

## **CONTROLLING THE AGENCY COST OF INSIDER TRADING**

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### **Abstract**

This study provides a unique use of abnormal profits from insider trading to measure a specific form of agency cost between outside shareholder and insiders—the agency cost of insider trading. Cross-sectional differences in the utilization of various bonding and monitoring mechanisms are examined to determine the relative effectiveness of alternative strategies in controlling such agency cost. Institutional shareholders and separation of the CEO and board chairman positions are shown to be effective in minimizing the agency cost of insider trading.

### **INTRODUCTION**

Increased emphasis on the study of agency relationships and agency costs has greatly enhanced our understanding of the structure and behavior of corporate organizations. Although many important agency relationships exist within a corporation, the potential conflicts between managers and shareholders are certainly among the most crucial. Managers often face incentives for non-optimal behavior—pursuing personal gratification objectives at the expense of shareholder wealth maximization. This potential divergence of goals supports a need for monitoring and control mechanisms within corporate businesses.

While corporate theory suggests many different mechanisms to monitor and control manager-shareholder conflicts, there is limited empirical evidence to support or refute the various options due primarily to the difficulty in measuring agency costs and/or measuring the benefits of various control mechanisms. This study provides a unique approach to expanding the empirical evidence of the manager-shareholder agency problem by examining the excess profits from insider trading activity as one aspect of managerial agency-related behavior. The advantage of this approach is that the related cost (the abnormal profitability from trading) can be directly measured. Then, the agency cost measure is regressed on various monitoring and bonding mechanisms that have been proposed in the finance literature for resolving agency conflicts. The significance of the agency control variables are examined to determine which strategies minimize the occurrence and/or the extent of this form of agency cost.

### **BACKGROUND AND MOTIVATION**

If managers/insiders possess private information, and have the incentive to maximize their personal well-being, buying and selling of the firm's stock can be used to increase their own wealth, at the expense of existing outside shareholders. It is generally accepted that insiders do have access to significant private information about their companies with which superior assessments of the firm's current or near-term true value can be made. Thus, this reflects the most straightforward basis for claiming that abnormal insider trading profits represent an agency cost. The profits are obtained at the direct expense of uninformed outsiders as a result of a conflict of interest between firm insiders' personal utility goals and the wealth maximization interests of the outsiders.

Empirical evidence supports the argument that insiders trade and profit at the expense of outsiders. Despite legal restrictions on insider trading behavior, numerous studies have found that insiders do trade around events that influence

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firm value and that, on average, they do earn above-normal profits (e.g., Lorie and Niederhoffer (1968), Jaffe (1974), Finnerty (1976), and Seyhun (1986, 1990)).

Further, the theoretical literature related to trading between asymmetrically informed investors notes numerous other ways in which trading by investors with superior information may impose costs on less informed investors. Glosten and Milgrom (1985) and Copeland and Galai (1983) develop the idea that the bid-ask spread contains a component to reflect information differences and that the spread should increase as the extent of trading by informed investors increases. Increasing the bid-ask spread imposes additional transactions costs on all participants.

Manove (1989) and Demsetz (1986) pursue a similar line of inquiry but describe how insider trading imposes a cost even without considering the role of a market maker. In such an environment, outsiders simply recognize that insider trading will result in a wealth transfer from uninformed to informed traders and the expected loss is factored into outsiders' required return. A higher required return results in a reduction in value.

The general literature related to trading behavior between asymmetrically informed investors is rather extensive and has generated numerous models and theories (see for example, Grossman and Stiglitz (1980), Kyle (1985), and Black (1986), to mention but a few). Kyle (1985) shows how market equilibrium is reached and the manner in which trading by insiders (informed traders) results in information being incorporated into price. Still, he notes that the traders with information make money, while those without such information lose money. Fishman and Hagerty (1992) show how markets that consist of traders with asymmetric information can lead to less efficient stock prices, while Bhattacharya and Spiegel (1991) propose that such situations can even lead to a market breakdown, if no constraints are placed on the trading of the informed participants.<sup>1</sup>

In addition to the previously noted studies that consistently find abnormal profitability from insider trading, Masson and Madhavan (1991) provide another form of empirical support for the idea that insider trading is indeed a form of agency cost (transfer of wealth from outsiders to insiders). When they compare the effects of the level of insider ownership with the level of insider trading activity, they find that firm value increases with the level of insider ownership, but decreases with the level of insider trading. Further, Demsetz (1986) finds a relationship between rates of return and the degree of insider trading that is consistent with the idea that investors discount stocks where insider transactions are more frequent.

