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Insider Trading in the OTC Market

JI-CHAI LIN and JOHN S. HOWE*

ABSTRACT

In this paper, we examine the profitability of insider trading in firms whose securities trade in the OTC/NASDAQ market. Although the evidence suggests timing and forecasting ability on the part of insiders, high transaction costs (especially bid-ask spreads) appear to eliminate the potential for positive abnormal returns from active trading. By implication, outside investors who mimic the trading of insiders are also precluded from earning abnormal profits. In addition, we provide evidence on the determinants of insiders' profits. The data suggest that insiders closer to the firm trade on more valuable information than insiders removed from the firm.

STUDIES OF INSIDER TRADING generally find that insiders make positive abnormal trading profits.¹ Perhaps more importantly, many of these studies also show that "outsiders" can earn profits by mimicking the trading of insiders after the public release of information about insider transactions. This finding, which suggests semi-strong form market inefficiency, has been reexamined. Seyhun (1986), evaluating approximately 60,000 insider transactions in New York Stock Exchange (NYSE) and American Stock Exchange (ASE) companies between 1975 and 1981, concludes that insiders make abnormal profits but that these profits are not especially large. He also finds that outside investors cannot make abnormal returns, net of transaction costs. Rozeff and Zaman (1988), using data on insider trades in NYSE firms from 1973 to 1982, reach similar conclusions.

The purpose of this paper is to examine the profitability of insider and outsider trading using data from the OTC/NASDAQ market. We also provide evidence on the determinants of insider trading profits. This study is of interest for several reasons. First, the market microstructure of the OTC market is different from that of the organized exchanges. The multiplicity of market makers in the OTC market may allow insiders to more carefully conceal their trading. Second, the degree and effectiveness of regulatory scrutiny may differ across markets. Third, transaction costs, particularly the bid-ask spread, are higher for OTC firms. We explicitly examine bid-ask spreads in our analysis of insider and outsider profits.

Finally, the relatively small size of firms in the OTC market has two important implications. Because of the presence of the "size effect" (Banz (1981)), careful attention must be given to the empirical methods. Further, smaller firms may be

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¹ See, for example, Lorie and Niederhoffer (1968), Pratt and DeVere (1968), Jaffe (1974a,b) and Finnerty (1976a,b). Insiders are defined as officers, directors, and owners of ten percent or more of any equity class of securities.

less closely monitored by financial analysts and institutional investors, leading to a greater degree of information asymmetry.² We therefore explore whether the availability and magnitude of profits are a function of firm size.

The paper is organized as follows. The next section describes the data and reviews the methodology. The results are presented in Section II. The paper ends with a summary and conclusions.

I. Data and Methodology

A. Data

The insider trading data come from the Ownership Reporting System (ORS) tape compiled by the Securities and Exchange Commission (SEC). The tape summarizes insider transactions in all publicly held firms from January 1975 through April 1983. Using these data, we identify all "intensive insider trading months" for stocks traded in the OTC/NASDAQ market.

An intensive purchase month is defined as one in which a stock has three or more purchases and no sales by insiders. An intensive sales month is defined as one in which a stock has three or more sales and no purchases by insiders.³ Intensive insider trading activities are of interest because they are likely to be information-motivated. The sample contains 7625 intensive trading months for 1828 different firms;⁴ 1006 firms experience 3449 intensive purchase months, and 1214 firms have 4176 intensive sales months. The 3449 intensive purchase months involve 17,497 insider transactions, while the 4176 intensive sales months comprise 21,495 insider transactions.

Table I shows the chronological distribution of the intensive purchase and sales months which appear in the sample. There is no significant concentration of these events in any particular year or month. The table also displays the size of the sample firms by their distribution in size deciles compared to all firms on the NASDAQ tape (size equals the market value of equity measured at the end of the year prior to the year containing the intensive month) and by mean, median, and minimum and maximum values. While our sample includes firms from every size decile, larger firms have more intensive insider trading months.

² Evidence consistent with a firm size-information asymmetry link is found in Chari, Jagannathan, and Ofer (1988). In this study, small firms are found to experience large positive abnormal returns around quarterly earnings announcement dates, while large firms show no abnormal returns. The authors state (p. 103): "A plausible hypothesis for the observed return differences between small and large firms is that the earnings announcements for large firms contain less information."

