

# **Insider Trading: Regulation, Deregulation, and Taxation**

by

**Dr. Javier Estrada,** Professor at the University Carlos III (Madrid)

Dear Colleague,

I apologize for the somewhat incoherent Abstract, which was correct when I proofread the paper but came out altered upon publication. The Abstract should read:

I consider in this paper the impact of insider trading regulation (ITR) on a securities markets and on social welfare, and suggest that society would be better off if ITR were eliminated. In addition, acknowledging that such an abrupt change in policy is not likely to be made, at least in the short run, I propose two alternative policies, both consisting of allowing insider trading and imposing a redistributive scheme. To conclude, I outline the elements of an optimal policy toward insider trading.

My apologies and best regards,

Javier Estrada

## Insider Trading: Regulation, Deregulation, and Taxation

by Prof. Dr. Javier Estrada, Professor at the University Carlos III (Madrid)\*

*This paper considers the impact of insider trading regulation (ITR) on securities markets and on social welfare, and suggests that society would be better off if ITR were eliminated. In addition, acknowledging that such an abrupt change in policy is not likely to be made, at least in the short term. Two alternative policies, both consisting of allowing insider trading and imposing a redistributive scheme. To conclude, the elements of an optimal policy toward insider trading are outlined.*

*L'auteur examine l'impact des dispositions relatives aux transactions d'initiés sur les marchés financiers, ainsi que leur coût social. Bien que cette analyse laisse penser que l'on ferait mieux d'abolir de telles dispositions, l'auteur reconnaît qu'une telle évolution est politiquement délicate. Il suggère dès lors une mesure moins radicale: permettre les transactions d'initiés à condition qu'elles fassent l'objet d'une taxation garantissant une redistribution des profits.*

*Der Autor prüft die Auswirkungen der Insidergesetzgebung auf den Wertpapiermarkt und die Volkswirtschaft allgemein und beurteilt sie im ganzen negativ. Als Übergangslösungen anstelle einer sofortigen Abschaffung werden zwei Konzepte vorgestellt, welche die Zulassung des Insiderhandels mit Umverteilungsmechanismen verbinden.*

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### I. Introduction

Directive 89/592/EEC issued by the Council of the European Communities on November 13, 1989, set in motion regulatory forces seeking to prohibit insider trading in all member states. Other countries not belonging to the European Community (now the European Union) have also recently enacted regulations restricting insider trading. For example, Switzerland enacted legislation on July 1, 1988, through Article 161 of the Swiss Penal Code, and Sweden in February 1, 1991, through the Insider Act. In the United States, regulations and court decisions restricting in-

sider trading have been accumulating for almost a century.<sup>1</sup>

The current regulatory process invites the obvious question of whether insider trading regulation (ITR) has any social value. It should be noticed from the outset that, regardless of the fairness arguments with which governments seem to justify its imposition, ITR affects economic efficiency, and therefore social welfare. The impact of ITR on social welfare is the main issue discussed in this paper. Hoping to reach a broad audience, in particular lawmakers, I have chosen to present my arguments and their policy implications informally; that is, without deriving them from a formal, mathematical model. Most of the issues discussed in this paper, however, are formally addressed in Estrada (1993a, 1993b, and 1993c).<sup>2</sup>

The impact of ITR on a securities market is generally analyzed through the impact of this regulation on

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<sup>1</sup> American statutory regulation on insider trading began with the Securities Exchange Act of 1934, but common law decisions had been constraining insider trading long before. See, for example, *Strong v. Repide*, 213 U.S. 419 (1909).

<sup>2</sup> Insider trading and its regulation have received a great deal of attention from legal scholars. An impressive amount of informal work, mostly published in law journals, followed the pioneering work by Manne (1966).

some of the market's characteristics. The discussion concerning the relationship between ITR and securities markets focusses on three characteristics which are usually recognized as highly relevant, namely, market liquidity, informational efficiency, and price volatility. However, for reasons to be discussed below, these market characteristics cannot be used as valid policy targets.<sup>3</sup> Thus, I address below the most basic and critical question about the regulation of insider trading: *Does ITR make society better off or worse off?* Or, put differently, does the imposition of ITR increase or decrease social welfare? Note that this question does not focus on the impact of ITR on a securities market. Rather, it focusses on the impact of this regulation on a more fundamental issue, namely, social welfare.

I argue below that ITR decreases social welfare for three reasons: First, it increases the volatility of securities prices, thus making a securities market more risky. Second, it worsens the dispersion of risk among investors. And, third, it diverts resources from the production of goods and services to the production of regulation. Thus, since the first two effects have (as will be explained below) a negative impact on social welfare, then the imposition of ITR may be thought of as a reallocation of resources from an activity that creates utility (production) to an activity that actually destroys utility (regulation).