Crucial to the view that insider trading profitability is a form of agency cost, one must understand that the level of insider ownership in a firm and the level of abnormal profitability from insider trading are not proxies for each other. Unfortunately, the term "insider trading" is sometimes used in the finance literature in conjunction with each of these items. Much of the work related to the use of insider trading as a beneficial signaling mechanism focuses on an increase or decrease in the *level of insider ownership* in a firm (e.g., Hirschey and Zaima (1989) and John and Mishra (1990)) and not on the intensity or profitability of trading by insiders. This study focuses on the aspect of insider trading that results in the extraction of wealth from less-informed investors by insiders. Thus, rather than being proxies for each other, this study views the level of insider ownership as an agency control mechanism and the above-normal profitability from insider trades as the measure of the agency cost being examined. Masson and Madhavan's (1991) findings, noted above, are consistent with this view since they find that firm value has directionally opposite relationships with the level of insider ownership and the level of insider trading (positively related to the level of ownership, but negatively related to the level of trading activity). As further support of this view, for the sample of firms included in this study, the correlation coefficient between the level of insider ownership and the abnormal profitability from insider ownership is -.05, and not statistically different from zero. Clearly, these variables are measuring different aspects of insider behavior and motivation.

## DATA AND METHODOLOGY

In order to test the effectiveness of mechanisms for controlling the agency cost of insider trading, measures are developed for both the level of the insider trading agency conflict/cost and for the extent of utilization of potential monitoring and alignment mechanisms that may reduce or resolve the agency conflicts.

### Measures Of The Agency Cost Of Insider Trading

If insiders are actually expropriating wealth from existing shareholders by utilizing inside information, they will earn abnormal trading profits. The magnitude of this profitability is measured by calculating the abnormal returns from insider trading over a specified time period. The sample of insider transactions analyzed in this study includes open market and private common stock purchases. Purchases are more likely than sales to be information-based trades and thus, more

likely to be related to agency conflicts. Sales are often motivated by liquidity needs, personal portfolio diversification, or tax considerations while purchases are almost exclusively made because the insider believes the stock is a good investment. This intuitive observation is empirically supported by findings that show that insider purchases do generate greater abnormal profitability than do insider sales (see Nunn, Madden, and Gombola (1983), and Seyhun (1986)). Thus, common stock sales and transactions classified as the exercise of stock options, stock bonuses, stock dividends, etc., are excluded. Further, only transactions of more than 100 shares are included since smaller trades are more likely to be “noise” trades. Excess profits are calculated in both dollars and as a percent return, based on the market model.<sup>2</sup>

The abnormal (percentage) return on day  $t$ , from an insider transaction on stock  $i$ ,  $AR_{it}$  is calculated as:

Equation 1

$$AR_{it} = [R_{it} - (\alpha_{ik} + \beta_{ik}R_{mt})]$$

where  $R_{it}$  is the actual return on day  $t$  for stock  $i$ ,  $R_{mt}$  is the CRSP equally-weighted market index return for day  $t$ , and  $\alpha_{ik}$  and  $\beta_{ik}$  are estimated market model parameters for firm  $i$ , related to the transaction at time  $k$  (calculated over 125 days prior to that transaction). The abnormal returns are accumulated for each transaction  $k$ , for stock  $i$ , over 180 trading days after the transaction.<sup>3</sup> That is,

Equation 2

$$CAR_{ik} = \sum_{t=1}^{180} AR_{it}$$

The abnormal trading profit in dollars for each transaction is calculated by multiplying the  $CAR_{ik}$  by the number of shares and the initial transaction price per share. This is designated the abnormal trading profit in dollars<sup>4</sup>,  $ATP_{ik}^{\$}$ , or;

Equation 3

$$ATP_{ik}^{\$} = CAR_{ik} \times Q_{ik} \times P_{ik}$$

where  $Q_{ik}$  equals the number of shares of stock  $i$ , bought as transaction  $k$ , and  $P_{ik}$  represents the share price of stock  $i$  on the day of transaction  $k$ . Finally, the cumulative abnormal trading profit for all insiders for stock  $i$  over the test period is denoted  $CATP_{i}^{\$}$ , and is calculated as:

Equation 4

$$CATP_{i}^{\$} = \sum_{k=1}^n ATP_{ik}^{\$}$$

The cumulative abnormal trading return,  $CATR\%$ , is a weighted average abnormal return of insider trading over the test period. It is simply:

Equation 5

$$CATR\%_i = CATP_{i}^{\$} / \left( \sum_{k=1}^n (Q_{ik} \times P_{ik}) \right)$$

where the components are as defined above.