³ Lorie and Niederhoffer (1968), Pratt and DeVere (1968), Jaffe (1974a,b), and Rozeff and Zaman (1988) also employ intensive trading criteria. We use only open market purchases and sales for identifying intensive months. Transactions involving gifts, options, and private purchases and sales are excluded from selection. Also excluded are transactions with data inconsistency indicated by the SEC, e.g., data field error/missing or balance not reconcilable.

⁴ For inclusion in the sample, the stock must be listed on the CRSP NASDAQ data tape and have six months of return data prior to and 12 months of return data after the event month. Firms with missing return observations within this 19-month period are discarded.

Table I
Chronological Distributions and Size
Characteristics of the Sample

The distribution of 3449 intensive purchase months and 4176 intensive sales months for OTC firms by year, month, and market value of common stock classified by decile, 1975–1983. An intensive purchase (sales) month is defined as one in which a stock has three or more purchases (sales) and no sales (purchases) by insiders.

Panel A: Year		
Year	Number of Intensive Purchase Months	Number of Intensive Sales Months
75	448	384
76	378	388
77	392	356
78	407	430
79	434	473
80	403	594
81	385	551
82	513	645
83	89*	355*
Total	3449	4176

Panel B: Month		
Month	Number of Intensive Purchase Months	Number of Intensive Sales Months
1	347	428
2	272	405
3	339	402
4	275	369
5	250	372
6	242	328
7	247	316
8	252	320
9	239	298
10	309	302
11	311	329
12	366	307
Total	3449	4176

Data on stock returns are taken from the CRSP NASDAQ files. Daily returns are compounded to generate monthly returns.⁵ Because earlier evidence suggests abnormal stock performance prior to intensive trading months (see, e.g., Seyhun (1986)), our analysis begins six months prior to the intensive trading month.

⁵ For National Market System (NMS) stocks, the daily returns after October 1982 are computed by CRSP using closing (last transaction) prices if available. If a closing price is not available, the return is computed from the average of the bid and ask prices. For non-NMS stocks, returns are calculated using the midpoint of the reported bid and ask prices. To preserve comparability, we recomputed NMS stock returns from the bid-ask midpoint. In no case did this procedure result in any noticeable change in the findings.

Table I—Continued

Panel C: Firm Size		
Size Decile Relative to All NASDAQ Stocks	Number of Intensive Purchase Months	Number of Intensive Sales Months
1 (smallest)	174	67
2	246	152
3	288	231
4	388	302
5	361	417
6	303	448
7	399	590
8	387	633
9	500	592
10 (largest)	403	744
Total	3449	4176
	Purchases	Sales
Mean Firm Size	\$39,112,700	\$71,864,000
Median Firm Size	15,778,000	24,907,900
Minimum Firm Size	235,478	119,000
Maximum Firm Size	1,532,312,000	2,847,463,000

* Partial year.

B. Measures of Abnormal Return

Two market-adjusted metrics of abnormal returns are used. The first measures the abnormal return of stock i as the monthly return on stock i minus the monthly return on the CRSP NASDAQ value-weighted market index:

$$AR_{i,t} = R_{i,t} - R_{mvw,t}, \quad (1)$$

where

$AR_{i,t}$ = the abnormal return of stock i in month t ;

$R_{i,t}$ = the actual return of stock i in month t ;

$R_{mvw,t}$ = the return on the value-weighted market index in month t .

The second market-adjusted metric is calculated as

$$AR_{i,t} = R_{i,t} - R_{mew,t}, \quad (2)$$

where

$R_{mew,t}$ = the return on the equally weighted market index in month t .

Rozeff and Zaman (1988) show that firm size affects the measure of abnormal returns from insider trading. Hence, it is important to account for firm size when measuring abnormal returns. Dimson and Marsh (1986, p. 121) note that “one method of adjusting for the size effect is to construct a set of diversified control portfolios for companies in different capitalization classes.” They propose a simple size adjustment model:

$$AR_{i,t} = R_{i,t} - R_{si,t}, \quad (3)$$

where

$R_{si,t}$ = the return in month t of an equally weighted portfolio of stocks in the same size decile as stock i .

