

INFORMATION(DE-)REGULATION OF CAPITAL MARKETS FROM THE VIEWPOINT OF NEW INSTITUTIONAL ECONOMICS

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Abstract

Laws against insider trading, disclosure requirements, and auditing rules form the basis for information regulation of capital markets. Although the economic effects of insider dealing are mixed, institutional economics favors a prohibition of insider trading to minimize the negative effects. Private regulation of insider trading will fail because of weak disciplinary mechanisms. To prevent overregulation, however, corporations should have the right to opt out of the general ban on insider trading. The impairment of information efficiency by laws against insider trading must not automatically be countered by public disclosure and auditing rules. It is efficient to install competition among public and private disclosure and auditing standards.

1. *Introduction*

The main purpose of capital markets is the allocation of scarce capital to its highest yield use. To serve this purpose, capital markets need to achieve coordinative efficiency. As long as high coordination costs prohibit more profitable forms of capital investment, allocative inefficiencies will remain. Available capital will only be allocated to more profitable investment projects if the profit gains exceed the additional coordination costs. Allocative efficiency relies upon coordinative efficiency.

Coordination costs arise from incomplete information. A world in which everyone knows everything would be free of coordination problems. If information is not distributed equally among capital market participants, economic institutions will be required to decrease information asymmetries and restrain opportunism.

Although in many situations efficiency-promoting institutions evolve out of the self-interest of market participants, information asymmetries are often cited as a reason for legitimizing public regulation. To what extent information regulation of capital markets is economically desirable will be discussed within this paper from the viewpoint of institutional economics. In Section 2 the problem of insider dealing is analyzed. Based upon the results of this analysis, policy proposals are developed. Section 3 focuses on the efficiency of disclosure and auditing rules. The main results are summarized in Section 4.

2. *Insider Trading*

Insider trading refers to capital market transactions that rely upon unpublished material information.¹ From a moral or ethical standpoint, insider trading is usually labeled as harmful and therefore prohibited in many countries. The Council Directive 89/592 of 13 November 1989 coordinating regulations on insider dealing² requires all members of the European Community to implement regulatory measures prohibiting insider trading.

Institutional economics refrains from making moralistic statements. The comparison of alternative institutional regimes centers on economic differences. The following sub-section tries to clarify the economic effects of insider trading (2.1). Based on the results of the effect analysis, policy proposals are developed (2.2).

2. 1 Effect Analysis

Insider trading affects the information efficiency of capital markets, capital market liquidity, entrepreneurship, political, administrative, and juridical decisions as well as agency costs.

2. 1. 1 Information Efficiency

Capital market prices always serve two purposes (Stiglitz 1981, 244): they clear markets and convey aggregated information. Insider trading affects only the latter.

Capital market theory has developed many criteria for measuring the information efficiency of capital markets. Best known are Fama's measures (Fama 1970: 383). According to Fama, capital markets are informationally efficient in a strong sense if market prices convey all information available. However, capital markets can only be efficient in this strong sense, if information is costless (Grossman/Stiglitz 1976: 1980). As soon as information is costly, markets will not be fully arbitrated and market prices will not convey all information available.

Institutional economics accepts the fact that information is costly. Therefore, the efficiency of capital market institutions cannot be measured in absolute terms. Measurement has to be substituted by comparative institutional economics. Given costly information, maximizing the amount of information conveyed by market prices is not efficient. What has to be maximized is the difference of information benefits and information costs. Institutional economics compares different forms of institutional arrangements with respect to their net benefits. From the viewpoint of institutional economics, information efficiency of capital markets is not an absolute but rather a relative criterion.

Capital market prices aggregate two kinds of information: event and effect information.³

¹ This definition is the basis of insider regulation by the SEC in the United States. For a discussion of the problems related to the definition of the term "insider" see Engel (1991:390-393).

² For an English version of this directive see Hopt/Wymeersch (1991:383-388).

³ For a similar distinction see Schmidt (1984: 342-346) who distinguishes between "event" and "model information". A different distinction is introduced by Manne (1966: 47-57) with his concept of "first-" and "second-category information".

Event information informs about price relevant facts such as the discovery of new oil wells, the development of new products, interest rate changes, takeover bids, and antitrust decisions. Event information does not include information about future price changes. To anticipate price changes correctly, event information has to be translated into economic effects. This translation process relies on effect information. Effect information is structured in the form of if-then-clauses (e.g. if a corporation receives a takeover bid then share prices of this corporation will rise). Effect information can be based on theories, experience, or pure intuition. Pieces of effect information are often aggregated into complex effect chains. To realize insider profits, a combination of both event and effect information is required.

