Chapter 3: INSIDER INFORMATION AND ITS ROLE IN SECURITY MARKETS

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1. DISPERSED NATURE OF INFORMATION

Information is naturally dispersed among members of a group. Whether the group is a family, organization, market, or society, it is rare that any individual, or subset of individuals, possesses all information relevant to the functioning of that group. Each member has unique access to information that is special to him. This could be information about his or her tastes, endowments, expectations, and state of the circumstances in his or her immediate neighborhood. Dispersal of such information across members of a group is a norm, not an exception.

If it were possible to gather all this information in one place or in a single mind, one could utilize the techniques of optimization (e.g., mathematical programming) to arrive at a plan for the group to satisfy some specified criterion of efficiency or desirability. There are three barriers to centralized compilation of information dispersed among members of a group. First, a great deal of such information exists in forms that do not permit such information to be easily codified and transmitted to a central store. Information about one's tastes and expectations is an example of this. Individuals' judgments about their own preferences do not necessarily correspond to the choices they make in exercising those preferences (see Lichtenstein and Slovic 1971, and Grether 1991). Second, even for small groups, such relevant information that can be codified and transmitted is far too voluminous. Third, and equally important, there are no dependable means of persuading the individuals who hold information to share it with others in its entirety and in a timely manner.

A central problem that all groups face, then, is how to function efficiently in a world where the information necessary to determine the efficient courses of action, as well as the information necessary to evaluate the ex post efficiency of the courses of action actually chosen, is dispersed among the members of the group. Individuals can be expected to use or reveal information only if they believe such use or revelation to be desirable from their point of view. This problem is present in markets as well as in organizations. In organizations, accountability and control systems are set up to seek efficient operation in dispersed information environments (see Ijiri 1975, 1983). Price system in markets serves a similar function (see Hayek 1945). Analysis of insider trading issues requires understanding the scope of information in organizations and markets, and the interaction between the control system of the firm and the price system of the market for the firm's securities. I consider the scope of information and its role in organizations and markets in the next four sections before analyzing their interaction in Section 6.

2. SCOPE OF INFORMATION IN ORGANIZATIONS AND MARKETS

Scope of the vast variety of information that exists and flows in organizations can be explored by asking who processes, controls, or owns the information, and what are the channels through which the information flows. Instead of attempting to catalog the vast array of information flows, I shall give several examples (based on actual or hypothetical situations) that would be useful in analyzing the role of insider information. For convenience, I classify information into three broad categories.

Employees, directors, and advisors of a corporation receive or develop a great deal of information for corporate purposes at corporate expense. Sales reports from the field in the hands of a marketing manager, a week's production statistics on the desk of a plant manager, analyses of core samples from off-shore drilling operations presented to the

chief of drilling operations, a plan prepared by the corporate treasurer to issue new equity, and a new recipe for frozen pizza made by the firm, are all examples of insider information in this sense. None of these individuals would ordinarily come upon such information had they not been hired to perform their respective functions in the corporation. The information they handle in performing their duties is the property of the corporation, just as the machinery they may operate and new products or processes they may develop are the property of the corporation. We shall refer to this as Category 1 inside information.

Interdependencies among individual pieces of information allow those who possess Category 1 information to draw more precise inferences from information that they may come upon outside their corporate responsibilities. For example, a director who knows that the firm is already committed to build a new plant to expand production is in a better position to assess the impact of a newspaper report that predicts economic recession on the firm. Since this information is jointly derived from information acquired for corporate and non-corporate purposes, we could label it Category 2 inside information.

Category 3 information about a firm is developed outside the corporate arena. Such information may involve gathering of facts and their analyses. Learning about an imminent grant of a large government contract to the firm, discovery of inaccuracies or ambiguities in past financial reports, or discovery of unannounced Category 1 information by a corporate outsider are examples of such information.

Three special cases of Category 3 information are worth special mention. The first case concerns a professional financial analyst who discovers through routine discussions with the employees of an insurance firm, that its management and employees are engaged in massive fraud by forging fictitious insurance policies and selling them in the reinsurance market to other insurance firms. The financial analyst advises his clients of his discovery before making it public.

The second case concerns a reporter who researches and writes an influential newspaper column about the future prospects of individual firms or industries. It is well known that favorable or unfavorable mention about a firm in the column moves its stock price. The reporter and his friends seek to benefit from their knowledge by trading in securities before the publication of the column. The reporter thus violates explicit terms of his contract with his employer, the publisher of the newspaper.

A third special case of information developed outside the corporate fold concerns the information about one's own or a third party's intentions to acquire or sell substantial positions in the stock of a firm. In most cases this is information about one's own intentions, or intentions of those who are willing to share that information with a selected few.