This model measures the performance of a stock with intensive insider trading relative to firms of similar size. One advantage of this model is that it involves no parameter estimation. Further, the results in the Dimson-Marsh paper suggest that explicitly controlling for risk is superfluous after the size adjustment.

Size decile control portfolios based on equity market value (as of the end of the previous year) are created each year from 1975 through 1984 by using all CRSP NASDAQ firms. Monthly returns for each portfolio are computed by compounding individual securities' daily returns and then averaging across securities in the portfolio.⁶

C. The Test Statistics

The average abnormal return in month t , AR_t , is obtained by averaging across the firms in the sample. The t -statistic for the null hypothesis of no abnormal return associated with intensive insider trading in month t is computed as

$$t = \frac{AR_t}{\hat{\sigma}(AR_t)}, \quad (4)$$

where $\hat{\sigma}(AR_t)$ is the estimated cross-sectional standard deviation of average abnormal return in month t .

For measuring the longer-term effect associated with intensive insider trading, average abnormal returns are summed to yield a cumulative abnormal return (CAR). To test the null hypothesis of no abnormal return over the time interval from months T_b to T_e , we calculate the t -statistic as

$$t = \frac{CAR(T_b, T_e)}{\left[\sum_{t=T_b}^{T_e} \hat{\sigma}(AR_t)^2 \right]^{1/2}}. \quad (5)$$

The efficacy of these procedures is reviewed in Collins and Dent (1984).

II. Findings

A. Profitability of Insider Trading

Table II presents aggregate evidence (purchases and sales) on the profitability of insider trading in OTC/NASDAQ stocks. The three measures of abnormal returns are given for various periods around the intensive trading month

⁶ To be included in a portfolio in a given year, a stock must have complete return data in that year in the CRSP NASDAQ files. The control portfolios include the sample firms. This procedure is consistent with the notion of control portfolios as a "naive investor" (alternative) strategy in which the investor simply purchases firms of the same size as the sample firm.

Table II
Combined Sample

Average abnormal returns^a based on market-adjusted returns (value- and equally weighted market indices) and the Dimson-Marsh (DM) size-adjusted model, corresponding *t*-statistics (in parentheses), and average relative bid-ask spreads for selected periods around the intensive insider trading month^b (month 0) for the combined sample, January 1975–April 1983. *n* = 7625.

Event Period	Market-Adjusted Returns (Value Weighted)	Market-Adjusted Returns (Equally Weighted)	DM Average Abnormal Returns	Average Relative Bid-Ask Spread
(-6, -1)	-9.12% (-20.44)	-9.11% (-20.62)	-9.68% (-22.08)	7.41%
0	-1.91 (-9.42)	-1.72 (-8.59)	-1.87 (-9.43)	7.26
+1	0.49 (2.91)	0.65 (3.88)	0.42 (2.53)	7.11
(+1, +6)	2.02 (5.23)	2.52 (6.54)	1.55 (4.04)	7.01
(+1, +12)	3.20 (5.93)	4.05 (7.53)	2.46 (4.61)	6.98

^a For all event periods, the abnormal returns of the sales sample are multiplied by -1 before aggregating with the abnormal returns of the purchase sample.

^b An intensive purchase (sales) month is defined as one in which a stock has three or more purchases (sales) and no sales (purchases) by insiders.

(month 0).⁷ Insiders earn abnormal returns if stock prices rise abnormally after their purchases or if stock prices decline abnormally after their sales. Hence, the abnormal returns associated with insider sales are multiplied by -1 for the purpose of aggregation. Also shown in the table is the average relative bid-ask spread over the holding period.⁸ Tables III and IV show results for the purchase and sale samples separately.