Information regarding insider trading activity is obtained from the Securities and Exchange Commission (SEC) Ownership Reporting System (ORS) database. These machine-readable data tapes contain security transactions data in publicly held firms, by persons with an insider relationship or beneficial ownership position in those firms. The security price and returns data needed for the trading profit calculations and for the estimation of market model parameters is obtained from the Center for Research in Security Prices (CRSP) daily returns files.

## Corporate Control Mechanisms To Examine

This study uses a variety of corporate control mechanisms that have been proposed in the finance literature as being potentially useful in reducing or resolving agency conflicts. Much of the theory related to agency resolution focuses on more general agency conflicts, and may or may not translate directly to insider trading conflicts. Jensen and Meckling's (1976) general framework of classifying items as bonding versus monitoring mechanisms is utilized in this study.

### Bonding Mechanisms

**Level Of Insider Ownership** - As shown by Jensen and Meckling (1976), Leland and Pyle (1977), and others, higher levels of equity ownership by insiders in a firm encourages the pursuit of objectives that maximize shareholder wealth. This variable is denoted *PCTINS* and is calculated as the percentage of the firm's equity held by all insiders. Sources of this variable are the Value Line Investment Survey, Standard & Poor's Stock Market Encyclopedia, and/or the Disclosure database.<sup>5</sup>

**Compensation Tied To Stock** - The use of managerial compensation plans that include, or are directly tied to, the firm's stock has been proposed (Jensen and Meckling (1976), Smith and Watts (1982), and Jensen and Murphy (1990)) to better align management and shareholder interests. Jensen and Murphy (1990) develop several measures of the sensitivity of CEOs compensation to changes in corporate performance (including shareholder wealth). A form of their measure is utilized as a variable for a subsample of firms in this study (firms in this study that are also in the Jensen and Murphy study). The variable used in the current study, denoted *COMPEN*, corresponds to what Jensen and Murphy refer to as Pay-Related Wealth. This includes the estimated impact of changes in salary and bonus, other performance-based rewards, the probability of dismissal, and stock options. It does not include insider stock holdings, which Jensen and Murphy include in what they term Total Incentives, since insider stock holdings are considered as a separate item in the current study.

It is important to recognize how the two variables above (level of insider ownership and compensation tied to stock) should be expected to work as alignment/bonding mechanisms in the context of insider trading agency costs. As noted previously, there is theoretical and empirical support for the position that increased insider trading activity results in a reduction in firm value. Thus, insiders with large holdings of the firm's stock would stand to incur losses on their remaining sizable shareholdings if they attempt to obtain abnormal gains from active private information trading on a relatively smaller portion of their holdings. Also, if insiders have significant compensation tied to future stock performance (i.e., compensation that is share price sensitive and deferred), the short-term gains from active insider trading may be more than offset by future reductions in stock-related compensation. In either case, minimizing their trading activity would aid in maximizing the value of the firm's stock.

### Monitoring Mechanisms

**Outside Directors** - Fama (1980) and Fama and Jensen (1983) characterize outside directors as being professional arbiters and experts in internal organizational control, providing a mechanism to limit the power of top management. The greater the proportion of outsiders on the board, the greater should be the ability to minimize insider trading excesses. This variable, denoted *OUTDIR*, is the ratio of the number of outside directors to the number of total directors. Information for the variable is taken from Moody's Manuals.

**Separation Of CEO And Board Chairman** - Another aspect of the monitoring ability of the board of directors is the degree of independence of the chairman of the board and/or the power and independence of other board members. Having the positions of board chairman and chief executive officer (CEO) separated (i.e., held by different people) increases the potential for the board to truly function as the shareholders' monitor of management behavior. The variable *CEODUM* captures this characteristic and is simply a dichotomous variable that is equal to 0 if the two positions are separated, and equal to 1 if they are held by the same individual. The data for this variable is from Moody's Manuals.