Using effect information, event information may be categorized according to its degree of specificity. Event information is labeled as unspecific or general if the underlying fact (e.g. a tax reform) causes price changes in a variety of securities. Event information is classified as semi-specific if the underlying fact (e.g. import restrictions for Japanese cars) causes price changes within a group of capital market securities. Event information is highly specific if the underlying fact (e.g. a takeover bid) causes a price change in only one capital market security.

Specific event information has the quality of a private good. By keeping the information secret others can be excluded from its use. In addition, when used, the information value decreases. As long as insider trading is not sanctioned, prospective private gains of using specific event information provide sufficient incentives to invest time and money searching for specific event information. If the search has been successful the insider will keep his knowledge secret and use it for insider dealing. Thus, parts of the information are already absorbed by the market price.

Generally, the insider has not enough money to transform the entire information value into private profit. As an information deficit of the market price remains, the insider might try to keep the information non-public and sell it in order to acquire additional amounts of the entire information value. This strategy is to the insider's advantage only if the price paid for his information exceeds the costs connected with the delay of profit realization. Otherwise, the insider is better off disclosing the information and realizing his profit. Any delay of disclosure increases the chance of new events which might cause price changes in the opposite direction.

Even if the insider decides to keep his information secret in order to sell it there are two reasons why information deficits regarding the market price will remain only for a short time. Firstly, after the information is sold it will be the basis for additional market transactions, causing a further reduction in the market price's information deficiency. Secondly, the buyer of inside information is confronted with the same question: to keep the acquired information secret and sell it or to disclose it. Non-disclosure requires that both primary and secondary insiders decide to keep the information secret and try to sell it. As the inside information's value decreases with each additional person using that information, incentives to disclose the inside information will increase rapidly. Even if a market for inside information is established despite the information paradox⁴ each capital market transaction by primary and sec-

⁴ The information paradox refers to the problem of valuing unknown information. To evaluate any information, the potential buyer needs to know the information's content. As soon as he knows it he need not buy the information any more (Arrow 1971: 152).

ondary insiders will add to the information contained in market prices.

The possibility of transmitting false information is very low⁵. Given a market for inside information, the information asymmetry between tipper and tippee provides incentives to sell false information (Ross 1979: 185). But, only inexperienced and incautious tippees will risk their money without any form of guarantee. Cautious and experienced market participants are aware of their informational disadvantage. They will buy potential inside information only if the risk of buying false information is effectively restricted, as for example by the tipper's reputation. The reputation serves as a hostage. Selling false information will lead to a loss of reputation with the effect that experienced and cautious market participants will refrain from future transactions with that tipper. In the long run, either the market for inside information will break down or only cautious and experienced tippees will buy potential inside information from well reputed tippers. In either case, the danger of transmitting false information is minimized. Thus, unrestricted insider trading promotes information diffusion through the price mechanism and by providing strong incentives for rapid disclosure of inside information⁶.

If the right to use specific event information is effectively restricted by insider regulation the problem of positive externalities reduces the incentive to invest money and time in searching for specific inside information. The person searching for specific inside information has to bear all costs resulting from his searching activities, whereas the prohibition of insider trading prevents him from internalizing substantial parts of the information benefit. Therefore, incentives to invest in search activities are low. As a consequence, less information is found. In addition, the possibility of keeping information secret or delaying its disclosure is increased if the information is to the insider's disadvantage. Suppose decision errors have occurred within a corporation. Management will try to keep these errors secret in order to avoid loss of reputation. Insider trading on the other hand would promote information diffusion at least through the price mechanism.

So far the analysis has been focused on specific event information. Specific event information informs about facts which cause price changes in only one or a few capital market securities. Therefore, potential insider profits are relatively large. Unspecific event information or effect information on the other hand will have price relevance for a wide variety of securities. Given a fixed amount of money, the insider can internalize smaller fractions of the information's total value if the information is less specific compared to highly specific information. Selling unspecific inside information is more difficult than selling specific inside information. The danger that price changes indicated by unspecific inside information will be balanced out by other effects is relatively high. This means that insider trading based on unspecific information will only be successful when large amounts of money are involved and risk is well diversified. Mainly institutional investors are able to fulfill these preconditions. They are potential buyers of unspecific inside information if a stable market for unspecific inside information would be established on the basis of the sellers' reputation.

The limited possibilities of internalizing substantial parts of the information's total value

⁵ The thesis that unrestricted insider trading provides incentives to sell wrong "inside information" is proposed, among others, by Ross (1979: 185).

⁶ The statement that insider trading decreases information efficiency of capital markets by providing incentives for a delay of disclosure (Schotland 1967: 1448-1449) cannot be supported. This statement ignores information diffusion via the price mechanism as well as empirical evidence (Dooley 1980: 34).

if the information's degree of specificity is low reduce the incentive to search for unspecific inside information. Consequently, a general ban on insider trading affects the search and later disclosure of unspecific inside information less than the search and disclosure of specific inside information.