Seyhun (1986) suggests that insiders can profit by refraining from purchasing stock until after the release of unfavorable information and by refraining from selling stock until after favorable information is released. Our results support this proposition. On average, positive abnormal returns prior to intensive sales months and negative abnormal returns prior to intensive purchase months are

⁷ We also replicated all the results using the market model. Because of the need for 60 months of data to estimate the parameters, this analysis was conducted with a much smaller sample. The market model results were qualitatively similar to those from the market adjustment technique with the equally weighted index. The conclusions reached in this study would not change if inferences were drawn from the market model results.

⁸ The average relative bid-ask spread is the average of the relative spreads at the beginning and at the end of the holding period, where the relative spread is defined as $(ask - bid)/((ask + bid)/2)$. The manner in which the bid-ask spread is reported on the CRSP NASDAQ tape changes in July 1980. Prior to this date, the reported bid price is the median bid price and the reported ask price is the median ask price. After this date, the "inside spread" is reported, i.e., the highest bid price and lowest ask price. A separate analysis of abnormal returns for the two subperiods January 1975–June 1980 and July 1980–April 1983 revealed no substantial differences. Only results from the entire sample period are reported.

Table III
Insider Purchases

Average abnormal returns^a based on market-adjusted returns (value- and equally weighted market indices) and the Dimson-Marsh (DM) size-adjusted model, corresponding *t*-statistics (in parentheses), and average relative bid-ask spreads for selected periods around the intensive insider trading month^b (month 0) for the purchase sample, January 1975–April 1983. *n* = 3449.

Event Period	Market-Adjusted Returns (Value Weighted)	Market-Adjusted Returns (Equally Weighted)	DM Average Abnormal Returns	Average Relative Bid-Ask Spread
(−6, −1)	0.68% (1.36)	−3.59% (−7.23)	−2.29% (−4.65)	9.04%
0	1.84 (8.01)	1.02 (4.48)	1.27 (5.62)	8.95
+1	1.39 (5.94)	0.59 (2.53)	0.74 (3.18)	8.80
(+1, +6)	4.97 (9.56)	−0.05 (−0.10)	1.15 (2.24)	8.52
(+1, +12)	8.28 (11.50)	−1.50 (−2.10)	1.15 (1.61)	8.34

^a For all event periods, actual abnormal returns are shown without alteration of sign.

^b An intensive purchase (sales) month is defined as one in which a stock has three or more purchases (sales) and no sales (purchases) by insiders.

observed. For sales, the pre-event abnormal returns range from 13.66 percent to 17.22 percent, depending on the metric employed, and all are statistically significant. For purchases, two of the three measures are significantly negative, and the magnitudes are smaller (−3.59 percent at most) than found in the pre-sales period. These results can be compared with those of Seyhun (1986). He reports an abnormal return of −2.1 percent for the 100 days prior to the insider trading date for his overall sample. We find an abnormal return of about −9 percent for the six-month period (approximately 125 trading days) prior to the intensive trading month.

Both the purchase and sale samples experience positive abnormal returns in month 0, with the greater returns occurring in the sales sample (roughly 4.5 percent). This finding, coupled with the month +1 abnormal returns, suggests that the average price of the sale sample stocks continues to rise abnormally through month 0 but declines thereafter. By contrast, the average price of the purchase sample stocks stops declining during month 0, when these stocks experience positive abnormal returns; statistically significant positive abnormal returns are also observed in month +1.

The last two lines in Tables II–IV show the abnormal returns over the six- and 12-month periods following the intensive month. For the combined sample, abnormal returns over these periods are significant and about two and three percent, respectively. Thus, insiders' trades have predictive content. This implies that, if insiders intend to buy or sell anyway and use their information to time their transactions, they clearly benefit. However, the relative bid-ask spread over

Table IV
Insider Sales

Average abnormal returns^a based on market-adjusted returns (value- and equally weighted market indices) and the Dimson-Marsh (DM) size-adjusted model, corresponding *t*-statistics (in parentheses), and average relative bid-ask spreads for selected periods around the intensive insider trading month^b (month 0) for the sale sample, January 1975–April 1983. *n* = 4176.

