low-level political connections and companies without political connections. Therefore, Hypotheses 2 and 2A are partially proved. Based on Regression (2), Regression (3) adds the variable $PRVT$ and its interactive variable with NPR , and the results show that neither of them have any significant correlation with $BHAR$, meaning that there is no difference in terms of the informativeness of insider trading between privately controlled companies and SOEs. Regression (4) further adds the variable $ANALYST$ and its interactive variable with NPR . The result shows that there is a significantly negative correlation between $NPR*ANALYST$ and the dependent variable $BHAR$ at the 1 per cent level, showing that more analyst following can result in lowering the informativeness of insider trading. Therefore, Hypothesis 3 is proved. On the basis of Regression (4), Regression (5) continues to add the interactive variables between privately controlled companies, political connections, and NPR as well as the interactive variables between analyst following, political connections, and NPR . The result indicates that there is a significantly positive correlation between $NPR*PRVT*GH$ and $BHAR$ at the 5 per cent level, while there is no significant relation between $NPR*PRVT*GL$ and $BHAR$, and the significance level between $NPR*GH$ and $BHAR$ becomes weak compared to that in Regression (4). The coefficients of $NPR*ANALYST*GL$ and $NPR*ANALYST*GH$ are negative, but they still do not reach statistical significance, while $NPR*ANALYST$ is still significantly related to $BHAR$ at the 1 per cent level. This shows that compared with SOEs, the influence of high-level political connections on privately controlled enterprises is more significant, which means that with the presence of high-level political connections, it is more possible for insiders of privately controlled enterprises to gain profits from stock transactions via information superiority than it is for insiders of SOEs. Therefore, Hypothesis 2B is basically proved. However, analyst following cannot significantly prevent insiders of companies with political connections from gaining abnormal profits via information superiority.

Table 6 Regression with the Whole Sample

Independent variables	Expected sign	Dependent variable: <i>BHAR</i>				
		(1)	(2)	(3)	(4)	(5)
<i>NPR</i>	+	0.016** (2.23)	0.003 (0.15)	0.006 (0.32)	0.024 (1.16)	0.024 (1.11)
<i>GL</i>	?		-0.001 (-0.03)	0.000 (0.00)	-0.006 (-0.13)	-0.017 (-0.37)
<i>NPR*GL</i>	+		-0.062 (-1.21)	-0.062 (-1.23)	-0.073 (-1.40)	-0.064 (-1.10)
<i>GH</i>	?		-0.015 (-0.56)	-0.014 (-0.53)	-0.017 (-0.67)	-0.021 (-0.83)
<i>NPR*GH</i>	+		0.066*** (2.69)	0.065** (2.58)	0.062*** (2.60)	0.072* (1.88)
<i>PRVT</i>	?			-0.003 (-0.17)	-0.010 (-0.61)	-0.010 (-0.66)
<i>NPR*PRVT</i>	?			-0.009 (-0.57)	-0.004 (-0.24)	-0.012 (-0.75)
<i>NPR*PRVT*GL</i>	+					0.077 (0.85)
<i>NPR*PRVT*GH</i>	+					0.084** (1.99)
<i>ANALYST</i>	?				0.004 (0.42)	0.003 (0.30)
<i>NPR*ANALYST</i>	-				-0.024*** (-3.48)	-0.021*** (-2.95)
<i>NPR*ANALYST*GL</i>	-					-0.039 (-0.79)
<i>NPR*ANALYST*GH</i>	-					-0.019 (-1.32)
<i>MB</i>	?	0.004* (1.77)	0.006** (2.10)	0.006** (2.12)	0.006** (2.07)	0.006** (2.24)
<i>NPR*MB</i>	+		0.004 (1.62)	0.005* (1.71)	0.005* (1.84)	0.005* (1.82)
<i>MV</i>	?	0.022*** (3.15)	0.025*** (3.36)	0.025*** (3.26)	0.022** (2.18)	0.022** (2.22)
<i>NPR*MV1</i>	?		-0.022 (-1.29)	-0.023 (-1.31)	-0.006 (-0.37)	-0.007 (-0.38)
<i>NPR*MV2</i>	?		-0.006 (-0.32)	-0.007 (-0.41)	0.027 (1.36)	0.027 (1.40)
<i>MOMENTUM</i>	-	-0.05 (0.41)	-0.004 (-0.35)	-0.004 (-0.30)	-0.002 (-0.13)	-0.001 (-0.13)
N		3,306	3,306	3,306	3,306	3,306
Adj R-sq		0.014	0.022	0.023	0.030	0.032