It is usually believed that the elimination of ITR would imply the absence of all regulations on insider trading. But that is not necessarily true; it would only imply the absence of *public* regulation. I argue below that an unregulated market may yield an optimal decision about whether or not to allow insider trading. The two mechanisms I consider that make this possible are the private bargaining between managers and shareholders, and a competitive market for corporate control.

Finally, acknowledging that due to the existence of a regulatory trend there may be no government prepared to deregulate insider trading completely, I con-

sider below two alternative policies, both consisting in allowing insider trading and imposing a redistributive scheme. Thus, the two policies analyzed combine the beneficial efficiency effects of eliminating ITR with the fairness considerations necessary to make the policy appealing to lawmakers. To conclude, I outline the elements that need to be considered when designing an optimal policy toward insider trading.

Throughout the paper, I will implicitly assume that ITR prevents at least some insiders from trading on the basis of inside information. If this were not the case (that is, if ITR had no deterrent impact), then there would be no reason for imposing such a regulation. Also throughout the paper, I will refer to a securities market under ITR as a *regulated* market, and to a securities market without ITR as an *unregulated* market.

The rest of the paper is organized as follows. In part II, I analyze the impact of ITR on a securities market. In part III, I evaluate its impact on social welfare. In part IV, I consider whether private regulation of insider trading is feasible. In part V, I propose two alternative policies, and outline the elements of an optimal policy toward insider trading. And, finally, in part VI, I summarize the most important conclusions of the analysis.

## II. Insider Trading, Regulation, and Securities Markets

The impact of ITR on a securities market can be analyzed through the impact of this regulation on some of the market's characteristics. The analysis below focusses on three characteristics which are usually acknowledged as highly relevant: market liquidity, informational efficiency, and price volatility.

### 1. Insider Trading, Regulation, and Market Liquidity

Market liquidity is not an easy concept to define. This is due to the fact that, as argued by Kyle (1985), liquidity encompasses several transactional properties of a securities market.<sup>4</sup> A practical definition, which will suffice for the purposes of this paper, relates

See, for example, *Scott* (1980), *Carlton and Fischel* (1983), *Easterbrook* (1985), *Haddock and Macey* (1987), and *Macey* (1991). The interest of economists and financial economists on the topic, on the other hand, is more recent and followed the pioneering work by *Kyle* (1985).

<sup>3</sup> It does not follow that analyzing the impact of ITR on a securities market is irrelevant. This is due to the fact that market liquidity, informational efficiency and price volatility, among other market characteristics, affect the welfare of investors.

<sup>4</sup> Three of these transactional properties are: tightness (the cost of reverting a trade in a short period of time), depth (the size of the market order required to change prices by a given amount), and resiliency (the speed with which prices recover from an uninformative shock).

market liquidity to the change in a security's price that follows the arrival of a market order; the larger this change in price, the lower the liquidity of the market. Thus, an infinitely liquid market is one in which an investor can buy or sell as many shares of a security as he wants without affecting that security's price.

The imposition of ITR on an unregulated market has a beneficial impact on market liquidity. This impact can be better understood by considering the role of the market maker; that is, the individual who sets the price at which a security is traded. Note, first, that the market maker possesses no inside information; hence, he is bound to lose in transactions with insiders. Note, further, that the market maker protects himself against this expected loss by increasing the change in price with which he responds to the arrival of a market order.<sup>5</sup> Note, finally, that this change in price is increasing in the number of insiders in the market.<sup>6</sup> Therefore, since ITR drives some insiders out of the market, the market maker responds to the imposition of this regulation by reducing the change in price with which he responds to the arrival of a market order; that is, by increasing market liquidity.<sup>7</sup>

## 2. Insider Trading, Regulation, and Informational Efficiency

The informational efficiency of a securities market is related to the amount of information reflected by securities prices. Its importance stems from its direct relationship to the allocative efficiency of the economy; for, the larger the amount of information reflected by securities prices, the better a securities market can perform its function of directing the capital of the economy to its most efficient uses. Therefore, since ITR reduces the flow of inside information channelled into securities prices, it reduces the

amount of information reflected by these prices, thus hindering the informational efficiency of the market, and, as a consequence, the allocative efficiency of the economy.

The argument that insider trading has a beneficial impact on the informational efficiency of a securities market was initially suggested by Manne (1966) and is supported by recent empirical evidence. Meulbroek (1992) finds that the cumulative abnormal return on insider trading days is roughly half as large, and in the same direction, as the reaction of securities prices to the public announcement of nonpublic information. In other words, insider trading corrects prices significantly *and* in the right direction.<sup>8</sup> This result is confirmed by Cornell and Sirri (1992).

