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Focus: Inside Trading

# Effects of insider trading under different market structures

Neelam Jain[a,*], Leonard J. Mirman[b]

[a]*Jesse H. Jones Graduate School of Management, Rice University, Houston, TX 77251, USA*
[b]*Department of Economics, University of Virginia, Charlottesville, VA 22901, USA*

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**Abstract**

In this paper, we study the relationship between the market structure in the real sector and the effects of insider trading. We find that the market structure in the real sector matters. When the monopolist insider chooses the price of the real good rather than the output, insider trading increases the price rather than the quantity. When the insider competes with another firm in the real sector, and chooses quantity, the output increases due to insider trading but by less than in monopoly models. In addition, the stock price is more informative than in monopoly models. © 2002 Board of Trustees of the University of Illinois. All rights reserved.

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## 1. Introduction

The debate on the effect, as well as the value, of trading on financial markets by agents who have inside information has a long history. Much of the debate has centered on two issues. The first is fairness: should an individual who has inside information about the activities of a firm be able to trade on that information at the expense of individuals without that information? The second deals with the dissemination of information. For efficient markets it is necessary that all information be disseminated and then evaluated by all agents. It is argued that the role of the insider is to help disseminate information and therefore the

* Corresponding author. Tel.: +1-713-348-5392; Fax: +1-713-348-5251.
*E-mail address:* jain@rice.edu (N. Jain).


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gain of the insider is merely a payoff to releasing this private information. Indeed, this informational effect is precisely what has been captured by Kyle (1985) in his seminal work on insider trading. However, there is another effect of insider trading, namely, the relationship between the financial decisions made by the insider and the 'real' activities of the firm. In particular, the insider's ability to make real decisions affects the financial markets just as insider trading affects the real output and the price of the good.

The question of the relationship between the real and financial effects of insider trading has been studied recently in Jain and Mirman (2000) (henceforth, JM) in the context of Kyle's model of insider trading. In Kyle's model, the insider is assumed to know the value of the firm (which is drawn from a normal distribution) but has no effect on the decisions of the firm. In JM, the insider is modeled as a manager, as well as a trader in the stock, of the firm. In this way, the manager can influence the real decisions of the firm changing the value of the firm in the financial markets, while maximizing his own profits on the financial market. This manipulation has an effect on the firm' profit and thus on its 'real' value. The market valuation of the firm is determined by a perfectly competitive market maker, who in Kyle's model sees only the order flow of the insider and the noise traders. However, in JM, the market maker also sees other sources of information, for example, the firm's price in the real sector may be public information and contain valuable signals for pricing the stock. In JM, the insider is a quantity-setting monopolist and sets a quantity higher (and average price lower) than would a monopolist without insider trading.

Despite the fact that there is an important relationship between real and financial market variables in JM, the result that output is higher due to insider trading must be interpreted carefully. In JM, there is an important relationship between the 'real' signal (a price observation in JM) and the incentive for the firm to produce more in order to signal a lower value of the firm and therefore a lower stock price, enabling the insider to make higher profits. Indeed, it is the purpose of this paper to show that the market structure and the 'real' signal observed by the market maker are important in determining the real and financial effects of insider trading.

We refine the results obtained in JM by examining the role of the market structure in the real sector. In particular, we show that the real effect of insider trading is sensitive to the type of market structure in which the firm operates and the signals available to the market maker from the real sector. We also show that increased competition in the real sector (for example, duopoly) changes the stock pricing function significantly and makes the stock price even more informative than in the monopoly models (of Kyle and JM). Finally, the increased information release has the effect of lowering the profits of the insider compared to JM and models in which the market maker sees only the total order flow (henceforth, the Kyle-type models). The comparison with JM is interesting since it implies that the competition in real sector leads to lower profits from the financial sector, thus emphasizing the informational link between the two sectors. The comparison with Kyle-type models reinforces the result in JM that the insider's inability to manipulate the signal from the real sector leads to a higher information revelation and lower profits.

In this paper, we present two models of insider trading based on two different market structures in the real sector. The purpose is to study the effect of market structure on how insider trading affects the real as well as the financial variables. In the first model, the insider