Event Period	Market-Adjusted Returns (Value Weighted)	Market-Adjusted Returns (Equally Weighted)	DM Average Abnormal Returns	Average Relative Bid-Ask Spread
(-6, -1)	17.22% (24.68)	13.66% (19.71)	15.78% (22.99)	6.06%
0	5.01 (16.17)	3.98 (12.94)	4.46 (14.67)	5.86
+1	0.26 (1.08)	-0.70 (-2.94)	-0.16 (-0.68)	5.72
(+1, +6)	0.40 (0.72)	-4.64 (-8.31)	-1.88 (-3.38)	5.78
(+1, +12)	1.00 (1.28)	-8.63 (-11.04)	-3.55 (-4.57)	5.86

^a For all event periods, actual abnormal returns are shown without alteration of sign.

^b An intensive purchase (sales) month is defined as one in which a stock has three or more purchases (sales) and no sales (purchases) by insiders.

these periods is about seven percent.⁹ It appears that there are no positive abnormal profits for insiders who pursue active trading strategies, after accounting for the spread. This finding further implies that outsiders cannot make net abnormal returns by mimicking insiders.

These conclusions hold when examining the purchase and sale samples separately. For example, using size-adjusted returns, the *CAR* for the purchase sample is 1.15 percent for both the six- and 12-month periods following month 0. The average spread over the six-month period is 8.52 percent and is 8.34 percent over the 12-month period. For the sale sample, the six- and 12-month *CAR* values are -1.88 and -3.55 percent, respectively, and the corresponding spreads are 5.78 and 5.86 percent. Active trading strategies by insiders would not be profitable. Additionally, the abnormal returns are so slight that outsiders would not be able to exploit them, after accounting for transaction costs.

B. Determinants of Insiders' Abnormal Returns

The evidence suggests that insiders have predictive ability. Based on the assumption that it is superior information that leads to this predictive capacity, we derive four testable propositions about the determinants of insiders' profits. First, we conjecture that insiders who face relatively high transaction costs

⁹ The bid-ask spread is a significant component of trading costs, especially in the OTC market. Phillips and Smith (1980), who examine the listed options market, also regard the bid-ask spread as an important component of trading costs. Of course, if an insider has decided to invest anyway, the marginal transaction cost may be close to zero. (See Joy and Jones (1986).)

(specifically, bid-ask spreads) will trade on more valuable information. This idea implies a positive relation between bid-ask spread and abnormal returns.

Second, greater information asymmetry for smaller firms implies larger abnormal returns after intensive insider trading months for smaller firms. Seyhun (1986) reports a statistically significant negative relation between firm size and abnormal returns.

Third, we investigate the proposition that the greater the intensity of insider trading, the greater the value of the information. We use two measures of intensity: the number of insiders trading and the dollar volume of the insiders' trades in month 0. A positive relation between the intensity measures and abnormal returns is posited.

Fourth, we expect that insiders who are more familiar with the operations of the firm trade on more valuable information. Thus, we examine whether there exists an "information hierarchy" among insiders, as suggested by the evidence in Baesel and Stein (1979), Scholes (1972), and Seyhun (1986). We hypothesize that large shareholders who are not involved in the firm's operations trade on less valuable information than chairmen of the board, directors, officer-directors, and officers. We follow Seyhun's procedure of classifying a given month as a director month, for example, if directors trade the greatest dollar amount of stock during that month. All intensive insider trading months are accordingly classified into one of five categories: chairman of the board, director, officer-director, officer, and large shareholder months.

The results of the regression analysis are presented in Table V. The dependent variable in all cases is a measure of insiders' abnormal returns. Panel A uses the abnormal returns from the six months following the intensive month; Panel B uses 12-month abnormal returns. The three different measures of abnormal returns from the previous section constitute the dependent variable, and, hence, there are six regressions reported in the table. The coefficients shown are ordinary least squares (OLS) coefficients; nearly identical results obtain when generalized least squares and a procedure to correct for residual autocorrelation alone are employed.

The coefficient on *SP*, relative bid-ask spread, is always positive, as predicted, and is significant at the five percent level in three of the six regressions. However, the coefficient is most clearly significant when the value-weighted index is used to measure abnormal returns. Use of the equally weighted index results in a significant coefficient for the six-month *CAR* only. When Dimson-Marsh abnormal returns are used, the coefficients are not significant. The decline in coefficients on *SP* as one moves from value-weighted to equally weighted to size-adjusted measures suggests an omitted variable (benchmark) effect. The size-adjusted returns should be the "cleanest" of the three measures. Hence, the evidence is not strongly supportive of the proposition that insiders who face higher bid-ask spreads trade on more valuable information.