Summing up, an institutional regime allowing insider dealing is informationally efficient compared to a regime effectively sanctioning insider trading. Effectively sanctioning the use of specific inside information has a stronger impact on information efficiency than effectively sanctioning the use of unspecific inside information.

2. 1. 2 Market Liquidity

Market liquidity can be described by the degree of market continuity and market depth (Reilly 1985). Market continuity is measured by the price differences from one transaction to the next. Whereas market continuity describes a dynamic aspect, market depth refers to a static aspect. Market depth is measured by the number of persons who are willing to buy or sell at prices slightly above or below the current market price. Market liquidity reduces the disadvantages of transactions due to liquidity factors thereby increasing the economic attractiveness of the respective market.

If inside trading is effectively sanctioned, market prices react only after official disclosure of information. Insider trading on the other side causes prices to adjust more smoothly because parts of the information have already been absorbed by market prices before official disclosure. From this point of view, insider trading enhances market continuity.

But insider trading also provides strong incentives to search for inside information. This may lead to the detection of additional information which otherwise would not be found and disclosed. The effect on market continuity hereby caused is ambivalent. Additionally detected information may either enhance information- and price-continuity or cause price volatility to increase.

Market depth decreases with increasing information asymmetries between market participants. If insider trading is not sanctioned effectively, non-insiders who are trading on the basis of the auction principle must live with the fear that the other market side has informational advantages. As soon as non-insiders realize this danger, they will either refrain from transacting at all or prefer long-term investment strategies instead of short-term engagements.

Another chain of reactions will lead to similar results if market-makers are responsible for market liquidity. A market-maker commits himself to quoting bids and asks for a specified set of securities and to buying or respectively selling at his quotation to everyone who so desires.

The market-maker will try to quote bids which are slightly lower and to quote asks which are slightly higher than the equilibrium price. The difference between his quotation and the equilibrium price is income to the market-maker, but transaction costs to all other market participants. The price elasticity of capital markets and the fact that there are no monopolies for market-makers but competition among several market-makers for every security provides sufficient incentives to keep the bid-ask-spread at low levels.

This situation changes as soon as insiders enter the market. If insiders anticipate price changes that exceed the bid-ask-spread they will try to realize insider profits by transacting with the market-maker. Therefore, insiders impose heavy losses on market-makers. To what extent the market-maker is able to regain some of these losses to insiders from non-insiders

depends upon the amount and speed of the price changes. Fast and excessive price changes will leave the market-maker with high losses. Therefore, the danger of losing to insiders is extremely high if insiders possess specific event information.

In order to regain their losses to insiders from non-insiders, market-makers will increase the bid-ask-spread until it reflects the percentage of insider trading in the respective market⁷. The increasing bid-ask-spread leads to higher transaction costs causing some of the non-insiders to leave the market and realize alternative investments. In addition, insiders who anticipate price changes that do not exceed the increased bid-ask-spread will also refrain from dealing, whereas those insiders who anticipate major price changes will remain in the market. Their share of the total trade volume increases. This leaves the market-maker with an even higher risk of losing to insiders. If he reacts by further increasing the bid-ask-spread the capital market would be in danger of breaking down completely⁸. The economic force that keeps the secondary capital market alive is a price decline in the primary market. As the scarcity of capital increases due to higher transaction costs in the secondary market, issuers of new securities must compensate investors by increasing the expected rate of return. The only way to achieve this goal is to allow investors to sign new issues at lower prices. Thus, if primary and secondary capital markets function well, the entire decrease in transaction costs caused by the existence of insiders will be borne by those issuing new securities.

As a result, the secondary capital market will stay alive. The bid-ask-spread will increase⁹ to a level allowing market-makers to prevent some insider trading and to pass on all losses caused by those insiders who will remain in the market onto non-insiders who themselves will be compensated by a decline of prices in the primary market.

As long as insider profits are fed by lost issue profits, insider trading neither on the basis of the auction principle nor on the basis of the market-maker principle will cause capital markets to break down. Compared to an institutional environment which effectively sanctions insider trading, the only effect of unrestricted insider trading on market depth is an increase in transaction costs which causes non-insiders to prefer long-term instead of short-term investments. Therefore, there will be less market participants willing to sell slightly above (or buy slightly below) current market prices in a market with unrestricted insider trading. Thus, the effect of insider trading on market depth is negative.

The negative effect of insider trading on market depth increases as soon as the short-term oriented liquidity traders notice the opportunity of entering competing capital markets which are regulated by effective laws against insider trading. The exit of liquidity traders leaves markets without effective insider laws with a lower market depth and those which provide effective insider regulation with an increase in market depth. Consequently, effective laws against insider trading may be interpreted as a signal for low transaction costs.