Production and flow of information in organizations and markets is subject to individual preferences and incentives, corporate accountability relationships, common laws that define property laws and fraud, as well as statutes that control issuance and trading in corporate securities. Let us examine organizations first, then markets.

3. INFORMATION ROLE OF ORGANIZATIONS

Most business firms are organized in a hierarchy, each individual being made accountable to at least one other person in the organization. The authority relation (see Simon 1946) or the accountability relationship (see Ijiri 1983) within each such pair must be satisfactory and desirable from the point of view of each. Each member of the pair promises to provide specified resources and information to the other. Agency theory has shown that when information is dispersed among the participants, it is not possible to arrive at the first-best solution—the solution that would have been arrived at if all the information in possession of the individuals involved were available to a single person. Agency theory literature seeks to identify the

second-best solution in such environments (see Baiman 1982 for a review).

Since each manager in a firm receives some information from his subordinates, and since each manager generally has more than one subordinate, the amount of information in possession of the managers tends to increase as one moves up the hierarchy. As a result, there is a great deal of concentrated information in the hands of the manager at the top, even though each manager can acquire only a part of the information that his subordinates have. In a firm run by an entrepreneur, or by a hired manager who is accountable to an entrepreneur, this system of information flows works effectively because all other participants in the firm (e.g., employees, suppliers, customers) can effectively look after their own interests through their ability to bargain directly with the top manager or his representative about the flow of resources and information between them.[2]

Firms whose shares are held by a large number of shareholders face a special problem in organizing their information flows at the top of the managerial hierarchy. The top manager of such a firm must be accountable not just to a single person, but to the shareholders as a group. This group may include individuals and institutions, many of whom are unknown to the manager, and unable or unwilling to participate in a supervisory relationship with this manager. Most of the insider trading problem arises from defining and enforcing an effective accountability relationship between the top managers of a firm, and a large group of shareholders. Since security markets play an important role in defining this relationship, I discuss the role of information in markets before returning to the topic of insider trading and its effect on security markets.

4. INFORMATION ROLE OF MARKETS

Markets are institutions for voluntary exchange. They allow and facilitate beneficial exchanges that enhance the welfare of the participants, and therefore enhance the wealth

of society. This wealth-enhancing role of markets has been well-known to economists, at least since the writings of Adam Smith over two hundred years ago. Humankind has known the value of barter and trade since antiquity.

How markets perform this wealth-enhancing role is both subtle and complex. Markets aggregate dispersed pieces of information possessed by various members of society, and disseminate this information or its benefits among all participants. How the markets are able to perform this complex task is not yet fully understood. However, there is little doubt that the information dissemination role of markets is crucial to their function of enhancing the wealth of society.

Hayek (1945) was the first economist to emphasize explicitly the information role of markets. He argued that markets are almost unbelievably economical instruments of utilizing dispersed information for efficient allocation of resources in society. This can be illustrated by a simple example.

Consider a market for a single commodity with N buyers and N sellers. Each buyer i has a demand of one unit of the commodity at price v_i, i = 1, 2, . . . N; and each seller j can supply one unit of the commodity at price c_j, j = 1, 2, . . . N. If an individual (e.g., an economist or central planner) knew vectors $\underline{v}$ and $\underline{c}$, and also knew the identity of the individuals corresponding to each element of these vectors, he could derive the Pareto efficient allocation of the commodity using standard economic analysis. He orders the elements of vector $\underline{v}$ from high to low to define the market demand function and he orders the elements of vector $\underline{c}$ from low to high to define the market supply function. The point of intersection of market demand and supply functions yields the equilibrium price and quantity. Buyers whose demand prices are equal to or greater than this equilibrium price receive the allocation of the commodity, and the sellers whose supply prices are less than or equal to the equilibrium price get to sell the commodity. All transactions take place at the equilibrium price, therefore the profit of each trader is

also defined. This procedure maximizes the sum of total profit of all traders to yield a Pareto optimal outcome.

The information requirements of this simple process, so familiar to students of introductory economics, are quite formidable. The maximum price v_i at which an individual i is willing to buy a commodity, and the minimum price c_j at which an individual j is willing to sell, are inherently private information to the respective individuals. Since no single individual, government, or any other agency can directly or indirectly observe vectors $\underline{v}$ and $\underline{c}$, such computation of Pareto optimal allocation is informationally infeasible. One may wish to survey the buyers and sellers to learn of the values of $\underline{v}$ and $\underline{c}$. In spite of the time and effort necessary for such a survey, there can be no guarantee that the data so gathered would be accurate. Indeed, each individual would have an incentive to strategically manipulate the prices he discloses to the surveyor. Furthermore, in a real world, the values of these parameters can hardly be expected to remain stationary for any length of time. The results of such a survey are likely to become obsolete almost before they are compiled. A central planner faces a virtually impossible informational barrier in identifying the Pareto optimal allocation, even in such a simple setting.