Notes: The figures in parentheses are T values clustered at the firm level; ***, **, and * indicate the 1%, 5%, and 10% significance levels (two-tailed), respectively; all regressions control for the dummy variables of year of insider trading, but these dummy variables' coefficients and the intercept of the model are not presented in this table (all corresponding figures and signs in Tables 7 and 8 have the same meanings, and Tables 7 and 8 also do not present the results of the year dummy variable and the intercept of the model). The mean value of VIF in all models is less than 2.78 and the maximum value is less than 5.16.

In addition, Table 6 also shows that $NPR*MB$ is positively related to the dependent variable at the 10 per cent level, while there is no significant relation between $MV1*NPR$, $MV2*NPR$, and the dependent variable. This indicates that in companies with higher growth, the informativeness of insider trading is also higher, which agrees with the classical theory. That is to say, in companies with higher growth, information asymmetry is also higher and it is much easier for insiders to gain a profit from stock trade via information superiority. However, different from the conclusions of Western literature, our study shows that the informativeness of the insider trading of small-sized companies is not significantly higher than that of large-sized companies.

Table 7 presents the regression results of transaction observations involving only core executives or non-core executives in the transaction month (meaning that observations which involve the transactions of both core executives and non-core executives in the same month are eliminated). Regressions (1) and (2) repeat the corresponding regressions in Table 6 and the conclusions remain unchanged. Regression (3) adds $CORE$ and its interactive variable with NPR , and the results show that there is no significant relation between $NPR*CORE$ and $BHAR$, indicating that after other factors are controlled for, there is no difference in informativeness between the transactions of core executives and the transactions of non-core executives. On the basis of Regression (3), Regression (4) adds the interactive variable between political connections, $CORE$, and NPR ; the results show that there is a significant relation between $NPR*GH*CORE$ and the dependent variable at the 5 per cent level but no significant relation between $NPR*GL*CORE$ and the dependent variable, and the significance level between $NPR*GH$ and the dependent variable reduces slightly, but it is still significant at the 5 per cent level. This indicates that high-level political connections can help corporate insiders gain abnormal returns via trading and that their influence on trading by core executives is greater than it is on trading by non-core executives.

In short, the results of Table 7 show that the informativeness of trading by core executives is not necessarily higher than that of trading by non-core executives. However, for companies with high-level political connections, the informativeness of trading by core executives is higher than that of trading by non-core executives. Thus, Hypothesis 4 is partially proved.

5.3 Robustness tests

In order to test the stability of the above findings, we conduct the following robustness tests.

First, the NPR in terms of transactions in Tables 6 and 7 is replaced by NPR in terms of shares traded. Since the window of 12 months after a transaction is a typical

Table 7 Regression with Subsamples of Transactions Classified by the Types of Executives