**Level Of Institutional Ownership** - Since institutional owners often own relatively large blocks of common stock, they should have a significant incentive to act as a monitor and question behavior that reduces share value. As Shleifer and Vishny (1986) note, this incentive exists for large shareholders since the benefits from their monitoring actions can be large enough to exceed their costs of monitoring. Thus, the percentage of total shares outstanding that are owned by institutions is used as a monitoring mechanism variable designated *INSTIT*. The variable is calculated from Standard & Poor's Security Owners Stock Guide.

**Dividend Payout** - The payment of dividends has been proposed as useful in minimizing manager-shareholder agency conflicts. Although classified as a monitoring mechanism in this study, dividend payout can be viewed as containing both bonding and monitoring characteristics. (See Easterbrook (1984) and Rozeff (1982) for support). This variable, denoted *DIVPAY*, is the dividend payout ratio, which is the dividend amount divided by after-tax net earnings. Information for the calculation is taken from the Compustat database.

**Amount Of Debt** - Jensen (1986) examines the agency problem of managers investing in negative *NPV* projects or wasting a firm's earnings when a firm has significant free cash flow. He submits that debt can be effective in reducing this agency cost by bonding management to pay out future cash flows. Debt also may serve a monitoring function since it subjects management to close review by potential debtholders (see Diamond (1984) and Harris and Raviv (1990)). An extension of this idea is that short-term debt is more effective in monitoring than long-term debt since it forces the borrower to be more frequently scrutinized. Thus, two measures of debt are calculated for this study. The ratio of debt to total assets, *%DEBT*, and the ratio of short-term debt to total assets, *STDEBT*. Information for the calculation of both variables is taken from the Compustat database.

## Empirical Methodology

Insider trading purchase transactions are examined over the two-year time period January 1988 through December 1989.<sup>6</sup> The general criterion for selecting this period was to choose a relatively recent, two-year period that did not contain events known to precipitate a significant shift in the trading behavior of insiders. The Insider Trading Sanctions Act of 1984 (ITSA), which significantly raised the penalties for illegal insider trading, was passed in August of 1984. Arshadi and Eysell (1991) and Keating and Kaufman (1991) find evidence of differences in the patterns of trading by insiders before and after passage of the ITSA. Another major event that resulted in unusual insider trading was the market crash of October 1987. Seyhun (1990) found evidence of an extreme level of insider purchases following the crash. Although the effect of either of these events on a cross-sectional study such as this one may be minimal, avoiding them entirely will remove the possible concern that they may be responsible for driving the results of the study.

A two-year period is thought to be long enough to capture differences in the volume and profitability of insider trading, but still be short enough for the calculations of the control mechanism variables to be relevant. The alignment and monitoring mechanism variables are calculated as close as possible to the end of 1987 or the beginning of 1988, and are assumed to be relatively constant over the following two-year period that is examined. Market model parameters for each firm are calculated over the 125 trading-day period just prior to each insider trading transaction.

The sample of firms examined is chosen by stratified random sampling, based on the size of firms' equity. An initial sample of approximately 1000 firms is selected from firms that are present in both the Compustat and CRSP NYSE/AMEX databases as of 1987, and that have CRSP returns data over the period July 1, 1987 through September 30, 1990. Then, the agency control variables and insider trading measures are calculated for all of the firms for which data are available. The final sample, for which all of the independent variables (excluding *COMPEN*) are available, consists of 901 firms.

The primary method of analyzing the proposed relationships is the estimation of regression models that utilize the variables identified. Firm size has been shown to be related to the amount and type of insider trading by Finnerty (1976) and by Seyhun (1986). Thus, the market value of equity (*MKTVAL*) is included in each model to control for potential size effects. The agency costs of insider trading (as measured by each variable calculated—both excess percent return and excess dollar return) are modeled by the various bonding and monitoring control measures. The sign and statistical significance of the estimated coefficients of the models considered are examined to determine the relative effectiveness of the proposed control mechanisms.