## 3. Insider Trading, Regulation, and Price Volatility

The volatility of a security's price is associated to the fluctuations of the price of the security around the average price, over a given period of time.<sup>9</sup> The imposition of ITR reduces the flow of inside information channelled into securities prices, thus magnifying the reaction of these prices produced by the public announcement of nonpublic information. This magnified reaction, in turn, implies an increase in the volatility of securities prices; that is, it makes securities more risky.

In order to understand the relationship between insider trading and price volatility, consider the following example. Consider a security currently trading at \$ 2 a share. Assume that the firm that issued such a security has just discovered a new technology that will enable the firm to reduce production costs significantly. Assume, further, that the increase in the value of the firm due to the application of the new technology is such that the price of the firm's securities should increase to \$ 10 a share. Assume, finally, that the announcement of the discovery of the new technology

<sup>5</sup> The market maker can alternatively be thought of as protecting himself from insiders by increasing the bid-ask spread of a security.

<sup>6</sup> This follows from the obvious fact that the probability that a market order comes from an insider (that is, the probability that the market maker loses in a transaction) is increasing in the number of insiders in the market.

<sup>7</sup> For an opposite (empirical) result, see *Cornell and Sirri* (1992), who report that insider trading *increases* market liquidity. This result seems to follow from the fact that an increase in informed trading is (empirically) associated to an increase in uninformed trading, the latter being induced by the former. *Cornell and Sirri* (1992) further report that, contrary to theoretical results, insider trading does not seem to induce market makers to increase bid-ask spreads.

<sup>8</sup> For an opposite point of view, see *Fishman and Hagerty* (1992), who suggest that if ITR were eliminated securities prices could become less efficient. In their framework, insider trading hinders the informational efficiency of a securities market when it deters a sufficiently large number of market analysts, who withdraw from the market thus ceasing to acquire (costly) information. No empirical evidence is presented to support their theoretical conclusion.

<sup>9</sup> Technically, price volatility is measured by the standard deviation of a series of securities prices. That is, by  $[\text{Var}(\tilde{p})]^{1/2} = \{(1/n) \sum_{i=1}^n [p_i - E(\tilde{p})]^2\}^{1/2}$ , where  $\tilde{p}$  denotes the series of prices,  $p_i$  a given price, and  $n$  the number of observations in the series.

will be made at the end of the month. If ITR is fully effective, the security's price will remain at \$ 2 until the end of the month, and will jump to \$ 10 on the announcement day. Thus, the security has a mean price of \$ 6 and a standard deviation of \$ 4 during this period.<sup>10</sup> If insider trading is allowed, on the other hand, insiders will gradually correct, through their trading, the security's price in the right direction, thus reducing the reaction of the security's price on the announcement day. Assume that during the month insiders trade twice, pushing the security's price to \$ 5 after the first time they trade, and to \$ 7 after the second time they trade. Under these circumstances, the security still has a mean price of \$ 6, but a standard deviation of only \$ 2.92.<sup>11</sup> Therefore, insider trading reduces the volatility of securities prices.

In sum, the imposition of ITR has both beneficial and detrimental effects on a securities market. To conclude, the results established in this part are summarized in the following proposition:

**Proposition 1:** *The imposition of ITR on a securities market has three important effects: 1) It increases market liquidity; 2) it decreases the informational efficiency of the market; and, 3) it increases the volatility of securities prices.*

### III. Insider Trading, Regulation, and Social Welfare

Although it is important to understand the impact of ITR on a securities market, there exist serious problems with using market characteristics as the basis of policy decisions. Recall that, as argued above, ITR has a beneficial impact on market liquidity and a detrimental impact on informational efficiency. Thus, the problem is which of the two should be used as the target on which to decide whether the market should be regulated or not. Should the market be regulated to enhance market liquidity, or deregulated to enhance informational efficiency? Or, put differently, is market liquidity more or less important than informational efficiency?

Obviously, there is no easy way out of such a puzzle, if there is a way out at all. It is in fact very difficult, if not impossible, to argue that market liquidity is more important than informational efficiency, or the other way around. Fortunately, this does not mean that one of these two market characteristics (or any other for that matter) has to be arbitrarily chosen as a policy target, and that one must regulate or deregulate a securities market by considering the impact of ITR on such a characteristic. There is, in fact, a better way to decide whether or not insider trading should be allowed.

