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# More insiders, more insider trading: Evidence from private-equity buyouts<sup>☆</sup>

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## ABSTRACT

Prior theoretical research has found that, in the absence of regulation, a greater number of insiders leads to more insider trading. We show that optimal regulation features detection and punishment policies that become stricter as the number of insiders increases, reducing insider trading in equilibrium. We construct measures of the likelihood of insider activity prior to bid announcements of private-equity buyouts during the period 2000–2006 and relate these to the number of financing participants. Suspicious stock and options activity is associated with more equity participants, while suspicious bond and CDS activity is associated with more debt participants — consistent with models of limited competition among insiders but inconsistent with our model of optimal regulation.

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## 1. Introduction

The unprecedented buyout wave in the first part of this decade was accompanied — if press accounts are to be believed — by an unprecedented degree of insider trading. (Section 3.2 below summarizes some of the informal studies documenting this trend.) Perhaps this is merely a

matter of scale: a larger number of deals means more opportunities for insider trades. However, a plausible alternative is that a novel characteristic of the buyout wave — larger financing syndicates — played a role in fostering a greater degree of information exploitation. This possibility has not escaped the attention of industry observers: the use of larger pools of participants on both the debt and equity sides (compared to similar deals in the past) naturally means that there have been more people with advance knowledge of the deals. It almost seems like a truism to observe that having more insiders should lead to more insider trading.

Yet this hypothesis is both untested and, upon reflection, not actually self-evident. Is it really clear that 20 insiders will exploit the same information to a greater extent than would 10? Might this not lead to a greater likelihood of detection and punishment? More generally,

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how is insider trading affected by the *joint* effects of competition and regulation?

Absent regulation, if insiders have the same information (e.g., advance knowledge of a takeover bid) and trading is continuous, any number  $N > 1$  of informed traders will drive prices immediately to their full-information level. Holden and Subrahmanyam (1992) and Back, Cao, and Willard (2000) show this in the case of homogeneously informed risk-neutral insiders in discrete-time and continuous-time settings, respectively. Holden and Subrahmanyam (1994) and Baruch (2002) further show in discrete-time and continuous-time settings, respectively, that if insiders are risk-averse, then the effect is even stronger since the risk-averse informed trader is concerned about future price risk from uncertain noise trades. The aggressive nature of insider trading induced by multiplicity of insiders is weaker in the model of Foster and Viswanathan (1996), in which traders have heterogeneous information and therefore continue to retain some monopoly power. The result on more insiders leading to more insider trading would also obtain in a one-time exchange if insiders engaged in Bertrand competition. This could occur, for instance, if the informed players were also dealers who compete via price for limited uninformed order flow, in what seems a reasonable depiction of some markets, such as the credit derivatives market.

This intuition, however, cannot be applied to most markets, since insider trading is, in fact, regulated by explicit enforcement regimes. Whether or not a greater number of insiders will lead to more insider trading generally must depend upon (among other things) the nature of the enforcement regime and the penalty functions that insiders face. To take a simple example, suppose regulators investigate a deal if and only if the pre-deal volume of stock trades exceeds a known and fixed threshold,  $V$ , and that, conditional on an investigation being initiated, detection and (dire) punishment are certain. The equilibrium outcome is that  $N$  informed traders each trade up to  $V/N$  shares, so that total trading does not rise with  $N$ . In fact, it is not difficult to see that such an enforcement regime might even be *optimal*: commitment to a ceiling on illegal trade creates a negative externality of each insider's trade on other insiders and this makes the ceiling to some extent self-enforcing.

Optimal regulation of insider trading, in the case of a single insider, is studied by DeMarzo, Fishman, and Hagerty (1998). We develop a model that generalizes the setting of that paper to  $N$  insiders. In the decision to trade, each insider ignores the cost imposed on other insiders in approaching the enforcement ceiling. This effect induces greater insider trading and lower liquidity (unless checked by regulation). We show formally that, under a fairly general set of conditions, the optimal regulation features an enforcement ceiling that gets *stricter* as the number of insiders increases. We conclude that empirical evidence of insider trading increasing with the number of insiders is unlikely to be consistent with optimal enforcement.

The empirical part of the paper provides an opportunity to investigate these issues in a setting that is

attractive along a number of dimensions. We study trading activity in stocks, options, bonds, and CDS markets over the period 2000–2006 for the interval immediately preceding buyout announcements by private-equity acquirors of public firms in the United States.<sup>1</sup> Prior to a bid announcement, there is a well-defined set of players that possess valuable, short-lived, non-public information. The number of informed parties has nothing to do with information production: the quantum of information is the same for all deals. Moreover, reputation considerations are also unlikely to play a large role because information can be exploited anonymously in the stock and options markets. On the other hand, insider trading is definitely illegal and subject to severe penalties for bonds, stocks, and options.

Our primary findings are that insider trading in stock and options markets is more likely if there is a larger size of equity syndicate, whereas insider trading in CDS and bond markets is increasing in the size of debt syndicates. These results imply that insider trading becomes more likely with more insiders in spite of the presence of regulation. (We stress that we do not claim that any of the entities we count is literally guilty of prohibited activity.)

Our preferred explanation concerns the *nature* of the enforcement regime. If each potential insider regards the likelihood of detection (and the probable penalty upon detection) as independent of the number  $N$  of insiders, then one would expect a rising number of informed players to result in a rising amount of illegal behavior. Our model in fact implies that such a regime is suboptimal because the harm to market liquidity from allowing more insiders to trade can be efficiently avoided by imposing an enforcement ceiling. We conclude that our evidence is consistent with recent claims in the financial press that the enforcement of insider trading preceding the leveraged buyouts of public firms has not adjusted to the evolving institutional structure of such buyouts, particularly with regard to the increasing number of insiders.

Beyond this theoretical explanation, it also seems clear that allowing the total amount of informed trading to rise with  $N$  creates dangerous incentives. To the extent that insiders can *choose*  $N$  — e.g., one can always tip off one's friends — there could be a positive net benefit to doing so. If expected individual punishment actually weakens with  $N$ , this would create an externality, making it safer for more agents to trade together.<sup>2</sup>

<sup>1</sup> Acharya and Johnson (2007) also examine the possibility that insider trading increases with the number of insiders by analyzing the CDS market. However, the exclusive focus on the CDS setting is not the most attractive for issues we examine. For all practical purposes, there is no regulatory effort to curb such activity in the CDS markets, and any self-regulation is achieved only through recommended practices and implicit contracts with counterparties and other insiders, e.g., syndicate banks. Acharya and Johnson (2007) hypothesized that the number of banks with access to private information about a borrower would contribute to the amount of suspicious activity, documenting supportive empirical evidence.

<sup>2</sup> Such a policy would entail a social dimension to insider trading, as hypothesized by Glaeser, Sacerdote, and Scheinkman (1996) and Sah (1991), raising the possibility of “crime wave” equilibria. In a recent paper, Bond and Hagerty (2005) study such possibilities, and show how particular enforcement regimes might promote them.

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