## RESULTS AND FINDINGS

As described in the previous section, two variables are calculated for each firm to measure the agency cost of insider trading: cumulative abnormal trading profit (*CATPS*), and cumulative abnormal trading return (*CATR%*). The top two lines of Table 1 summarizes the descriptive statistics for these variables. As the table shows, the two abnormal profitability variables, *CATPS* and *CATR%*, are both positive. For both variables, a test of the hypothesis that the mean is equal to zero can be rejected at the 1% level of significance. Thus, on average, for the time period examined by this study, insider purchases are generating significant abnormal profits at the expense of less informed traders. That is, there is evidence of an agency cost being borne by outsiders. Further, as the minimum and maximum values for these variables suggest, there

is quite a dispersion of levels of insider trading profitability across firms. In terms of agency conflicts, this is consistent with the idea that some firms will experience a high degree of agency problem and be subject to high levels of abnormal profitability, while others will have lesser problems and thus exhibit no, or negative, abnormal profitability from insider trading.

The eight items proposed as being potentially useful in resolving agency conflicts are used as the independent variables in the regression models. The bottom part of Table 1 provides a summary of the descriptive statistics for these eight variables. As noted previously, the variable that measures the degree to which compensation is tied to stock performance (*COMPEN*) is only available for a subset of 213 of the firms in the study.<sup>7</sup>

## Regression Model Results

Tables 2 and 3 present the results of the ordinary least squares regressions of the two agency cost variables on the hypothesized agency controlling mechanisms. Table 2 information is based on the full sample of firms while Table 3 is based on the subsample of 213 firms for which the *COMPEN* variable is available. For each of the dependent variables (*CATP\$* and *CATR%*), two models are estimated; one that includes the total debt variable (*%DEBT*), and one that includes the short term debt variable (*STDEBT*). Results are virtually identical when using either of these variables.

In Table 2, for both of the abnormal profitability variables (*CATP\$* and *CATR%*) that are used as dependent variables, there are significant relationships with two of the agency control mechanism variables. The coefficient for *CEODUM* is positive and significant. This is consistent with the hypothesized monitoring function that may exist when the chairman of the board and the chief executive officer positions are split. Concentration of power that exists when the two positions are held by the same individual is associated with higher insider trading profitability, while splitting the positions is associated with lower levels of insider trading profitability.

The other variable having a significant relationship with the agency cost of insider trading is the measure of the percentage of stock held by institutions, *INSTIT*. As hypothesized, there is a negative relationship between these variables. This supports the claim that higher levels of institutional holdings do result in lower levels of abnormal trading profits realized by insiders and is consistent with the view that institutional owners can serve as effective monitors of management. One might argue that, rather than really being a good monitoring device, large institutional holdings simply crowd out holdings by insiders, and as a result, insiders cannot reap large dollar profits from insider trading. Such an argument might be relevant concerning the dollar level of abnormal profits (*CATP\$*), but is not adequate to explain the percentage abnormal return (*CATR%*). Further, if institutions crowded out insider holdings, we would expect to find a negative relation between institutional holdings and the percentage of a firm's stock held by insiders. Examining the correlation between *INSTIT* and *PCTINS* however, reveals that there is a positive relation between these variables (correlation coefficient is .28). This is inconsistent with the crowding out argument, but not with the view of institutions as monitors.

Table 3 includes the *COMPEN* variable, a measure of the sensitivity of executive compensation to stock performance. As noted previously, this variable is only available for a subset of 213 firms (that also have the remaining independent variables). The *COMPEN* variable is not significant in any of the models. Thus, making executive compensation sensitive or insensitive to stock performance does not appear to influence insiders trading habits either favorably or unfavorably.

Within this sample subset, the level of institutional ownership (*INSTIT*) continues to exhibit a significant negative relationship to the abnormal profitability variables, reinforcing the full sample findings. The *CEODUM* variable continues to have a positive coefficient in all four models, but is only significant (at the 10% level) in the model that utilizes *CATR%* as the dependent variable. In one of the models, the percentage of insider ownership (*PCTINS*) shows a significant negative relationship to the percentage trading profitability (*CATR%*). Though not statistically significant in the other models, the sign on the *PCTINS* variable is consistently negative in all versions of the regression models. Obviously one should not attempt to draw strong conclusions from this, but the relationship is directionally consistent with the idea that increased levels of ownership result in reduced efforts by insiders to expropriate wealth via active insider trading. The results in Table 3, with the smaller subsample, are largely consistent with the findings obtained with the full sample of firms.