In economic theory, functioning of markets is illustrated by a hypothetical Walrasian auction. It is postulated that there exists a neutral auctioneer who calls out a price to which buyers respond with the quantity each is willing to buy at that price, and the sellers respond with the quantity each is will to sell at the price. The auctioneer adds up the quantities offered for sale and demanded at the announced price. If the total quantity demanded exceeds the total quantity supplied, the auctioneer announces a slightly higher price in the next round; if the total quantity offered for sale is greater, the price announced in the next round is lowered slightly. This process is continued until a price is reached where the two quantities are equal. This is the equilibrium point that yields Pareto optimal allocation.

Consider the remarkable informational economy of the Walrasian auction. The private knowledge of individual reservations prices (v_i's and c_j's) need not be in possession of any other individual, not even of the auctioneer. Unlike the above-mentioned central planner who faces the virtually impossible task of knowing the vectors $\underline{v}$ and $\underline{c}$, the Walrasian auctioneer needs to know nothing more than simple arithmetic addition, and the direction in which the price is to be adjusted in response to inequality of the quantities demanded and offered for sale.

Of course, most markets function without even a central auctioneer. Experimental evidence, gathered over the past quarter century, has shown that a vast variety of market institutions can function with remarkable informational economy and high (though hardly perfect) allocative efficiency (see Smith 1982 and Plott 1982). It is this property of markets (a "marvel" in his words) to which Hayek drew the attention of economists. Information in an economy is dispersed among its individual members. It is often not possible to gather this information in a central location, even at a high cost. Hayek argued that the key significance of markets lies in that they are able, in a broad variety of situations, to directly utilize dispersed information to yield outcomes that are close to being socially optimal in sense of being close to the Pareto frontier, a feat that cannot be matched by any central planning or administrative apparatus (also see Grossman 1976).

5. UNCERTAINTY AND DISSEMINATION OF INFORMATION ABOUT THE STATE OF THE WORLD

We have discussed in the above example the ability of markets to utilize the private information about individual demands and supplies to yield the Pareto optimal market outcomes. The market's ability to digest information is not so limited. In this section we consider a more complex situation in which individuals' demands and supplies depend on the state of the world, and they are uncertain about this state. The efficient market theory in finance proposed

that security markets function in such a way that information about the state of the world in the possession of the market participants gets incorporated into the market prices of securities in an unbiased (though not necessarily exact) manner. A strict interpretation of the theory would mean that profitable trading strategies cannot be formulated on the basis of either publicly available or private information. Of course such theories can be true only within the limits specified by the cost of producing information.

Efficient market theory spawned a voluminous empirical literature to examine the extent of its validity. This work has documented many kinds of information with respect to which security markets are less than perfectly efficient. The less public the information is, more likely it is that the market is less than perfectly efficient with respect to such information.[3] However, the overall impression this literature leaves on the reader is that security markets are able to process and digest a huge volume of information from an incredible variety of sources in a short period of time (see Sunder 1975, Ito 1990, Sakurai 1990, and Fama 1990). Laboratory experiments, in which it is possible for the researcher to know and control information conditions, also support the idea that markets can, under certain conditions, aggregate and disseminate information possessed by some traders to others. However, such dissemination does not take place under all conditions; and when it does take place, it does not occur instantaneously (see Plott and Sunder 1982 and 1988). While dissemination of information makes markets informationally efficient, finiteness of the speed of dissemination makes it worth the effort to produce or discover information (see Sunder 1992). In the U.S., insider trades reported to the SEC earn, on average, about 4 percent return over and above the market return (see Jaffe 1974a, Baesel and Stein 1979, and Seyhun 1986). These information dissemination properties of security (and other) markets have complicated the questions about public policy toward insider trading.

6. ROLE OF SECURITY MARKETS IN SHAREHOLDERS' CONTROL OVER MANAGERS

Large firms need to diversify their sources of equity capital. By offering publicly traded shares, they can attract a large number of shareholders whose demand for liquidity of their investment can be fulfilled by the stock exchange. If shareholders trust the share market to be fair and free of manipulation, they are more willing to invest their savings in equities, knowing that they can sell their securities at a fair price at any time to meet their other needs. Further, since the market can assimilate information from a large number of sources, price of shares of the firm provides the shareholder with an independent measure of managerial performance which is, at least partially, beyond the control of the manager.

