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# Exchange trading rules, surveillance and suspected insider trading☆

Michael Aitken [a], Douglas Cumming [b], Feng Zhan [c]

[a] Macquarie Graduate School of Management, Macquarie University, NSW 2109, Australia
[b] York University, Schulich School of Business, 4700 Keele Street, Toronto, Ontario M3J 1P3, Canada
[c] John Carroll University, Boler School of Business, 1 John Carroll Boulevard, University Heights, OH 44118, United States

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ABSTRACT

We examine the impact of stock exchange trading rules and surveillance on the frequency and severity of suspected insider trading cases in 22 stock exchanges around the world over the period January 2003 through June 2011. Using new indices for market manipulation, insider trading, and broker–agency conflict based on the specific provisions of the trading rules of each stock exchange, along with surveillance to detect non-compliance with such rules, we show that more detailed exchange trading rules and surveillance over time and across markets significantly reduce the number of suspected cases, but increase the profits per suspected case.



## 1. Introduction

This paper addresses a central question at the intersection of law and finance: are rules and their enforcement effective at mitigating insider trading? Our approach differs from prior work in three important ways. First, we examine exchange trading rules that govern market conduct and relate these rules to insider trading. Second, we use recent changes in such rules that resulted from European directives to explore time series variation in the structure of exchange trading rules pertinent to insider trading and market manipulation. These changes were mandated by the European Commission and were not enacted in response to market manipulation

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*E-mail addresses:* m.aitken@cmcrc.com (M. Aitken), dcumming@schulich.yorku.ca (D. Cumming), fzhan@jcu.edu (F. Zhan).
*URL's:* http://ssrn.com/author=49920 (M. Aitken), http://ssrn.com/author=75390 (D. Cumming), http://ssrn.com/author=1570631 (F. Zhan).

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problems in any one country per se, thereby giving rise to a natural experiment with which to study the effectiveness of exchange trading rules. Third, we employ unique surveillance data in relation to insider trading and market manipulation. The surveillance data are based on alerts, or computer algorithms, used by surveillance authorities to detect instances or patterns of market manipulation. Our surveillance data cover a wide range of market manipulation and are used by sophisticated surveillance authorities to detect cross-product and cross-market manipulation. Unlike other studies on the impact of securities regulation, published and otherwise, we study the extent and timing of enforcement by considering surveillance.

We do not consider actual successful prosecutions of insider trading, but rather, suspected cases of insider trading, thereby avoiding international differences in selection bias as to which cases are prosecuted, and enabling an analysis of which policy mechanisms affect trading behavior. We distinguish between insider trading ahead of announcements from clear cases of market anticipation and thereby use data on suspected cases of insider trading applied by expert surveillance authorities in their ex post data analyses and assessment of market quality. Our analysis involves monthly data from 22 exchanges in 17 countries, including Australia, Canada, China, Germany, Hong Kong, India, Japan, Korea, Malaysia, New Zealand, Norway, Singapore, South Korea, Sweden, Switzerland, Taiwan, the United Kingdom (UK), and the United States (US) for the period January 2003 through June 2011. Insider trading data are compiled by the joint organizations Capital Market Cooperative Research Centre (CMCRC),[1] SIRCA,[2] and SMARTS Group Inc.[3] These organizations have both research and commercial interests in surveillance activities on many stock exchanges around the world.

An important aspect of this study involves the broad nature of insider trading and its detection. Insider trading can be facilitated by forms of market manipulation that are not, strictly speaking, by themselves insider trading. For example, spoofing, which involves giving up priority, switches, and layering of bids/asks, can be used to further illegal insider trades by creating other market distortions that would make insider trading more difficult to detect. Similarly, volume manipulation through churning and wash trades can likewise make the detection of insider trading more difficult. Therefore, the ability of an exchange to mitigate insider trading activity and profits from insider trading depend significantly on the overall rule structure of the exchange and the ability of the exchange to detect manipulation through domestic and cross-market surveillance.