In the first class of the first course in Economics, students are taught that Economics is about the allocation of resources among competing ends in order to maximize the welfare of society. Although many economists seem to forget that first and critical lesson quickly, it provides the optimal way to determine whether or not a securities market should be regulated. This is due to the fact that the most basic and critical question about the regulation of insider trading is: *Does ITR make society better off or worse off?* Or, put differently, does the imposition of ITR increase or decrease social welfare?<sup>12</sup> Surprisingly, this question, which, again, is basic and critical, has been virtually ignored in the literature on insider trading.<sup>13</sup> And yet it is hard, if not impossible, to conceive a better way to decide whether or not ITR should be imposed than by answering such a question. The analysis that follows suggests that, for three reasons, ITR makes society worse off.<sup>14</sup>

<sup>10</sup> The mean price of the security is simply the average of the two prices. The standard deviation of the security, on the other hand, is given by  $\{(1/2)*[(2-6)^2 + (10-6)^2]\}^{1/2} = 4$ .

<sup>11</sup> The mean price of the security is simply the average of the four prices. The standard deviation of the security, on the other hand, is given by  $\{(1/4)*[(2-6)^2 + (5-6)^2 + (7-6)^2 + (10-6)^2]\}^{1/2} = 2.92$ .

<sup>12</sup> Social welfare may be thought of as the sum of the welfare of all members of society, the welfare of each member being given by his own utility function. It suffices for the purposes of this paper to think of society as being divided into two types of individuals: investors (who participate in the securities market) and noninvestors (who do not participate in the securities market). ITR affects the latter only through the tax that these individuals would have to pay to bear the cost of ITR. If, to simplify, this tax is assumed to be a negligible proportion of each noninvestor's wealth, then ITR would have no impact on their welfare. Hence, social welfare may be thought of as the sum of the welfare of all investors in the market.

<sup>13</sup> To the best of my knowledge, only *Ausubel* (1990), *Le-land* (1992), and *Estrada* (1993a, 1993b and 1993c) have addressed the impact of ITR on social welfare. Some other papers do consider the impact of ITR on the welfare of some investors (*Spiegel* and *Subrahmanyam*, 1992) but fail to perform a full welfare analysis.

<sup>14</sup> For the first two arguments to hold, it needs to be assumed that investors are risk averse. Such an assumption,

Recall that it was established in the previous part that the imposition of ITR increases price volatility, thus making a securities market more risky. As argued above, this is due to the fact that ITR reduces the flow of inside information channelled into securities prices, thus increasing the reaction of these prices caused by the public announcement of nonpublic information. Everything else being equal, this increase in price volatility imposes a cost on risk-averse investors, thus decreasing their welfare. Such is the first detrimental effect of ITR on social welfare.

A second detrimental effect of ITR on welfare is given by the decrease in the dispersion of risk (risk sharing) among investors.<sup>15</sup> It is important to notice at this point that ITR not only prevents insiders from trading; it also prevents them from bearing risk. This point is usually ignored by those analyses that focus on the wealth (rather than on the risk) reallocation generated by ITR. Note that, once ITR is imposed and some insiders are driven out of the market, the risk that stems from the volatility of securities prices is born by fewer investors. Hence, even if the regulated market and the unregulated market were equally risky, the cost of risk would be higher in the regulated market. Thus, the decrease in risk sharing that stems from the reduction of insiders in the market is a second detrimental effect of ITR on welfare.<sup>16</sup>

Finally, a third detrimental effect of ITR is that of diverting resources from the production of goods and services to the enforcement of this regulation. For, if the regulation is expected to be effective, resources

would have to be allocated to monitor the behavior of insiders. The decrease in the amount of goods and services that stems from the decrease in the amount of resources allocated to production has an obvious negative impact on social welfare. It is important to recall at this point that the previous discussion established that ITR increases the riskiness of the market and worsens the risk sharing among investors, thus decreasing social welfare. Therefore, the imposition of ITR may be thought of as a reallocation of resources from an activity that creates utility (production) to an activity that destroys utility (regulation).

A concluding caveat is in order. It may seem that risk-related arguments are only theoretical curiosities; but that is far from being the case. Risk is, without a question, one of the variables that concerns investors the most. To illustrate, Harry Markowitz was awarded the Nobel prize in Economics in 1990 for developing a technique that enables investors to minimize the risk of their portfolios given any desired level of return. William Sharpe was also awarded the Nobel prize in Economics in 1990, largely for developing a model that relates the required rate of return of an asset to its level of risk. And, needless to say, both contributions had (and still have) a remarkable impact on practitioners.