While the stock market opens up a large source of financing for corporations, it also gives rise to a control problem at the top of the firm where the accountee-accountor pair consists of shareholder and the chief executive officer (CEO). When the shareholder group of a firm is large and diffuse, its accountability relationship to the CEO is qualitatively different from the one-to-one relationship of, say, the CEO and marketing vice president of a firm. Unlike other accounters, shareholders in such firms have no executive power, little information, and little ability to continually negotiate and adjust the terms of their relationship with the chief executive in light of such information. The result is that a large part of this relationship is defined by "boiler plate" (standardized) contracts and a major part of information flow to the shareholders is governed by the disclosure laws or rules written by government or self-regulatory bodies for a whole industry or economy. Lacking the flexibility of customized negotiations, shareholder-CEO relationships are relatively rigid.

Even in a normal accountability relationship between manager and a subordinate, only a fraction of information held by the latter is transmitted upstream. The subordinate can be expected to withhold information that, if transmitted,

will reduce his or her welfare. Transmission of information from the chief executive to the shareholder is further restricted by two additional factors. First, the legal or regulatory specification of information disclosure tends to filter out subjective information in favor of objective, verifiable or "hard" information.[4] A second barrier is the competitors' use of disclosed information.

All information that a publicly-held firm discloses to its own shareholders is automatically disclosed to its competitors, regulators, tax collectors, and to any detractors it may have.[5] This consideration is often used to justify managers' withholding information from the shareholders in order to protect the interests of the firm as a whole, including its shareholders and managers. Coming from management, the argument always sounds, and sometimes is, self-serving. However recognition of its self-serving nature is not to deny its validity in many instances.

Given the limitations on information that the shareholders of a publicly-held firm can expect to receive from managers of the firm, the stock market would be poorly informed if managerial disclosures were its sole source of information. A poorly informed market cannot trade securities at a fair price. Fortunately, markets can obtain information from other sources.

The effect of general business conditions on a firm can be discerned from national and international business and economic news. Television, radio, newspapers, magazines, newsletters, wire services and computer databases bring a great deal of such general news and information to the market. General news is supplemented by industry-specific, firm-specific or product-specific news and analyses published through most of the same media. It is costly to discover, gather, analyze, publish and distribute information. Without incentives to produce information, little information would be brought to the market to be incorporated into the prices. The ability of the market to efficiently allocate society's resources among competing uses would be reduced correspondingly. An efficient market therefore

requires ample incentives to individuals to produce information. Private efforts to produce and use information are a routine and essential part of the functioning of all markets. The problem of insider trading arises when imperfection of markets makes it difficult to discriminate between normal flow of information to the market and flow of information that violates the property rights of some individuals, especially the rights of the small investors.

7. PUBLIC POLICY TOWARD INSIDER TRADING

Historically in the U. S., as long as business corporations were managed by their owners, insider trading remained a non-issue. With the formation of large corporations with widely dispersed share ownership in the decades surrounding the beginning of this century, ownership of firms began to be divorced from their management. Employees, managers, and directors of these companies acquire preferential access to information about them during the course of their work (Category 1 insider information). In the absence of any laws to stop them, it was hardly surprising that they sought private benefits for themselves by trading in securities of these firms on the basis of this information. Insider trading was so commonplace at the turn of the century that a *New York Times* survey revealed that 90 percent of the business executives interviewed admitted to trading regularly in the shares of their companies. There were no legal, social or moral barriers to doing so.[6]

As the implications of the separation of ownership and control in publicly-held corporations began to sink in, a few court cases arose, mostly charging the officers or directors of the firm of fraud or deceit through manipulation of stock on the basis of inside information. These early cases were handled using a common law approach in the U.S. Following the stock market crash of 1929, the U.S. Congress passed The Securities Act of 1933 and Securities and Exchange Act of 1934, and created the Securities and Exchange Commission (SEC) to enforce these laws. These laws require

corporate officers, directors, and holders of more than 10 percent of securities to report all transactions in their own stock to the SEC who publishes them. All short term (within six months) trading profits of insiders are required to be returned to the corporation. Any fraud or misstatement by omission or commission in the *sale* of securities is outlawed. In 1942, the SEC issued Rule 10(b)-5 to apply similar restrictions to *purchase* of securities also.

One of the effects of this change in U.S. public policy has been that insider trading is no longer regarded as socially acceptable behavior. Nor is it possible any longer to collect data on the extent of insider trading (as *New York Times* did over eighty years ago) beyond the figures self-reported under the law to the SEC.[7] However several complex issues with respect to insider trading remain open.

While the SEC in the U.S. has, at one time or another, included all the types of information mentioned in Section 2 above, it has refused so far to formally define insider information. On June 19, 1989, the Council of Ministers of the European Community approved *Insider Trading Directive* to provide protection against insider trading to all EC investors. This directive includes the following definition of insider information:

> . . . information which is unknown to the public of a specific nature and relating to one or more issuers of transferable securities, or to one or more transferable securities, which, if it were published, would be likely to have a material effect on the price of the transferable security or transferable securities in question. (Council of Ministers of the European Community, 1988)

Note that all the above-mentioned categories and special cases of insider trading are included in this EC definition as long as they are expected to have a material effect on security prices. This definition is not limited to Category 1 information.