Independent variables	Dependent variable: <i>BHAR</i>			
	(1)	(2)	(3)	(4)
<i>NPR</i>	0.022*** (2.89)	0.026 (1.12)	0.025 (1.07)	0.027 (1.14)
<i>GL</i>		0.025 (0.52)	0.025 (0.51)	0.018 (0.39)
<i>NPR*GL</i>		-0.031 (-0.56)	-0.031 (-0.57)	-0.041 (-0.76)
<i>GH</i>		-0.022 (-0.82)	-0.022 (-0.80)	-0.028 (-1.02)
<i>NPR*GH</i>		0.094** (2.48)	0.094** (2.50)	0.080** (2.01)
<i>PRVT</i>		-0.001 (-0.03)	-0.001 (-0.09)	-0.001 (-0.05)
<i>NPR*PRVT</i>		-0.006 (-0.33)	-0.006 (-0.39)	-0.007 (-0.39)
<i>CORE</i>			0.004 (0.22)	0.002 (0.12)
<i>NPR*CORE</i>			0.010 (0.54)	0.001 (0.06)
<i>NPR*GL*CORE</i>				0.057 (0.35)
<i>NPR*GH*CORE</i>				0.110** (1.98)
<i>ANALYST</i>		0.006 (0.59)	0.005 (0.55)	0.006 (0.60)
<i>NPR*ANALYST</i>		-0.021** (-2.56)	-0.021** (-2.57)	-0.021** (-2.52)
<i>NPR*ANALYST*GL</i>		-0.017 (-0.37)	-0.017 (-0.37)	-0.017 (-0.37)
<i>NPR*ANALYST*GH</i>		-0.023 (-1.53)	-0.023 (-1.54)	-0.025* (-1.68)
<i>MB</i>	0.004 (1.46)	0.006* (1.84)	0.006* (1.84)	0.006* (1.83)
<i>NPR*MB</i>		0.006* (1.95)	0.006* (1.91)	0.006* (1.93)
<i>MV</i>	0.024*** (3.30)	0.024** (2.20)	0.024** (2.23)	0.024** (2.19)
<i>NPR*MV1</i>		-0.013 (-0.72)	-0.013 (-0.72)	-0.013 (-0.71)
<i>NPR*MV2</i>		0.027 (1.26)	0.027 (1.27)	0.027 (1.24)
<i>MOMENTUM</i>	-0.008 (-0.63)	-0.003 (-0.25)	-0.003 (-0.21)	-0.003 (-0.22)
N	2,758	2,758	2,758	2,758
Adj R-sq	0.017	0.037	0.037	0.038

observation window for long-term studies (Clacher *et al.*, 2009), the 6-month *BHAR* is replaced by the 12-month *BHAR* (*BHAR_12MONTH*). Table 8 repeats the major regression tests in Table 6, and the results show that after the abovementioned replacements, the conclusions of Table 6 remain unchanged, but the 12-month abnormal return of insider trading for companies with high-level political connections is not as significant as the 6-month abnormal return. This finding may be related to the current regulation, in which only reverse transactions within 6 months are prohibited. Since insiders cannot gain a profit via reverse transactions within 6 months after the transaction, insiders are more concerned about stock return for the subsequent 6 months than for the subsequent 12 months.

For the subsample of transactions classified by the type of executives, after *NPR* in terms of transactions is replaced by *NPR* in terms of shares traded and the 6-month *BHAR* is replaced by the 12-month *BHAR*, the result still shows that the informativeness of trading by core executives is not necessarily higher than that of trading by non-core executives. When using the number of shares traded to calculate *NPR*, the interactive variable *NPR*GH*CORE* is automatically eliminated by the statistical software STATA owing to the multicollinearity problem, and when *BHAR_12MONTH* is set as the dependent variable and number of shares traded is adopted to calculate *NPR*, there is a significant relation between *NPR*GH*CORE* and the dependent variable at the 10 percent level. To save space, the results are not tabulated.

Second, the monthly *NPR* is replaced by the 3-month *NPR* and 6-month *NPR*, respectively, to repeat the regression tests in Tables 6 and 7, and the conclusions remain unchanged. To save space, the results are not tabulated.