Summing up: whereas the effect of insider trading on market depth is undoubtedly negative, its effect on market continuity may be positive as well as negative, depending upon cir-

⁷ The effect of insider trading on the bid-ask-spread is discussed by Jaffee/Winkler (1976); Copeland/Galai (1983); Glosten/Milgrom (1985); Seyhun (1986).

⁸ This logic of a market breakdown was first introduced by Akerlof (1970).

⁹ The increasing bid-ask-spread does not reduce the information efficiency of the market. The decreasing precision of market prices is compensated by an increase in the information market prices contain. The increasing information content is due to the fact that less informed traders (non-insiders) partly refrain from trading as the bid-ask-spread increases. Therefore, the percentage of well-informed traders is positively correlated with the bid-ask-spread.

cumstances clarification of which lies beyond the scope of this paper. The aggregate effect of insider trading on market liquidity will therefore remain ambivalent.

2. 1. 3 Entrepreneurship

Entrepreneurship refers to the realization of innovations. Consequently, entrepreneurship does not characterize a group of persons, but rather defines a specific kind of economic actions. Entrepreneurial activities include the development of new resources, the entering into new markets, the construction and marketing of new products (or services), the realization of new production methods, the implementation of efficiency enhancing organizational devices, and alertness with respect to price differences and profit opportunities (Schumpeter 1928: 481-483; Mises 1940: 248-250 and 265-270; Kirzner 1973: 30-87).

Entrepreneurship is the root of economic progress. Among competing institutional environments, only those which reward entrepreneurial activities sufficiently will enhance prosperity. If the entrepreneur does not sufficiently profit from the social benefits of his innovation he will most probably refrain from any entrepreneurial activity at all. Capitalism enables the entrepreneur to profit from the benefits of his innovation by guaranteeing him private property rights including patent and copy rights. In a competitive setting, those entrepreneurs whose innovations are to the highest benefit of others are rewarded with the highest profits. As a result, capitalism transfers the individual's desire for profit into social welfare.

The high-powered incentives to innovate are reduced within corporations due to the separation of ownership and control¹⁰. Within owner-controlled firms the owner-entrepreneur benefits to the full extent from his entrepreneurial activities, whereas within public corporations successful innovations introduced by management are mainly to the benefit of shareholders. This incentive problem may be reduced by introducing pay-for-performance compensation plans. However, pay-for-performance compensation plans automatically cause another problem: how to evaluate performance. For example, neither supervisory boards nor shareholders are capable of ascertaining to what extent changes in the corporation's market value are caused by the entrepreneurial activities of certain managers and to what extent these changes are caused by exogenous factors. Insider trading might solve these incentive and evaluation problems.

If shareholders allow the managers of their corporation to trade shares of their corporation using specific event information, the resulting insider dealing leads to an internalization of innovation externalities. By using his superior information, the manager who is acting as a non-owner-entrepreneur can benefit from the profit of his innovation through insider gains.

This kind of manager compensation is pareto-efficient because the right to use specific event information is of much more value to managers, due to their superior effect information, than to shareholders. Therefore, the reduction in compensation managers are willing to accept in order to be allowed to trade on the basis of specific event information is lower from the managers' perspective and higher from the shareholders' perspective than the value of specific event information.

In addition, a compensation plan including the right to use specific event information facilitates the selection of new applicants. Potential managers with well-developed entrepreneur-

¹⁰ The problems associated with separation of ownership and control are extensively discussed in Berle/Means (1932) and Fama/Jensen (1983).

rial skills will be better off with a compensation plan which includes the right to deal on the basis of inside information than potential managers with less-developed entrepreneurial skills. The latter will tend to prefer compensation schemes which guarantee a relatively high fixum. As part of the compensation scheme, insider trading promotes self-selection in favor of managers with high entrepreneurial potential.

These arguments may be countered by stating that the same effects result if managers are rewarded with ownership rights (e.g. shares). However, if managers are rewarded with shares after their entrepreneurial activities the original evaluation problem arises anew. If shares are handed out to managers prior to their entrepreneurial activities, successful and not successful managers will be rewarded alike.

Criticism also arises from the fact that managers who are not restricted from insider trading may gain on a rise as well as on a decline of the corporation's market value (e.g. Schotland 1967: 1451; Mendelson 1969: 489-490; Levmore 1982: 149). For example, managers could profit from bad decisions by buying put options. This fact, critics argue, might cause intentional bad decisions by managers. As bad decisions require less talent than entrepreneurial success, allowing managers to trade as insiders might reduce the economic efficiency of corporations. However, there are three arguments against this criticism. Firstly, bad decisions do not only lead to insider gains through *baisse* speculation, they also cause a decline in the value of the manager's human capital. Consequently, the potential losses of causing undesirable events regularly offset the potential insider gains. In addition, the possibility of losing one's job because of bad performance puts any chance of further insider gains at risk (Manne 1966: 150-151). Bear in mind however, that the disciplinary forces described here are weakened rapidly as soon as the manager approaches retirement.