The most comprehensive definition of insider information and trading is given in Japanese statutes (see Miyazawa 1988). Insiders include directors, employees, government officers, public accountants and directors and employees of institutional shareholders who learn material facts about the firm through their positions. People who held these positions within the past twelve months and those who learn of the material facts from the insiders are also defined as insiders. Material facts are defined to include nine types of firm decisions, four types of events outside the control of the firm, and changes in expected performance figures of the firm.

8. CRITERIA FOR ASSESSMENT OF INSIDER TRADING POLICIES

An assessment of insider trading policies requires identification of various groups in a society whose interests as well as behavior may be affected by those policies. A change in policy may affect the interests of a group directly, as well as indirectly through its effect on the behavior of other groups. Interests of six major groups must be considered: (1) managers and employees of the firm (including its directors and large shareholders who have access to insider information), (2) smaller shareholders, (3) large potential investors, (4) independent vendors of information, (5) government and industry regulatory agencies, and finally (6) the society at large.

In the absence of prohibitions on insider trading, managers, employees, directors and major shareholders are tempted to exploit the information they have for their personal enrichment. Depending on the contractual arrangements or norms of society, such personal enrichment may be seen as normal compensation for services rendered (see Manne 1966 and 1969 for this argument) or as theft of corporate property. Both these images are overdrawn. As a practical matter, managers adjust their behavior in reaction to changes in insider trading laws and policies. Exhaustive disclosure requirements may induce them to avoid profitable but risky

projects, or projects that cannot be profitable if they cannot be kept secret from competitors. Managerial purchase of corporate securities is a potent signal about their faith in the health of the firm. Opportunity to benefit from one's hard work and commitment to a firm attracts talent to business. Strict and extensive disclosure requirements and trading restrictions make it more difficult and less remunerative to operate a publicly-held firm.

Equity or fairness to small shareholders has been the traditional criterion for evaluation of insider trading laws and policies. Derived from the legal tradition, this criterion seeks to equalize the terms of trade by giving all traders equal access to relevant information. Such equality promotes faith and trust in the fairness of the stock markets, attracts more capital to them, and thus serves the broad social purpose of capital formation and allocation of this capital to more productive enterprises.

A second criterion for evaluation of insider trading policies is the enforcement of property laws. If insider information—Category 1 and possibly Category 2 information—is the property of the corporation, the policies could be evaluated in terms of their value in protecting this corporate property against expropriation by the individual insiders who may seek private benefits at corporate expense. Laws that do not protect this property, it may be argued, will discourage the corporate form of business organization to the detriment of society.

Control of corporations also can fall into the hands of the lazy or incompetent. Those entrepreneurs who can find more productive employment of corporate resources may want to take over a firm by buying its shares in the market, and gaining its control. Such activity, it has been argued, should be encouraged by allowing such entrepreneurs to reap full benefits of their diligence and creativity. Insider trading laws that require disclosure of large stock purchases and future intentions (when holdings exceed five percent of outstanding stock in the U. S.) deprive such entrepreneurs of the full benefits of their work, and discourage replacement

of inefficient managers from their entrenched positions. Of course, history of stock market manipulations around the world shows that those who make large purchases of a single stock do not necessarily have a plan to improve utilization of corporate resources; nor do they always intend to run the operations of the firms they seek to control.

If those who produce, gather, or distribute information are allowed to extract private benefit for themselves from the information, production of information would be encouraged. If we assume that all such information will find its way to the market sooner or later, such a system may create a more informed market. If vendors of information are required to make the fruits of their search publicly available, they would be unable to sell the information for a price, discouraging production of information. Thus, the insider trading laws and regulations might be evaluated on the basis of how much information is produced and incorporated into market prices under these laws (see Ronen 1977).

Some analysts apply the criterion of minimal regulation. If it is possible and practical for certain behavior to be proscribed through private contracting, it is redundant for government to write laws or regulations to proscribe it. It is surely practical, this argument goes, for the shareholders to protect their property rights in Category 1 information by inserting in the employment contract of officers and directors a provision that prohibits insider trading.[8] If corporations choose not to include such clauses in their charters, government should not impose it on them. However, given the "boiler plate" nature of such charters, it is not clear if the shareholders can have a real chance at negotiating the terms of those charters and managerial contracts. Over the long run, the principle of minimal regulation helps protect the economy from the tendency of a government bureaucracy to entrench and perpetuate itself, even after the conditions that lead to creation of the bureaucracy disappear.