Overall, looking at the results from the different models and with the different dependent variables, there is relatively consistent and strong evidence that institutional owners of a firm's common stock serve as effective monitoring mechanisms that reduce insider trading agency costs. There is also consistent support for a monitoring function that is provided by splitting the power in top management when different individuals hold the CEO and board chairman positions. Other mechanisms examined show limited, or no, effectiveness in controlling the agency cost of insider trading.<sup>8</sup>

## CONCLUSION AND SUMMARY

This study provides a unique approach to expanding the empirical evidence of the manager-shareholder agency problem by examining insider trading profitability as one aspect of managerial agency-related behavior. The study is able to empirically test the effectiveness of a variety of agency control mechanisms proposed in the theoretical finance literature. Expansion of the empirical evidence related to how well various agency resolution mechanisms work is important due to the limited direct empirical testing previously available.

The evidence presented in this study indicates that, for the two-year time period examined, institutional ownership of a firm's common stock and the splitting of the CEO and board chairman positions each provides an effective mechanism to reduce the agency cost related to insider trading. Institutional owners provide a form of external monitoring, while splitting power between the CEO and board chairman provides a form of internal monitoring. When testing the effectiveness of a group of mechanisms or procedures, finding out what does not work is often just as important as finding out what does work. Thus, it is a significant finding to be able to identify any potential agency control measures that are not statistically significant in the models estimated. In this study, the other mechanisms examined (debt, dividends, level of insider ownership, the proportion of outside directors, and the sensitivity of executive compensation to stock performance) do not show any consistent significant relationship, either favorable or unfavorable, to the agency cost of insider trading. Thus, while some or all of these items may be useful in resolving other forms of agency conflicts, firms that seek ways to reduce the agency cost of insider trading should not look to any of these items to substantially influence insider trading behavior. A final important implication of this study is that corporate monitors may need to look more closely at the costs of insider trading and/or may need to develop better mechanisms to control such costs. Additional theoretical and empirical work in this area is warranted.

**TABLE 1**  
**Descriptive Statistics - Dependent & Independent Variables**  
**Based On Purchase Transactions By Insiders**

Descriptive statistics for the 2 dependent variables used to measure the agency cost of insider trading (Cumulative Abnormal Trading Profit (*CATP*\$), and Cumulative Abnormal Trading Return (*CATR*%) and the 8 corporate control variables proposed as being useful in resolving agency conflicts (Percentage of Outside Directors (*OUTDIR*), Separation of CEO and Board Chairman Positions (*CEODUM*), Institutional Ownership (*INSTIT*), Dividend Payout (*DIVPAY*), Amount of Debt (*%DEBT*), Amount of Short-Term Debt (*STDEBT*), Level of Insider Ownership (*PCTINS*), and Compensation Tied to Stock (*COMPEN*).<sup>a</sup>

	Mean	Standard Deviation	Minimum Value	Maximum Value
<b>Dependent Variables</b>				
<i>CATP</i> \$ <sup>b</sup>	373.0	2696.2	-20627	37437
<i>CATR</i> % <sup>c</sup>	0.130	0.239	-0.946	1.586
<b>Independent Variables</b>				
<i>OUTDIR</i>	0.714	0.148	0.000	1.000
<i>CEODUM</i>	0.604	0.489	0.000	1.000
<i>INSTIT</i>	0.380	0.214	0.000	0.854
<i>DIVPAY</i>	0.242	1.127	-14.180	8.200
<i>%DEBT</i>	0.280	0.194	0.000	2.000
<i>STDEBT</i>	0.063	0.095	0.000	1.000
<i>PCTINS</i>	0.169	0.192	0.001	0.900
<i>COMPEN</i>	2.158	2.812	-1.610	18.460

a. Descriptive statistics for each of the variables are calculated from the entire sample of 901 firms, except for *COMPEN* which is only available for a subset of 213 of the firms.

b. Variable value stated in '\$000's.

c. Variable (percent abnormal return) stated in decimal form.

**TABLE 2**  
**Regression Model Results**

Regression model results using the full sample of firms. For each of the dependent variables (*CATP\$* and *CATR%*), two models are estimated; one that includes the total debt variable (*%DEBT*) and one that includes the short term debt variable (*STDEBT*). Numbers in the body of the table are estimated coefficients, with t-statistics shown in parentheses.