Secondly, managers usually work within teams. In order to profit from *baisse* speculation, they first have to convince all team members of their plan. Since all team members will have to put their jobs as well as their human capital at risk, convincing all of them most probably will fail.

Thirdly, the possibility of managers profiting from declining share prices increases the incentives to maximize the market value of the corporation. This statement seems paradoxical. However, consider the fact that managers investing their human capital have less possibilities of diversifying risk than shareholders. Hence, they are risk-averse. To avoid losses in human capital, managers prefer low-variance investment projects even if the expected returns are lower compared to high-variance projects. To induce managers to act risk-neutrally requires that they both profit from successful projects and have the possibility of compensating for losses in human capital if projects are less successful (Demsetz 1969: 15). This is achieved by giving managers the right to insider trading¹¹.

2. 1. 4 Political, Administrative, and Juridical Decisions

Politicians, administrators, and judges have the possibility of taking actions that result in insider gains if insider trading is not restricted. The highest insider gains result from specific event information. In order to create the basis of specific event information, politicians, administrators, and judges will have to favor (or, if they want to gain from *baisse*

¹¹ Accordingly, the risk-enhancing incentives provided by unrestricted insider trading are not to the disadvantage of shareholders as Easterbrook (1985: 332) and Dennert (1991: 194-195) fear, but rather to their benefit.

speculations, disadvantage) certain corporations. Opportunities for this are plentiful. Consider subsidies, public projects, antitrust decisions, patent cases, and so on. As politicians, administrators, and judges are responsible for creating and maintaining an efficient institutional environment on the basis of equal opportunities, unrestricted insider trading for either of them will be dysfunctional.

2. 1. 5 Agency Costs

The separation of ownership and control within corporations not only impairs the incentives to innovate, but also causes agency costs¹². Agency costs arise out of information asymmetries between principal (e.g. owner) and agent (e.g. manager). Within corporations, managers' decisions affect shareholders' wealth. As long as monitoring costs are prohibitively high, shareholders must be aware that managers do not maximize shareholder wealth, but rather act in their own interest. Beautiful but less qualified secretaries, large limousines, and mahogany desks are only the tip of the iceberg within some corporations.

Agency costs are positively correlated with the dispersion of ownership. Hence, agency costs within public corporations exceed those in private corporations. Holding a very small part of a corporation's shares provides not enough incentives to monitor management. The monitor has to bear all monitoring costs whereas owning only a small part of the corporation's shares will not enable him to internalize more than a fraction of the monitoring benefits. Accordingly, minor shareholders will refrain from monitoring and will hope that other shareholders invest in monitoring. As soon as all shareholders try to ride free on monitoring activities by fellow shareholders, there will be no monitoring at all within public corporations.

The incentive to monitor will be different for major shareholders. Holding substantial parts of a corporation's outstanding shares puts them into a position of getting positive returns on monitoring investment. On the other hand, major shareholders forego the opportunity of risk reduction by holding a well diversified portfolio. This puts major shareholders in a similar position as managers who cannot diversify their human capital.

By closely monitoring the corporation's activities major shareholders are in a superior position to acquire inside information. Accordingly, unrestricted insider trading could serve as a compensation for the additional risk major shareholders take. The higher level of monitoring induced by unrestricted insider trading leads to a reduction in agency costs borne by minor shareholders. From this point of view, minor shareholders benefit from allowing major shareholders to use inside information through an increase in the corporation's profitability.

On the other hand, unrestricted insider trading which allows managers to trade in shares other than those of their own corporation will lead to an increase in agency costs as it enables managers to profit from economically unjustified take-over bids at the expense of their principals (Wenger 1986: 15). Even without insider trading, managers have many incentives (e.g. increase in power, risk diversification) to use their corporation's free cash flow for acquisitions instead of paying dividends.

¹² The term "agency costs" was introduced by Jensen/Meckling (1976: 308-310).

2. 2 Policy Proposals

The effects of insider trading on different parts of economic efficiency are shown in Table 1.

TABLE 1 . EFFECTS OF INSIDER TRADING

Area of Effect	Consequences of Insider Trading
Information efficiency	Insider trading increases the amount of information aggregated in market prices and accelerates the diffusion of information.
Market liquidity	Insider trading decreases market depth by increasing the costs of transacting ; the effect on market continuity is ambivalent.
Entrepreneurship	Allowing managers to use inside information when dealing in securities of their own corporation compensates in part for the incentives to innovate which were lost due to the separation of ownership and control within corporations.
Political, administrative, and juridical decisions	Unrestricted insider trading by politicians, administrators, and judges is dysfunctional.
Agency costs	Unrestricted insider trading by large shareholders reduces agency costs; allowing managers to use inside information when dealing in other than their own corporation's securities increases agency costs.