9. BALANCE AMONG VARIOUS CRITERIA AND ENFORCEMENT

The bottom line criterion for evaluation of insider trading policies is the effect on the society at large. It is also the most difficult to apply because the extreme diversity of the effect of any policy change on various groups in society. Also, these effects on various groups are not commensurable an any uniform unit of measurement, and effects on individuals interact in complex patterns. Even if we could measure the effects of a policy on each individual, we could not simply add them up across all individuals in society to arrive at a social choice criterion. In the face of these difficulties, it is necessary to develop a balanced policy on insider trading and its enforcement.

Consideration of fairness and property rights criteria suggest that public policy should seek to minimize the extent of insider trading. In United States the holdings of corporate securities are more widely distributed in the population than in most other countries. Control of insider trading helps engender the belief that the security markets offer fair terms of trade, even to small investors, and encourage their participation in the market. These beliefs stand in sharp contrast to those countries where security markets are widely seen as wild and unpredictable gambling casinos, and not vehicles for systematic investment of one's savings for old age.

The efficiency criterion, on the other hand, suggests that the markets could be made more informed, and therefore allocatively efficient, if those in possession of inside information could exploit it for private gain without fear of being penalized. Such an arrangement would not only speed up the incorporation into prices of such information that already exists, it would also encourage insiders to produce or discover more and bring it to the market place.

How can one attain a balance in designing a public policy on insider information that takes into account such contradictory criteria. Two elements seem appropriate here—

pragmatic enforcement and stability of policy over long periods of time.

Information is an ephemeral commodity. Evidence on its presence, flow, and use is not easy to obtain for prosecuting attorneys. It may be present only in human memory, it may be transferred in a whisper, and used in conjunction with a thousand other circumstances of the moment. Manne (1966) and Demsetz (1969), perhaps the most articulate advocates of promoting market efficiency, argue that the regulatory control of insider information is, at best, ineffective. There are innumerable different ways in which insiders can dodge the laws prohibiting trades based on such information.

Jaffe (1974b) compared the profitability and frequency of insider trades before and after the three important legal actions taken by the Securities and Exchange Commission defined, for the first time, the extent of legal liability of inside traders. He found that the profitability and frequency of insider trades changed only by an insignificant amount because of these events. He concluded that in spite of the fact that the insiders earn, on average four percent excess return per trade, the enforcement of insider trading laws in U.S. is essentially ineffective. He attributed this lack of effectiveness to (1) the SEC's tendency to prosecute only the most flagrant violations of the law, (2) the use of only very superficial investigative techniques by the Commission, and (3) the small magnitude of penalties prescribed for the violators of the law. Jaffe's investigation was limited to the data on insider trades reported by the corporate officers, directors and large shareholders to the SEC. It is difficult to know how much insider trading actually takes place, especially if we include Category 3 information in its definition.

Therefore, instead of trying to catch each and every inside trader, the SEC's approach has been to establish insider trading as not only illegal but also immoral (and therefore socially unacceptable) behavior by pragmatically enforcing a small number of highly publicized cases.[9] This policy has certainly not discouraged investors and financial analysts

from producing information to discover under- or over-valued securities. The SEC's policy, and the tendency of the markets to adjust prices in the direction of the orders, force these discoverers of information to share a part, often a very large part of the gains arising from the discoveries with the market at large. Since the producers of information receive less than the full value of their endeavors, it has been argued that investment in production of information is less than its optimum level. Pragmatic enforcement also allows a large number of violations to go undetected. Perhaps this is the price to pay for a compromise between information efficiency on one hand and public faith in the fairness of the markets on the other.

A second element in the formulation of public policy is the stability of policy over time. Each change in policy induces the affected parties to adjust their behavior in the light of new circumstances. Extraordinary advantages conferred by the change get nibbled away over time as long as there are no barriers to entry into the privileged ranks. Disadvantages imposed by a policy change also are diluted over time as the affected parties abandon their sunk costs. In response to every change, a new economic equilibrium emerges in which the parties involved are approximately satisfied. In case of insider trading, these adjustments involve corporate charters, managerial compensation, size of managerial labor force, investment in production of information, and investment in corporate securities. After such adjustment has taken place, little is gained by tinkering with insider trading policy unless the changes can be justified by major changes in the economic environment. A moderate policy, held stable over a long period of time has a good chance of being fair as well as efficient.

10. INSIDER INFORMATION IN INTERNATIONAL SECURITY MARKETS

Internationalization of corporate operations, securities trading, and increase in the number of investors who transact in securities of firms based in other countries,

increases the opportunities for insider trading, and renders it more difficult to detect such activity. It is easier for corporate insiders to pass their information to someone else in another country, and it is less likely that trading by such secondary receivers of information, carried out in various markets of the world, could be detected by regulators at home. Even if regulators in the home country may know about such trading, they may lack legal jurisdiction to prosecute.