An equally important aspect of this study is the difference between exchange trading rules and surveillance. Exchange trading rules are unambiguous and purposely made obvious to market participants, and they are very visible on each exchange's webpage. Surveillance activities, by contrast, are not made obvious, but can be estimated by market participants. If market participants knew exactly which computer algorithms were, or were not used, by surveillance authorities to alert them of breaches of trading rules, they could tailor their trades to avoid detection. Rules and surveillance together, therefore, have the potential to mitigate the perpetration of market manipulation or to exacerbate the profits from such manipulation according to the Becker (1968) economic model of crime (commit a crime if the expected benefits exceed the costs; see also Garfinkel and Nimalendran, 2003; Karpoff et al., 2008a,b, 2012; Brockman et al., 2009; Baker et al., 2010; Karpoff and Lou, 2010; Yu and Yu, 2011).

Based on the unique, and in some dimensions proprietary, data set in this study, we uncover a non-trivial role for exchange trading rules and surveillance in mitigating the number of suspected insider trading cases, but exacerbating the profits per case. In our most conservative estimates, a 1-standard-deviation improvement in trading rule specificity gives rise to a 23.43% reduction in the number of suspected insider trading cases and a 53.17% increase in profits per case. These findings are robust to numerous specifications, including but not limited to difference-in-differences regressions and two-stage instrumental variables regressions. Similarly, we conservatively estimate that a 1-standard-deviation improvement in surveillance gives rise to a 67.0% reduction in the number of cases and 26.3% increase in profits per case. Overall, the findings highlight complementarities across different trading rules and surveillance, and these complementarities are at least twice as important as stand-alone insider trading rules for predicting the frequency of insider trading cases; however, the complementarities are less economically important for predicting the trading value for surrounding the insider trading cases relative to stand-alone insider trading rules.

This paper is related to a substantial body of work in securities regulation that explores the question of whether securities laws and their enforcement facilitate more efficient markets with greater integrity. For instance, recent studies have shown a positive empirical link between securities regulation and capital raising (Jackson, 2007; Jackson and Roe, 2009; La Porta et al., 2006; Roe, 2006), and liquidity (Cumming et al., 2011).[4] More specifically in the area of insider trading however, the evidence is more varied and generally shows that insider trading laws are relatively less effective (the Cumming et al., 2015, provide an overview of some closely related papers).[5] Bris (2005) studies the adoption of insider trading laws across 54 countries from the 1960s through the 1990s and finds some evidence that such laws fail to mitigate the number of cases while increasing profits per case. Similarly, Beny (2005, 2007) and Bhattacharya and Daouk (2002, 2009) find evidence that insider trading laws do more harm than good when they are not properly enforced. The present paper complements this literature by examining, for the first time, whether surveillance (computer-based alerts based on algorithms) and exchange trading rules across countries and time mitigate insider trading activity.

[1] http://www.cmcrc.com/.
[2] http://www.sirca.org.au/display/SBX/Home.
[3] http://www.smartsgroup.com/.
[4] See also, e.g., Aggarwal (2001), Aggarwal and Wu (2006), Allen and Gale (1992), Allen and Gorton (1992), Bebchuk and Fershtman, 1994, Comerton-Forde and Rydge (2006), Daouk et al. (2006), DeMarzo et al. (2005), Gerard and Nanda (1993), Hillion and Suominen (2004), Jarrell and Poulsen, 1989, Jarrow (1992, 1994), La Porta et al. (1997, 1998, 1999, 2002, 2006), Mahoney (1999), Merrick et al. (2005), Meulbroek, 1992, Ni et al. (2005), Peng and Röell (2009), O'Hara and Mendiola (2003), Pirrong (1993, 1995a,b, 1999, 2004), Pistor et al. (2003), Pistor and Xu (2003, 2005), Pritchard (2003), Reiffen and Robe (2007), Romano (2001, 2002).
[5] For other recent related work, see Garfinkel (1997), Hillier and Marshall (2002); Daouk et al. (2006), Brockman et al. (2014), Agrawal and Cooper (2015), Augustin et al. (2014), Atanasov et al. (2015), Bernile et al. (this issue), and Hass et al. (2015). See also Aharony et al. (2015), Aitken et al. (2015), Vismara et al. (2015), and Zhou and Reesor (2015).

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