Since the effects of insider trading on economic efficiency are mixed and not quantifiable, economists should refrain from making generalized policy proposals. However, economists who are aware of the limitations of the human intellect could well look at the results of social evolution when deciding whether to propose a ban on insider trading or not. Social evolution may have developed institutional regimes that incorporate more knowledge than any regulatory committee is able to acquire (Hayek 1969: 86).

A comparison of the insider rules in the world's most important capital markets unfolds the following picture.¹³ The strictest insider laws are found in the United States. Trading on the basis of unpublished material event information is legally prohibited. Insiders must either refrain from using their informational advantage or publish the information before trading (Scott 1980: 802). Insider trading may be sanctioned by huge fines or even imprisonment. In addition, major executives, board members, and shareholders who own more than 10% of a corporation's outstanding shares have to report their transactions to the Security Exchange Commission¹⁴. Using this data, empirical studies revealed that these persons' rate of return significantly exceeds the average market rate of return (Lorie/Niederhoffer 1968; Jaffe 1974; Finnerty 1976; Seyhun 1986).

This fact leads to the hypothesis that extensive insider trading prevails despite strict insider regulations. It seems as if the SEC tolerates most of the smaller cases of insider trading

¹³ For an extensive overview of the insider laws in different countries see the various articles in Hopt/Wymeersch (1991: 39-202).

¹⁴ According to Section 16(a) of the Securities Exchange Act of 1934.

and concentrates its regulatory activities on so-called "bombshell effects" (Kelly et. al 1987: 443). Bombshell effects result from sanctioning spectacular insider cases where insiders gain large amounts of money by using highly specific event information. These insider cases are generally related to take-over bids and earn extensive publicity. The strategy of tolerating minor cases and heavily sanctioning major cases of insider trading might be justified by the fact that discovering insider cases which are based on effect or unspecific event information causes prohibitively high costs. Since the activities of the SEC are limited by budget constraints it is economically rational to concentrate on those cases of insider trading which have a high probability of discovery in relation to the costs of discovery.

Many other countries have followed the United States and introduced similar although less strict laws against insider trading¹⁵. The recent regulatory activities in many countries show a strong tendency to intensify insider regulation.

Since the current ban on insider trading within most countries did not evolve out of private utility calculations by capital market participants but is the result of legal forces it may not be concluded that insider trading is inefficient. Not economic efficiency but rather political considerations (e.g. favoring special interest groups¹⁶) may have been the reason for insider regulation in most cases.

The strong tendency towards legal regulation derives from the fact that there is little empirical evidence for any argument in favor of or against insider trading purely on the basis of social evolution. Only a few cases of private regulation prior to or in addition to legal regulation actually exist¹⁷.

The most plausible reason why there is little effort to privately regulate insider trading, however, is not the general efficiency of insider trading but the ineffectiveness of private regulation. Since the probability of detecting insider trading is very low hard sanctions are required to make insider trading unattractive. Only state regulation can provide the necessary sanctions to compensate for low rates of detection. In addition, public regulation opens access to more effective modes of insider prosecution and is the only way to prevent insider trading by politicians, administrators, and judges.

If insider trading is inefficient public regulation is the only appropriate response. Private regulation will fail since it cannot compensate for the low rates of detection which are typical of insider dealing.

De facto, insider trading can only be regulated with regard to event information. Since the use of effect information seems to increase rather than decrease capital market efficiency, the failure to regulate its use is no disadvantage. From the viewpoint of the previous effect analysis, insider trading on the basis of event information is beneficial with regard to some

¹⁵ For a survey of the way insider trading is sanctioned by different countries, see Wymeersch (1991: 118).

¹⁶ For example, Kay (1980) supposes that insider regulation in Great Britain restricts insider trading by corporate insiders in favor of market-makers and brokers.

¹⁷ Until recently, the German capital market relied exclusively on private regulation. 85% of all listed corporations obliged their managers to refrain from insider trading (Kohler 1991: 268). Since managers who act against their commitment are sanctioned by losing their insider gains to the corporation the existence of this form of private regulation may not be used as an argument against the efficiency of insider trading. Other forms of private regulations include the insider restrictions incorporated in the City Code on Takeovers and Mergers and the Granville General Market Undertaking which are accepted by all listed corporations in Great Britain (Schmidt 1991: 38) as well as the different forms of self-constraints which are common among lawyers and financial printers (Dooley 1980: 47-52)

aspects and inefficient with regard to other aspects. Since you cannot have your cake and eat it there seems to be a dilemma. Unregulated insider trading does not open up enough possibilities for the evolution of private regulation because private regulation cannot provide the necessary sanctions. The result would be too much freedom for insider trading. On the other hand, a general ban on insider trading enforced by public regulation would lead to overregulation. For example, the beneficial effects of granting managers and major shareholders the unrestricted right to use insider information when trading securities of their own corporation could not be realized. A first step towards solving this problem would be to combine the prohibition of insider trading with the right for all listed corporations to opt out of the general ban on insider trading and allow managers and shareholders the use of inside information when dealing in securities of their own corporation¹⁸. Opting out should require a majority vote at the shareholder meeting.