Independent Variable	Dependent Variable			
	<i>CATP\$</i>		<i>CATR%</i>	
Intercept	-3.135 (-0.504)	-2.282 (-0.376)	0.095 (2.158)**	0.087 (2.024)**
<i>MKTVAL</i>	0.065 (2.888)**	0.064 (2.551)**	0.001 (0.606)	0.002 (0.773)
<i>OUTDIR</i>	7.338 (0.983)	7.445 (0.997)	0.039 (0.743)	0.033 (0.647)
<i>CEODUM</i>	4.124 (1.974)**	4.189 (1.968)**	0.036 (2.492)**	0.035 (2.334)**
<i>INSTIT</i>	-10.694 (-2.245)**	-11.088 (-2.344)**	-0.091 (-2.718)**	-0.101 (-2.772)**
<i>DIVPAY</i>	0.571 (0.635)	0.580 (0.644)	0.001 (0.058)	0.001 (0.053)
<i>PCTINS</i>	-1.005 (-0.167)	-1.134 (-0.289)	-0.022 (-0.167)	-0.022 (-0.511)
<i>%DEBT</i>	2.767 (0.526)		-0.055 (-1.492)	
<i>STDEBT</i>		-0.152 (-0.014)		-0.061 (-0.810)
Number of Firms	901	901	901	901
F-Statistic	2.029**	2.981**	2.681**	2.511**
Adjusted R-Square	0.021	0.020	0.020	0.019

\* Indicates significance at the 10% level.

\*\* Indicates significance at the 5% level.

## ENDNOTES

1. Manne (1966) and Carlton and Fischel (1983) are two of the most frequently cited proponents of the extreme view that insider trading is a completely desirable function, rather than any form of an agency cost. They argue that (a) it can be a very efficient form of conveying information to markets, (b) in some instances the value of the firm may be enhanced if private information is not revealed, and (c) it also serves as a desirable form of compensation by allowing those that create wealth to benefit from doing so by trading on their private information. Bagby (1986) summarizes numerous weaknesses in these arguments that have been pointed out by various authors. (1) There are other incentive reward systems that can address the positive motivation of entrepreneurial insider trading. (2) Unproductive insiders will have many of the same opportunities to trade as do creative insiders; perhaps even more, depending on their initial wealth. (3) Insider trading opportunities also exist in adverse situations and would reward poor performance, an outcome at odds with the

**TABLE 3**  
**Regression Model Results With 'COMPEN' Variable**

Regression results with the subsample of firms for which the *COMPEN* variable is available. For each of the dependent variables (*CATP\$* and *CATR%*), two models are estimated; one including total debt (*%DEBT*) and one including short term debt variable (*STDEBT*). Numbers in the body of the table are estimated coefficients, with t-statistics shown in parentheses.

Independent Variable	Dependent Variable			
	<i>CATP\$</i>		<i>CATR%</i>	
Intercept	28.925 (1.583)	20.167 (1.479)	0.366 (3.990)**	0.349 (3.944)**
<i>MKTVAL</i>	0.001 (1.276)	0.002 (0.567)	-0.001 (-0.494)	-0.001 (-0.417)
<i>OUTDIR</i>	-12.858 (-0.618)	-12.301 (-0.588)	-0.142 (-1.360)	-0.145 (-1.392)
<i>CEODUM</i>	3.430 (1.437)	3.568 (-1.529)	0.025 (1.927)*	0.029 (1.901)*
<i>INSTIT</i>	-31.258 (-2.339)**	-33.313 (-2.675)**	-0.200 (-2.988)**	-0.193 (-2.948)**
<i>DIVPAY</i>	1.063 (0.534)	1.203 (0.614)	-0.002 (-0.217)	-0.002 (-0.170)
<i>PCTINS</i>	-11.369 (-0.657)	-11.465 (-0.913)	-0.168 (-1.933)*	-0.162 (-1.604)
<i>%DEBT</i>	4.976 (0.340)		-0.042 (-0.571)	
<i>STDEBT</i>		6.067 (0.495)		0.114 (0.724)
<i>COMPEN</i>	-1.148 (-1.457)	-1.236 (-1.245)	-0.004 (-1.209)	-0.005 (-1.319)
Number of Firms	213	213	213	213
F-Statistic	1.709	1.667	2.249**	2.098**
Adjusted R-Square	0.019	0.018	0.046	0.039

\* Indicates significance at the 10% level.