To conclude, the unambiguous answer to the basic question posed above, as well as the three welfare results established in this part, are summarized in the following proposition:

**Proposition 2:** *The imposition of ITR has three important welfare effects: 1) It increases price volatility, thus making a securities market more risky; 2) it worsens the risk sharing among investors; and, 3) it diverts resources from an activity that creates utility (production) to an activity that destroys utility (regulation). That is, the imposition of ITR makes society worse off.*

#### IV. Public Regulation and Private Regulation

It is usually believed that the absence of ITR would enable insiders to exploit their informational advantage without restrictions, thus imposing significant costs on uninformed traders. However, this does not have to be the case. The elimination of ITR would imply the elimination of *public* regulation; it would not necessarily imply the absence of *private* regulation. In fact, the elimination of ITR would open the

which is usually undisputed, can be easily understood by thinking of the utility of a risk-averse investor as increasing in the expected return, and decreasing in the risk, of his portfolio.

<sup>15</sup> It is a well-established result in economics that, given a certain amount of risk, the aggregate *cost* of the risk decreases with the number of individuals among whom the risk is shared. It is important not to confuse risk, which depends on the volatility of securities prices, with the *cost* of risk, which depends on the utility function of each investor.

<sup>16</sup> Admittedly, besides driving some insiders out of the market, the imposition of ITR may attract some new investors, in particular some liquidity traders. Note, however, that casual empiricism suggests that insiders are significantly less risk-averse than liquidity traders. As a consequence, the imposition of ITR would reduce the number of investors who bear risk at a low cost (insiders) and increase the number of investors who bear risk at a high cost (liquidity traders). Hence, the cost of the risk borne by investors would be higher in the regulated market.

door to regulation through private contracting within firms, whenever this contracting is feasible.<sup>17</sup>

The question of whether insider trading should be allowed or not is in many ways identical to the question of whether the property right on corporate information should belong to the managers or to the shareholders of a corporation. For, if this property right belonged to the managers, then they would be free to use corporate information; whereas if it belonged to the shareholders, managers would be prevented from using such information to their own advantage. Carlton and Fischel (1983) were the first to suggest that the decision whether or not to allow insider trading should be left to the private negotiations between managers and shareholders. For, as implied by the Coase theorem, if transaction costs are low, these negotiations will yield the optimal allocation of the property right on corporate information; that is, they will yield the optimal decision about whether or not to allow insider trading.<sup>18</sup>

If, on the other hand, transaction costs are high, the negotiations between managers and shareholders would not take place. This does not imply, however, that an optimal private decision about whether or not to allow insider trading cannot be reached. In fact, as long as the market for corporate control is competitive, such an optimal decision *can* be reached. To see this point, consider two firms identical in every aspect *except* in the allocation of the property right on corporate information; that is, except in the fact that one allows insiders to trade on the basis of corporate information and the other does not. Note that, under these circumstances, any difference in the profitability of these two firms can be due only to the different allocation of the property right on corporate information. Note, further, that the firm with the efficient allocation of this property right (or any other firm for that matter) has an incentive to take over the firm with the inefficient allocation, reallocate the property right, and make a profit. Therefore, in the long run, only the firms that have made the optimal allocation of the property right on corporate information (that

is, that have taken the optimal decision about whether or not to allow insider trading) will survive.<sup>19</sup>

Note that neither the decision arrived at through private bargaining nor that forced by a competitive market for corporate control necessarily implies that all firms will make the same allocation of the property right on corporate information; that is, the same decision about whether or not to allow insider trading. In fact, one of the beneficial aspects of private regulation is its flexibility; that is, the possibility given to each firm of adopting its optimal set of regulations. Thus, under private regulation, some firms may allow insider trading, some others may prohibit it, and some others may allow it only to some extent. Clearly, such optimal different decisions cannot be reached in a regime that imposes a uniform regulation on every firm.

To conclude, the implications of eliminating ITR and enabling the private regulation of insider trading are summarized in the following proposition:

**Proposition 3:** *In the absence of ITR, either the private negotiations between managers and shareholders, or the incentives provided by a competitive market for corporate control, would lead firms to make an optimal allocation of the property right on corporate information; that is, an optimal decision about whether or not to allow insider trading.*

## V. Optimal Regulation of Insider Trading

It should be clear at this point that the arguments advanced so far suggest that insider trading should be deregulated; that is, that ITR should be eliminated. It should also be clear that such deregulation is not very likely to occur, at least in the short run. This is due to the fact that the lack of popularity of insider trading has led many governments to strengthen (rather than to relax) the regulations on this activity. Therefore, a policy recommendation of allowing insider trading, however desirable from an efficiency point of view, would not gain any political support. Put differently, a recommendation to eliminate ITR based on efficiency considerations is politically feasible only if it is combined with some complementary policy based on fairness considerations. The two policies considered below fulfill this requirement.