This regulatory device is superior to the current practice of public regulation in many countries. Competition in the capital market will force corporations to use their option efficiently. If allowing managers and shareholders the use of inside information increases economic efficiency corporations will use their right to opt out and signal their decision to all capital market participants; if it decreases efficiency they will refrain from opting out.

3 . *Disclosure and Auditing*

In addition to laws against insider trading, disclosure and auditing rules are an important instrument of capital market regulation. Whereas insider regulation tries to reduce the effects of information asymmetries, disclosure and auditing rules try to reduce the information asymmetries themselves. If all information asymmetries were to disappear due to disclosure and auditing rules there would be no need for insider regulation.

Despite the fact that information disclosure and auditing is heavily regulated, there are sound reasons for (3.1) as well as against (3.2) public regulation. After discussing these arguments (3.3), policy devices are developed (3.4).

3. 1 Arguments for Public Regulation

Supporters of disclosure and auditing laws generally refer to the failure of unregulated markets for public information (e.g. Feldhoff 1992). The price mechanism will only lead to an efficient supply of information if neither the supply nor the demand for public information causes externalities. In the case of public goods this precondition is not fulfilled. Public information improves the allocation of capital within the economy. However, only few people will be willing to pay a price reflecting marginal utility for the supply and auditing of public information. The majority of capital market participants will try to use public information without paying for its supply and auditing. This kind of free-riding will result in a situation in

¹⁸ Schmidt (1991: 38) claims that the German insider rules which had existed since 1970 and were recently replaced due to the European Insider Dealing Directive allowed companies to withdraw their voluntary agreement to restrict insider trading without affecting their status as listed companies. From the viewpoint of this paper however, the voluntary German system cannot be regarded as efficient, because it does not provide the necessary sanctions to restrict insider trading effectively if desired.

which the level of information disclosure and auditing is suboptimal (Gonedes/Dopuch 1974: 74-78). The only solution to this problem is public regulation.

Another advantage of public regulation is the introduction of public standards in connection with disclosure and auditing laws. Standardization leads to a reduction in the costs of information production and auditing (Busse v. Colbe 1987: 193). From this point of view, public regulation seems to be beneficial even if the unregulated supply of information is optimal.

3. 2 Arguments against Public Regulation

The strongest argument against publicly regulated supply of capital market information is questioning the economic value of public information. As long as capital market prices reflect all publicly available information (according to the semi-strong informational efficiency thesis by Fama 1970: 383) any kind of disclosure law is senseless (Hirshleifer 1971; Fama/Laffer 1971; Marshall 1974). If information disclosure involves any costs it is dysfunctional.

A second chain of argumentation against the efficiency of disclosure and auditing laws is based on the trust in the ability of unregulated markets for public information. Private demand for public information may be suboptimal from the viewpoint of the entire economy. However, this need not lead to the conclusion that a suboptimal demand for public information will automatically result in a market failure. The extent of public information available at capital markets does not depend solely on the demand for public information. It is determined to a much larger degree by the supply side.

The side of the capital market which is better informed has an incentive to reduce the existing information asymmetries by publishing verified information without charging the other side of the market for the supply of information (Schmidt 1982: 742-743; Hax 1988: 194-197). Otherwise, information asymmetries will remain and the less informed side, aware of its informational disadvantage, will refrain from capital market transactions. If the resulting loss of utility suffered by the better informed side, exceeds the costs of auditing and information disclosure the better informed side possesses strong incentives to invest voluntarily in auditing and disclosing relevant information.

Accordingly, if capital market participants base their activities on private cost-utility calculations the economically optimal level of disclosure and auditing will prevail. Any kind of public regulation would be inefficient.

3. 3 Discussion

The thesis that public information has no economic value is deduced on the basis of very restrictive assumptions. Since most of these assumptions do not correspond to the empirical situation in real capital markets, this thesis has to be rejected¹⁹. In addition to the irreality of the assumptions, the validity of the thesis is questioned by the fact that only the ex post con-

¹⁹ Hakansson et al. (1982) prove that the thesis does not hold if the assumptions do not apply. Verrecchia (1982: 8 and 17) criticizes the empirical testability of these assumptions.

sequences of public information are considered. However, the *ex ante* incentives have to be considered as well. The anticipation of future disclosure and auditing causes capital market participants to change their behavior. For example, investment decisions by the managers of a public corporation are heavily influenced by information disclosure and auditing. This dependency increases if accounting data (e.g. earned profits) form the basis of executive compensation. Consequently, information disclosure and auditing do have economic value.