\*\* Indicates significance at the 5% level.

entrepreneurial theory. (4) There is little ability to limit the extent of the trading. So-called rewards may be greater than the actual contribution. (5) Insiders will have an incentive to manipulate the timing and accuracy of the information disseminated. (6) There will be incentives to select higher-risk investment producing wider stock price fluctuations that provide more opportunities for trading profits (as has been previously noted). Thus, Bagby (1986) concludes that there are significant flaws in the theoretical developments of Manne (1966) and Carlton and Fischel (1983).

Teeuwen (1991) notes that an implication of Manne's argument is that if allowing insiders to trade on private information is an intentional form of compensation, then it should replace other forms of managerial remuneration. She empirically tests whether the presence of trading profits by chief executive officers (CEOs) affects CEOs cash compensation. Tests of "trading" versus "non-trading" CEOs indicate that cash

compensation is not adjusted for trading profits. This suggests, in opposition to Manne, that managers are able to trade with limited accountability, and trading profits are not viewed as part of the total compensation package.

2. Excess profits are also calculated based on simple market-adjusted returns and these excess profits were also utilized in the various tests conducted. The relationships and results were essentially the same as when market model excess returns are used. Thus, the results using market-adjusted returns are not reported in this paper.
  3. The time period utilized in prior estimates of abnormal returns to insider trading has ranged from a few days to more than a year. Teeuwen (1991) looks at a 20-day period following insider transactions, Givoly and Palmon (1985) consider periods ranging from 10 to 240 days, Keating and Kaufman (1991) use various length periods up to 150 days, and Seyhun (1986) accumulates abnormal returns for 300 days. The time period of 180 trading days is used in the current study to attempt to provide a reasonable measure of the extent of the abnormal returns, but not so long as to unnecessarily eliminate observations from the sample (due to firms being deleted from the CRSP database). Seyhun's (1986) results show that approximately 74% of the 300-day CAR has been accumulated after only 100 days. Givoly and Palmon (1985) show that approximately 82% of the 240-day CAR has been accumulated after 180 days.
  4. This approach is similar to the trading profit calculation of Teeuwen (1991).
  5. The variable is believed to be consistent across these sources since the company's proxy statements, 10-K's, and/or annual reports are the original data source for all of these publications. The level of insider ownership is measured at the point in time with the closest proximity to the end of 1987 or the beginning of 1988.
  6. Since abnormal returns will be calculated over the 180-day period following the transaction date, abnormal return calculations may extend for up to approximately nine months into 1990 (for trades that occur near the end of 1989).
  7. An analysis is performed to examine for potential multicollinearity in the independent variables. First, pairwise correlations are examined to assess if there is obvious strong correlation between any two independent variables. The strongest correlation found is between *%DEBT* (the ratio of total debt to total assets) and *STDEBT* (the ratio of short-term debt to total assets) with a correlation coefficient of .58. While there is no clear cut rule for what degree of correlation may result in serious multicollinearity problems, these two variables are not included simultaneously in the same model. This is due to both the relatively high calculated correlation, as well as the intuitive observation that these two variables are, to some extent, measuring the same thing. None of the other pairwise correlation have absolute values greater than .30, and should not present multicollinearity problems. While correlation analysis is useful for detecting linear relationships between pairs or variables, it cannot assess associations among multiple regressor variables. Thus, for each model estimated, variance inflation factors for each variable and the condition number of the correlation matrix related to each model, are examined. Although the details of this analysis are not shown, none of the VIFs exceed 2.0 and none of the condition numbers exceed 650. At these levels, there is no evidence that multicollinearity presents a problem in this study. (Though no rule of thumb on numerical values is foolproof, Myers (1990) states that, in general, if no VIF exceeds 10 and/or the condition number value is less than 1000, multicollinearity is not likely to cause any significant estimation problems.)
  8. Three additional extensions are examined, but not reported in detail in this study: (1) regression models utilizing interaction variables to explore if some combination of mechanisms may provide a type of synergy, or multiplicative effect, to reduce agency costs; (2) calculation of insider trading excess profits using both purchase and sale transactions (rather than just purchases), and; (3) splitting the insider trading into trading by more informed insiders (chairmen of the board and officers that are also on the board of directors) and less informed insiders (all others designated as insiders by the SEC) to examine if the agency control mechanisms work differently for these groups. In all three extensions, nothing is found that is materially different from, nor significantly expands on, the results reported in this paper.
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