Finally, some Chinese empirical research studies have examined political connections with Communist Party Congress representatives (“party representatives” for short), members of the Chinese People’s Political Consultative Conference (CPPCC), and National People’s Congress (NPC) delegates, so a variable for this type of political connections is also added to the model in the robustness test. A president or CEO who is or was a party representative, a member of the CPPCC, or an NPC delegate at or above the municipal level is defined as a “high-level representative” and a party representative, a member of the CPPCC, or an NPC delegate at or below the county level as a “low-level representative”.⁹ Then, the variables for high-level and low-level representatives as well

⁹ The Communist Party Congress, the CPPCC, and the NPC consist of five levels: nationwide, province or municipality, prefecture-level city, county, and township. If Communist Party Congress representatives, NPC delegates, and members of the CPPCC at the prefecture level are classified as low-level representatives, the conclusions will remain unchanged. It should be noted that if presidents or CEOs have full-time job backgrounds or have acted as leaders in standing institutions of the party and the government, then they will be classified as having political connections as if they were government officials. If a president or CEO has acted only as a Communist Party Congress representative, an NPC delegate, or a member of the CPPCC and has not worked in any party or government offices, he/she will be classified as having low-level political connections.

Table 8 Robustness Test with the Whole Sample

Independent variables	Dependent variable: <i>BHAR</i>			Dependent variable: <i>BHAR_12MONTH</i>			Dependent variable: <i>BHAR_12MONTH</i>		
	<i>NPR = net purchase ratio in terms of shares traded</i>			<i>NPR = net purchase ratio in terms of transactions</i>			<i>NPR = net purchase ratio in terms of shares traded</i>		
<i>NPR</i>	0.006 (0.31)	0.024 (1.15)	0.024 (1.09)	-0.001 (-0.03)	0.023 (0.71)	0.026 (0.77)	-0.001 (-0.03)	0.023 (0.72)	0.026 (0.78)
<i>GL</i>	0.001 (0.01)	-0.006 (-0.12)	-0.017 (-0.36)	-0.002 (-0.03)	-0.005 (-0.07)	-0.018 (-0.26)	-0.002 (-0.02)	-0.005 (-0.07)	-0.018 (-0.26)
<i>NPR*GL</i>	-0.062 (-1.21)	-0.072 (-1.39)	-0.064 (-1.10)	-0.080 (-1.22)	-0.092 (-1.33)	-0.037 (-0.51)	-0.080 (-1.20)	-0.092 (-1.32)	-0.037 (-0.51)
<i>GH</i>	-0.014 (-0.54)	-0.017 (-0.68)	-0.021 (-0.84)	-0.016 (-0.37)	-0.017 (-0.41)	-0.021 (-0.53)	-0.016 (-0.38)	-0.018 (-0.42)	-0.021 (-0.55)
<i>NPR*GH</i>	0.065 ** (2.58)	0.062 *** (2.60)	0.072 * (1.88)	0.078 * (1.87)	0.074 * (1.81)	0.005 (0.12)	0.077 * (1.85)	0.073 * (1.79)	0.005 (0.12)
<i>PRVT</i>	-0.003 (-0.18)	-0.010 (-0.61)	-0.010 (-0.67)	0.036 (1.37)	0.020 (0.75)	0.016 (0.64)	0.036 (1.36)	0.020 (0.74)	0.016 (0.63)
<i>NPR*PRVT</i>	-0.009 (-0.57)	-0.004 (-0.23)	-0.012 (-0.75)	-0.024 (-0.89)	-0.013 (-0.49)	-0.025 (-0.92)	-0.024 (-0.90)	-0.013 (-0.50)	-0.025 (-0.94)
<i>NPR*PRVT*GL</i>			0.077 (0.85)			0.028 (0.34)			0.028 (0.34)
<i>NPR*PRVT*GH</i>			0.084** (1.99)			0.182** (2.34)			0.183** (2.35)
<i>ANALYST</i>		0.004 (0.40)	0.002 (0.28)		0.030** (2.02)	0.027* (1.85)		0.030** (2.00)	0.027* (1.83)
<i>NPR*ANALYST</i>		-0.024 *** (-3.50)	-0.021 *** (-2.96)		-0.031 *** (-2.90)	-0.030 *** (-2.66)		-0.032 *** (-2.94)	-0.030 *** (-2.69)
<i>NPR*ANALYST*</i>			-0.039 (-0.79)			-0.057 (-1.39)			-0.057 (-1.40)
<i>NPR*ANALYST*</i>			-0.019 (-1.33)			0.013 (0.66)			0.013 (0.64)
<i>GH</i>									
N	3,306	3,306	3,306	3,129	3,129	3,129	3,129	3,129	3,129
Adj R-sq	0.022	0.029	0.032	0.038	0.049	0.052	0.038	0.049	0.052