The fact that capital market participants do publish information in excess of their legal obligations and that voluntarily audits are common underlines the economic value of information disclosure and auditing. In addition, the existence of voluntary audits and information disclosure²⁰ supports the thesis that unregulated markets for public information do not fail. The question as to whether the incentives provided by the mechanisms of unregulated markets lead to an optimal level of auditing and disclosure activities shall be discussed from a principal-agent-perspective.

If new securities are issued potential suppliers of equity are exposed to three kinds of problems. Firstly, they do not know the real value of the securities issued. Therefore, they do not know whether the securities are of the value promised by the issuer or not (adverse selection problem). Secondly, if the equity holders do not invest in monitoring management they will have to take into account that the managers do not maximize the market value of equity shares (moral hazard problem). Thirdly, the equity holders do not know whether they will receive the entire residual income (hold-up problem).

Because of these information asymmetries the suppliers of equity and debt cannot separate creditworthy from not creditworthy market participants. The capital market is pooled. In this situation, creditworthy market participants have an incentive to lower the cost of capital supply by reducing the existing information asymmetries. However, pure lipservice will not suffice. Creditworthiness can only be credibly signaled if the costs of producing the signal are prohibitively high for unworthy market participants and are lower than the benefits of the signal for worthy market participants. These conditions are met if all capital market participants are subject to publicly regulated disclosure and auditing rules. Since the transmission of false information is heavily sanctioned unworthy market participants face prohibitively high costs in producing the wrong signals. Disclosure and auditing duties may also be the subject of private contractual arrangements among capital market participants (Schidbach 1986). The question whether the sanctions available without any kind of public regulation will in fact suffice to meet the required conditions of separating a pooled market cannot be answered theoretically.

3. 4 Policy Proposals

Disclosure and auditing laws are effective institutions for reducing welfare-impairing information asymmetries in capital markets. Uniform standards of publication reduce the costs of information production, interpretation, and comparison as well as auditing. On the other

²⁰ For example, as early as 1926, that is 8 years before disclosure and auditing duties were introduced by the Securities Exchange Act of 1934, all corporations listed at the NYSE regularly published balance sheets and earnings calculations. 82% of all corporations submitted themselves to voluntary audits (Benston 1976: 127). An extensive overview of voluntary auditing is presented by Watts/Zimmermann (1983).

side, more flexibility with regard to the extent of disclosure and auditing would be desirable, giving firms the possibility of meeting the special requirements of their respective legal form (e.g. sole proprietorship, partnership, or public corporation)²¹. But even if disclosure and auditing laws did allow firms to choose among different forms of disclosure and auditing requirements, capital market participants would still be prevented from developing cheaper and more beneficial disclosure and auditing obligations via private unregulated contracts.

Since the analysis has shown that capital market participants have a vital interest in publishing information and submitting themselves to auditing procedures they should be granted the right to decide if they want to disclose information according to public disclosure and auditing rules or according to voluntary commitments enforced by private contracts. This option will create competition among public and private standards.

The proposed institutional regime is superior to any form of mandatory public regulation since every capital market participant will prefer private regulation only if it causes less agency costs (e.g. less costs of signaling) than public regulation. Mandatory disclosure and auditing requirements are inefficient, because capital market participants will submit themselves to public regulation anyway in those situations where it is efficient; however, in situations where public regulation is not efficient, private regulation cannot evolve.

4 . *Summary*

Laws against insider trading, disclosure requirements, and auditing rules form the basis for information regulation of capital markets. The economic effects of insider trading are mixed. Information efficiency and entrepreneurship are enhanced, market liquidity and the efficiency of political, administrative, and judicial decisions are decreased. Insider dealing by large stockholders reduces agency costs. If managers are allowed to trade in other companies' shares agency costs will be increased.

Despite these mixed effects, institutional economics favors a prohibition of insider trading in order to minimize the negative effects. Private regulation of insider trading fails because of weak disciplinary mechanisms. Public regulation provides the necessary sanctions to compensate for low detection probabilities.

To prevent overregulation, corporations should have the right to opt out of the general ban on insider trading and allow managers and shareholders to trade in the corporation's shares using nonpublic material information. In this way, most of the positive economic effects of insider trading can be realized if desired.

Disclosure and auditing rules are installed to decrease information asymmetries among capital market participants. Agency theory shows that the issuing unit has a vital interest in disclosing verified information in order to keep the cost of capital low. Where private incentives exist, installment of public forces is not necessary. Nevertheless, public regulation may provide efficient disclosure and auditing standards. However, it is important that competition among public and private standards is not impaired. Every corporation should be free to choose the optimal disclosure and auditing standards as regards benefits and costs. These might be public standards, but not necessarily so. Private forces may develop better and

²¹ See Hax (1988: 198-199)

cheaper standards. These entrepreneurial activities should be kept alive.

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