<sup>17</sup> For, as is well known, high transactions costs would prevent the formation of these contracts.

<sup>18</sup> On the relationship between the allocation of property rights and transaction costs, see the pioneering paper by Coase (1960), one of the most widely-cited papers in Economics.

<sup>19</sup> This argument does require a leap of faith. It may also be more appropriate for the American (rather than for the European) market for corporate control.



### 1. A Tax on Insider Trading Profits

A policy that takes into account both efficiency considerations and fairness considerations consists of allowing insider trading and taxing insider trading profits. Estrada (1993c) considers the impact of this policy on a securities market and on social welfare in detail, and shows that social welfare is higher in a regime under such a policy than in a regime under ITR.

The beneficial effects of the first part of the policy (allowing insider trading) are the same as those discussed above: First, the inside information channelled into securities prices decreases price volatility, thus making a securities market less risky. And, second, the participation of insiders in the market improves the risk sharing among investors. The imposition of an *ex-post* tax on insider trading profits, however, would require society to divert some resources to enforce compliance with such a tax.

As argued above, a recommendation to eliminate ITR, however desirable from an efficiency point of view, is not politically feasible by itself. However, the policy under consideration should appeal to lawmakers because, besides increasing social welfare, it takes into account redistributive concerns. This follows from the fact that the sole reason for taxing insider trading profits is to redistribute the proceeds from such a tax from insiders to the rest of society, which could be done, for example, through the governmental provision of goods or services. Such a redistribution, which may be thought of as seeking to compensate those investors harmed by insider trading, should make the proposed policy more appealing to lawmakers than the complete deregulation of insider trading.<sup>20</sup>

Note that, ideally, the governmental transfer should be received only by those investors harmed by insider trading. However, it would be extremely costly, if not simply impossible, to implement such an individualized redistributive scheme. Thus, as a practical matter, the proceeds from the tax on insider

trading profits should seek to benefit society as a whole or, alternatively, a broad group of individuals.

### 2. A Lump-Sum Tax on Insiders

As argued in the previous section, social welfare is higher in a regime that allows insider trading and taxes insider trading profits than in a regime under ITR. In addition, such a policy is more likely to be implemented than one that simply calls for the elimination of ITR. However, enforcing compliance with the tax on insider trading profits would be costly, due to the fact that resources would have to be allocated to monitor the behavior of insiders. Thus, an optimal policy toward insider trading should preserve the beneficial effects of the policy considered in the previous section, and, in addition, should minimize enforcement costs. A policy that allows insider trading and imposes a lump-sum tax on insiders fulfills both requirements.

The beneficial effects of allowing insider trading should be clear by now. The beneficial effects of imposing a lump-sum tax on insiders, on the other hand, are twofold. First, just as in a regime that taxes insider trading profits, the proceeds from a lump-sum tax on insiders could be used to compensate those investors harmed by insider trading.<sup>21</sup> As argued above, the explicit consideration of this redistributive scheme should make the policy appealing to lawmakers. Second, the enforcement costs of a lump-sum tax would be significantly lower than those of a tax on insider trading profits. This is due to the fact that, in a regime in which a lump-sum tax on insiders is imposed, it is not necessary to monitor the behavior of insiders.

An important characteristic of the policy under consideration is that the behavior of insiders does not depend on the level of the lump-sum tax.<sup>22</sup> This, in turn, implies that the amount of information chan-

<sup>20</sup> It is not very clear, though, that insider trading imposes a *net* harm on investors. This is due to the fact that, although insider trading decreases market liquidity, thus diluting expected profits, it also increases market efficiency, thus reducing price volatility. Whether the cost imposed by the dilution of expected returns is higher or lower than the benefit derived from the reduction in price volatility depends on the utility function of each investor.

<sup>21</sup> But recall two things. First, if individualizing these investors is too costly, as is likely to be the case, then the proceeds from the tax should seek to benefit society as a whole, or, perhaps, a broad group of individuals. And, second, it is not very clear that insider trading imposes a *net* harm on investors.