Note: All of the control variables in Table 6 are controlled for but are not presented in this table.

as their interactive variables with *NPR* are added to the model. The results show that political connections, whether with high-level or low-level representatives, have no influence on the informativeness of insider trading. To save space, the results are not tabulated.

VI. Conclusions and Implications

The reason why insider trading has attracted widespread attention from various parties in the market is that insiders can gain abnormal returns via their information superiority. Some studies mainly prove the existence of short-term abnormal returns from insider trading in China's listed companies, and some other studies test the medium-term abnormal returns from insider trading, but the measurement methods for abnormal return are not rigorous enough, and the literature does not consider the unique economic and institutional background of China in order to explore the influence of Chinese factors on the medium- and long-term returns on insider trading. This paper modifies the measurement methods to study the predictive ability of insider trading within a certain time for the medium- and long-term buy-and-hold abnormal return adjusted by portfolio return as well as the influence of political connections, analyst following, ownership nature of controller, and dealers' job positions on the informativeness of insider trading. The main conclusions are as follows. First, when basic factors like company size and the contrarian transaction effect are controlled for, insider trading behaviour (*NPR*) can predict the future medium- and long-term abnormal return, which means that insiders have utilised private information that affects the future medium- and long-term value of the company. When factors like political connections and analyst following are further controlled for, the predictive ability of insider trading for future return becomes insignificant.

Second, political connections, controller's ownership nature, and analyst following have a significant influence on the predictive ability of insider trading for future returns. In detail, the insider trading of companies with high-level political connections has significant informativeness, while there is no significant difference in terms of the informativeness of insider trading between companies with low-level political connections and companies without political connections. There is no difference in the informativeness of insider trading between private enterprises and SOEs, but the informativeness of the insider trading of privately controlled enterprises with high-level political connections is higher than that of SOEs with high-level political connections. Analyst following can obviously reduce the informativeness of insider trading, but in terms of the ability of analyst following to restrict insiders' ability to gain profit via

information superiority, there is no difference between companies with political connections and companies without political connections.

Third, the test for the subsample of transactions classified by the type of executives shows that there is no difference in terms of the informativeness of trading between core executives (including the president, CEO, and CFO) and non-core executives, but in companies with high-level political connections, the informativeness of trading by core executives might be higher than that of trading by non-core executives.

In addition, we also find that in companies with higher growth, the informativeness of insider trading is also higher and the influence of company size on the informativeness of insider trading is not significant. The influence of high-level political connections on the informativeness of insider trading is only restricted to the political connections of officials with job backgrounds in party and government departments, while the political connections of party representatives, NPC delegates, and members of the CPPCC do not affect such informativeness.

The implications of this paper for investors and regulators are as follows. First, the insider trading of China's listed companies represents the informativeness of the company's future medium- and long-term abnormal returns, so investors could construct investment portfolios to gain medium- and long-term abnormal returns by paying attention to and imitating the insider trading behaviour of listed companies, especially companies with high-level political connections. In regard to the controller's ownership nature, investors should pay more attention to and imitate the insider trading behaviour of privately controlled enterprises with high-level political connections.

Second, market regulators should vigorously cultivate and develop the securities analyst industry and reduce the information asymmetry on the stock market through the market surveillance of analysts. Meanwhile, they should monitor the trading behaviour of insiders (especially core executives) of companies with high-level political connections. Apart from seriously addressing the issue of illegal insider trading behaviour, they should also protect the price discovery function of legal insider trading so as to increase the pricing efficiency of the market.

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