A great deal of international trading involves securities of multinational corporations with production, marketing and administrative functions spread around the globe. Information pertinent to the value of the securities of such firms may originate almost anywhere, not necessarily in the home country. Keeping the market for securities of such firms informed and efficient, therefore, requires a larger investment of information gathering and analytical resources. This extra investment would not be forthcoming unless it is justified by sufficiently high returns to the producers of information.

There is no coordinated international policy on insider trading. Even though the SEC in the U.S. has developed some working relationships with regulators in other countries, laws and policies in different countries are still quite different. In addition, sensitive jurisdictional issues make it very difficult to handle matters of insider information that respects few national boundaries. Given these difficulties, and the dim prospects of solving them, it would appear that international security markets will not, in the near future, be able to offer the kind of investor protection about insider information that has been available in the U.S. "Let the buyer beware" will continue to be the motto to remember.

ENDNOTES

[1] The author is Richard M. Cyert Professor of Management and Economics, Graduate School of Industrial Administration, Carnegie Mellon University. He has benefitted

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[2] See McGuire and Melone (1992) in this volume for a discussion of some problems that arise in processing of information in organizations. Aslo see Itami (1992) in this volume for a very different approach to information processing in organizations using a traditional Japanese concept of "ba."

[3] Ijiri (1992) distinguishes between knowledge as the principal and information as a surrogate concept. Knowledge could remain private either because the relevant information is private, or because the linkage between information and knowledge is private, even though the information is public.

[4] Indeed, until the early 1970's, the U.S Securities and Exchange Commission prohibited publicly held firms from issuing earnings forecasts to the public on grounds that such information is too speculative.

[5] See *Strassli Holdings AG*, a case written by Shillinglaw (1965) for an example and analysis of related issues.

[6] "Prior to the year 1910 no one had ever publicly questioned the morality of corporate officers, directors, and employees trading in the shares of corporations." Manne (1966, p. 1).

[7] On average, only about one insider trade per company is reported to SEC each month. See Finnerty (1976a) and Seyhun (1986). From observation of movement of prices in the days or hours preceding major corporate events, it would appear that the volume of insider trading reported to the SEC is only a fraction of all such trades. For empirical evidence on the effect of insider trading on stock prices see Lorie and Niederhoffer (1968), Pratt and DeVere (1978), Penman (1982), Seyhun (1988), Larcker, Reder and Simon (1983), Rozeff and Zaman (1988), Elliot, Morse and Richardson (1984), Finnerty (1976b), Karpoff and Lee (1991), Givoly and Palmon (1985), and Haw, Pastena and Lilien (1990).

[8] In the U.S. such provisions are virtually unheard of.

[9] Over the fifteen years (1966-80) SEC brought only 37 insider trading cases, mostly against market professionals. See Dooley (1980).

REFERENCES

Baesel, J.B. and G. R. Stein. 1979. The Value of Information: Inferences from the Profitability of Insider Trading. *Journal of Financial and Quantitative Analysis, 14*, 553-571.

Baiman, S. 1982. Agency Research in Managerial Accounting: A Survey. *Journal of Accounting Literature, 1*, 154-213.

Council of Ministers of the European Community. 1988. *O. J. European Community.* No. C 277, *13* October 27, 589.

Demsetz, H. 1969. Perfect Competition, Regulation, and the Stock Market. In H. G. Manne, ed., *Economic Policy and Regulation of Corporate Securities.* Washington D.C.: American Enterprise Institute.

Dooley, M.P. 1980. Enforcement of Insider Trading Restrictions. *Virginia Law Review, 66.* 1-83.

Elliot, J., D. Morse, and G. Richardson. 1984. The Association between Insider Trading and Information Announcements. *Rand Journal of Economics. 15*, 521-536.

Fama, E.F. 1990. Efficient Markets II. University of Chicago Working Paper.

Finnerty, J. 1976a. Insiders' Activity and Insider Information: A Multivariate Analysis. *Journal of Financial and Quantitative Analysis, 11*, 205-215.

Finnerty, J. 1976b. Insiders and Market Efficiency. *Journal of Finance, 31*, 1141-1148.

Givoly, D. and D. Palmon. 1985. Insider Trading and Exploitation of Inside Information: Some Empirical Evidence. *Journal of Business, 58*, 69-87.

Grether, D. 1991. Preference Reversals, Institutions, and Incentives. California Institute of Technology Working Paper.

Grossman, S.J. 1976. On the Efficiency of Competitive Stock Markets where Traders have Diverse Information. *Journal of Finance, 31,* 573-85.