<sup>22</sup> Hence, from an efficiency point of view, the level at which the lump-sum tax is set is irrelevant. Estrada (1993c) considers a lump-sum tax that aims to charge insiders an exogenously given proportion of their expected profits from insider trading. Such a tax could be imposed on insiders at the beginning of the period, regardless of how much they trade (and whether or not they trade) on the basis of inside information.

nelled into securities prices, and the amount of risk born by insiders, are also independent of the level of this tax. In fact, it can be easily shown that, under the proposed policy, insiders would trade as much as they would in an unregulated market, and, as a consequence, the volatility of securities prices and the risk sharing among investors would also be at the level they would be in an unregulated market. In addition, as long as the enforcement costs of this policy are negligible, social welfare in a regime under this policy would be equivalent to the level of social welfare attained in an unregulated market. Therefore, changes in the lump-sum tax could be used to satisfy changes in redistributive concerns without affecting efficiency considerations.<sup>23</sup>

The only problem related to the policy under consideration is where to draw the line between those who will bear the tax and those who will not. In this regard, ITR avoids drawing an arbitrary line by penalizing *anyone* who trades on the basis of material, nonpublic information. In other words, under ITR everybody is a potential insider.<sup>24</sup> However, under the proposed policy, an arbitrary decision about who will be subject to the tax would have to be made. Note that, in this framework, the lump-sum tax on insiders may be thought of as the price that insiders would have to pay for the right to use corporate information. The board of directors, management, and those individuals with primary access to corporate information (like, for example, majority shareholders) would be the obvious candidates to bear the lump-sum tax.<sup>25</sup>

<sup>23</sup> The fact that issues of fairness and efficiency can be separated follows directly from the Second Theorem of Welfare Economics.

<sup>24</sup> This does not mean that ITR penalizes all traders who impose a cost on other investors. To see this point, assume that IBM researchers invent an inexpensive computer chip that significantly speeds up the processing power of computers. Note that information about this invention would affect not only the value of IBM but also the value of rival companies like, for example, Intel. From a legal point of view, nobody directly or indirectly related to IBM would be allowed to trade on IBM stock on the basis of such information. However, no regulation would prevent the same traders barred from trading on IBM stock from trading on Intel stock. And yet, this trading on Intel stock would harm Intel shareholders just as much as trading on IBM stock would harm IBM shareholders. That, of course, if any harm is done in either case.

<sup>25</sup> Such a choice, of course, would not cover all individuals with access to information that can be profitable used in the market. In the example discussed above, in which

### 3. The Elements of an Optimal Policy

A careful consideration of the arguments discussed above yields the elements that need to be considered when designing an optimal policy toward insider trading. As seen above, the elimination of ITR increases social welfare through a decrease in price volatility (that stems from the increase in the amount of information channelled into securities prices) and an improvement in risk sharing (that stems from the participation of insiders in the dispersion of risk). Therefore, any optimal policy toward insider trading should allow insiders to trade, thus enabling them to channel information into securities prices and to participate in the dispersion of risk.

However, a policy that stops there is not likely to be appealing to lawmakers. In other words, the political feasibility of any recommendation depends on the explicit consideration of a redistributive scheme. As argued above, this fairness component may take the form of a redistribution from insiders to those investors harmed by insider trading. In the framework of the two policies considered above, the proceeds from the tax on insider trading profits, or from the lump-sum tax on insiders, could be used to satisfy these fairness concerns. Thus, any feasible policy toward insider trading should incorporate a redistributive scheme.

Finally, another important variable is the cost of enforcing a policy. For, the higher these enforcement costs, the larger the amount of resources that has to be diverted from the productive sector of the economy, and, as a consequence, the lower the production of goods and services. Thus, any optimal policy toward insider trading should seek to minimize enforcement costs. To conclude, the following proposition summarizes all the relevant elements of an optimal policy toward insider trading:

**Proposition 4:** *An optimal policy toward insider trading must: 1) allow insiders to trade; 2) incorporate a redistributive scheme; and, 3) minimize enforcement costs. In other words, such a policy must: 1) yield a level of welfare as close as possible to the level of welfare in an unregulated market; and, 2) take into account fairness considerations.*

IBM researches invent an inexpensive computer chip that significantly increases the speed of computers, the researchers who invented the chip would not be subject to the tax but would be able to profit from the information they possessed.

## VI. Conclusions

In this paper I have considered the impact of ITR on a securities market and on social welfare. In addition, I have addressed the issue of whether an unregulated market could reach an optimal decision about whether or not to allow insider trading. And, finally, after having proposed two feasible policies to replace ITR, I have outlined the elements of an optimal policy toward insider trading.

In terms of securities markets, it was established that ITR increases market liquidity, decreases the informational efficiency of a securities market, and increases the volatility of securities prices. That is, ITR has both beneficial and detrimental effects on a securities market. As a consequence, it was suggested that these (or any other) market characteristics cannot be used as valid policy targets.

The most basic and critical question about ITR is whether this regulation makes society better off or worse off; that is, whether it increases or decreases social welfare. In this regard, the imposition of ITR was shown to be detrimental for three reasons: First, it decreases the flow of information channelled into securities prices, thus increasing the volatility of these prices. Second, it reduces the number of insiders in the market, thus worsening the risk sharing among investors. And, third, it diverts resources from an activity that creates utility (production) to an activity that destroys utility (regulation). In short, the imposition of ITR decreases social welfare.

It is wrong to think that the absence of ITR would necessarily imply that insiders would be able to exploit their informational advantage without restrictions. This is due to the fact that the elimination of ITR would only imply the elimination of public regulation, not that of private regulation. As argued above, an unregulated market would be able to achieve an optimal decision about whether or not to allow insider trading, either through the negotiations between managers and shareholders, or through the incentives generated by a competitive market for corporate control. In either case, an unregulated market would enable different firms to reach different optimal decisions, thus providing a flexibility lacking in a regime under ITR.

Finally, it was argued that, however desirable from an efficiency point of view, the elimination of ITR was not likely to occur, at least in the short run. Thus, a politically-feasible recommendation would have to combine the beneficial efficiency effects of eliminating

ITR with the fairness considerations necessary to make the policy appealing to lawmakers. The two policies considered, namely, allowing insider trading and imposing a tax on insider trading profits, and allowing insider trading and imposing a lump-sum tax on insiders, fulfill this requirement. The second policy, in particular, has the additional advantage of minimizing enforcement costs. Thus, an optimal policy toward insider trading must: allow insiders to trade; incorporate a redistributive scheme; and minimize enforcement costs.

We do not live in a perfect world and sometimes government intervention becomes necessary. It is not clear whether the government has a role to play in the regulation of insider trading. In fact, society is very likely to be better off without ITR. But, if some sort of regulation on insider trading is necessary, a policy that allows insider trading and imposes either a tax on insider trading profits, or a lump-sum tax on insiders, may be the place to start.

## References

- Ausubel, Lawrence* (1990). «Insider Trading in a Rational Expectations Economy.» *American Economic Review*, 80, 1022.
- Carlton, Dennis and Fischel, Daniel* (1983). «The Regulation of Insider Trading.» *Stanford Law Review*, 35, 587.
- Coase, Ronald* (1960). «The Problem of Social Cost» *Journal of Law and Economics*, 3, 1.
- Cornell, Bradford and Sirri, Eric* (1992). «The Reaction of Investors and Stock Prices to Insider Trading.» *Journal of Finance*, 47, 1031.
- Easterbrook, Frank* (1985). «Insider Trading as an Agency Problem.» In John Pratt and Richard Zeckhauser (eds.), *Principals and Agents: The Structure of Business*, Harvard Business School Press.
- Estrada, Javier* (1993a). «Insider Trading: Regulation, Securities Markets and Welfare under Risk Neutrality.» Ph. D. dissertation, chapter 1. Department of Economics, University of Illinois at Urbana-Champaign.
- Estrada, Javier* (1993b). «Insider Trading: Regulation, Securities Markets and Welfare under Risk Aversion.» Ph. D. dissertation, chapter 2. Department of Economics, University of Illinois at Urbana-Champaign.

- Estrada, Javier* (1993c). «Insider Trading: Regulation or Taxation?» Ph. D. dissertation, chapter 3. Department of Economics, University of Illinois at Urbana-Champaign.
- Fishman, Michael* and *Hagerty, Kathleen* (1992). «Insider Trading and the Efficiency of Stock Prices.» *Rand Journal of Economics*, 23, 106.
- Gaillard, Emmanuel* (1992). *Insider Trading. The Laws of Europe, the United States and Japan.* Kluwer Law and Taxation Publishers.
- Haddock, David* and *Macey, Jonathan* (1987). «A Coasian Model of Insider Trading.» *Northwestern University Law Review*, 80, 1449.
- Kyle, Albert* (1985). «Continuous Auctions and Insider Trading.» *Econometrica*, 53, 1315.
- Leland, Hayne* (1992). «Insider Trading: Should it be prohibited?» *Journal of Political Economy*, 100, 859.
- Macey, Jonathan* (1991). *Insider Trading. Economics, Politics and Policy.* American Enterprise Institute for Public Policy Research.
- Manne, Henry* (1966). *Insider Trading and the Stock Market.* The Free Press, New York.
- Meulbroek, Lisa* (1992). «An Empirical Analysis of Illegal Insider Trading.» *Journal of Finance*, 47, 1661.
- Scott, Kenneth* (1980). «Insider Trading: Rule 10b-5, Disclosure and Corporate Privacy.» *Journal of Legal Studies*, 9, 801.
- Spiegel, Matthew* and *Subrahmanyam, Avaniidhar* (1992). «Informed Speculation and Hedging in a Noncompetitive Securities Market.» *Review of Financial Studies*, 5, 307.
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