Hayek, F.A. 1945. The Use of Knowledge in Society. *American Economic Review, 35,* 519-530.

Haw, I., V. S. Pastena, and S. Lilien. 1990. Market Manifestation of Non-Public Information Prior to Mergers: The Effect of Ownership Structure. *The Accounting Review, 65,* 432-451.

Ijiri, Y. 1975. *Theory of Accounting Measurement.* Sarasota, FL: American Accounting Association. 3:3.

Ijiri, Y. 1983. On the Accountability-Based Conceptual Framework of Accounting. *Journal of Accounting and Public Policy, 2,* 75-81.

Ijiri, Y. 1992. Business Behavior and Accounting Information: With Focus on Subjectivity and Internationalization of Information. Chapter 1 of this Volume.

Itami, H. 1992. Firm as Informational 'Ba' (Interactive Field). Chapter 4 of this Volume.

Ito, K. 1990. The Relative and Incremental Information Content of Consolidated Earnings Data. *Hitotsubashi Journal of Commerce and Management, 25(1),* December, 47-74.

Jaffe, J. 1974a. Special Information and Insider Trading. *Journal of Business, 47,* 410-428.

Jaffe, J. 1974b. The Effect of Regulation Changes on Insider Trading. *Bell Journal of Economics and Management Science, 5,* 93-121.

Karpoff, J.M. and D. Lee. 1991. Insider Trading Before New Issue Announcements. *Financial Management,* Spring, 18-26.

Larcker, D., R. Reder, and D. Simon. 1983. Trades by Insiders and Mandated Accounting Standards. *The Accounting Review, 58,* 606-620.

Lichtenstein, S. and P. Slovic. 1971. Reversal of Preferences between Bids and Choices in Gambling Decisions. *Journal of Experimental Psychology, 89*, 46-55.

Lorie, J. and V. Niederhoffer. 1968. Predictive and Statistical Properties of Insider Trading. *Journal of Law and Economics, 11*, 35-51.

Manne, H.G. 1966. *Insider Trading and the Stock Market.* New York: Free Press.

Manne, H.G. 1969. *Economic Policy and the Regulation of Corporate Securities.* Washington D.C.: American Enterprise Institute.

McGuire, T.W. and N. P. Melone. 1992. Conservatism in Integrating Information: Implications for International Management. Chapter 6 of this Volume.

Miyazawa, Y. 1988. Regulation of Insider Trading. *Kigyo Kaikei, 40(7)*, 17-23, in Japanese.

Penman, S. 1982. Insider Trading and the Dissemination of Firms' Forecast Information. *Journal of Business, 55*, 479-504.

Plott, C.R. 1982. Industrial Organization Theory and Experimental Economics. *Journal of Economic Literature, 20*, 1485-1587.

Plott, C.R., and S. Sunder. 1982. Efficiency of Controlled Security Markets with Insider Information: An Application of Rational Expectation Models. *Journal of Political Economy, 90(4)*, August, 663-698.

Plott, C.R., and S. Sunder. 1988. Rational Expectations and the Aggregation of Diverse Information in Laboratory Security Markets. *Econometrica, 56*, 1085-1118.

Pratt, S. and C. DeVere. 1978. Relationships between Insider Trading and Rates of Return for NYSE Common Stocks, 1960-1966. In J. Lorie and R. Brealey, eds., *Modern Developments in Investment Management.* New York: Praeger.

Ronen, J. 1977. The Effect of Insider Trading on Information Generation and Disclosure by Corporations. *The Accounting Review, 52,* 438-449.

Rozeff, M.S. and M. A. Zaman. 1988. Market Efficiency and Insider Trading: New Evidence. *Journal of Business, 61,* 25-44.

Sakurai, H. 1990. Stock Price Reaction to the Depreciation Switch and Its Tax Implications. *The Annals of the School of Business Administration, Kobe University, 34,* 67-82.

Seyhun, H.N. 1986. Insiders' Profits, Costs of Trading, and Market Efficiency. *Journal of Financial Economics, 16,* 189-212.

Seyhun, H.N. 1988. The Information Content of Aggregate Insider Trading. *Journal of Business, 61,* 1-24.

Shillinglaw, G. 1965. *Strassli Holdings AG.* Lausanne, Switzerland: International Management Development Institute.

Simon, H.A. 1946. *Administrative Behavior.* New York: Free Press.

Smith, V.L. 1982. Microeconomic Systems as an Experimental Science. *American Economic Review, 72(5),* 923-955.

Sunder, S. 1975. Stock Price and Risk Related to Accounting Changes in Inventory Valuation. *The Accounting Review, 50,* 305-315.

Sunder, S. 1992. Market for Information: Experimental Evidence. *Econometrica, 60.*