The possibility of a size effect is addressed by the inclusion of firm size (log of market value of equity) in the model. Such an effect would cause the coefficients on *LSIZE* to be negative. The coefficients are positive in all cases, but none is significant at any conventional level. Similar results are obtained when a firm's size decile is used rather than firm size. There is, therefore, no support here for

Table V
Cross-Sectional Regressions

Regressions of insiders' abnormal returns over the 6 months and 12 months following the intensive trading month on bid-ask spread, log of market value of equity, log of dollar amount of insider trading, number of insiders trading in the intensive month, and type of insider. *t*-values are in parentheses. *n* = 7625. *CARVW* is the cumulative abnormal return, market-adjusted, value-weighted index; *CAREQ* is the cumulative abnormal return, market-adjusted, equally weighted index; *CARDM* is the cumulative abnormal return, Dimson-Marsh model; *SP* is the bid-ask spread; *LSIZE* is the log of market value of equity; *LAMT* is the log of dollar amount of insider trading; *NI* is the number of insiders trading in the intensive month; *CB* equals 1 if chairman of the board, 0 otherwise; *DIR* equals 1 if director, 0 otherwise; *OD* equals 1 if officer-director, 0 otherwise; *OFF* equals 1 if officer, 0 otherwise.

A. Six Months											
Dependent Variable	Intercept	SP	LSIZE	LAMT	NI	CB	DIR	OD	OFF	F-Statistic	Adj. R ²
CARVW	-0.0021 (-0.06)	0.2272 (3.67)	0.0017 (0.49)	-0.0104 (-3.38)	0.0012 (1.05)	0.0323 (2.15)	0.0339 (3.05)	0.0316 (2.60)	0.0358 (2.75)	7.94 ^a	0.01
CAREQ	-0.0452 (-1.25)	0.1178 (1.92)	0.0060 (0.17)	0.0001 (0.04)	0.0006 (0.56)	0.0616 (4.14)	0.0531 (4.82)	0.0720 (5.97)	0.0775 (6.00)	6.68 ^a	0.01
CARDM	-0.0059 (-0.17)	0.0253 (0.42)	0.0004 (0.11)	-0.0061 (-2.01)	0.0010 (0.88)	0.0368 (2.50)	0.0418 (3.84)	0.0473 (3.96)	0.0528 (4.13)	4.08 ^a	0.00

B. Twelve Months											
Dependent Variable	Intercept	SP	LSIZE	LAMT	NI	CB	DIR	OD	OFF	F-Statistic	Adj. R ²
CARVW	-0.0145 (-0.28)	0.3864 (4.43)	0.0041 (0.82)	-0.0151 (-3.48)	0.0023 (1.40)	0.0501 (2.37)	0.0330 (2.11)	0.0473 (2.76)	0.0311 (1.69)	8.83 ^a	0.01
CAREQ	-0.1127 (-2.21)	0.2186 (2.52)	0.0038 (0.77)	0.0022 (0.52)	0.0011 (0.65)	0.1125 (5.34)	0.0779 (5.01)	0.1316 (7.72)	0.1196 (6.55)	9.83 ^a	0.01
CARDM	-0.0562 (-1.12)	0.0453 (0.53)	0.0050 (1.04)	-0.0082 (-1.92)	0.0016 (1.02)	0.0661 (3.19)	0.0545 (3.56)	0.0824 (4.90)	0.0696 (3.87)	4.38 ^a	0.00

^a Significant at the 1% level.

the notion that insiders of smaller firms take advantage of greater informational asymmetry in their stock transactions.

As a measure of the "intensity" of the intensive trading month, the number of insiders trading, *NI*, was predicted to have a positive coefficient. Although the coefficients on *NI* are positive, none is significant. The other measure of intensity, the dollar amount of insider trading, is also predicted to be positively related to subsequent returns. (Seyhun (1986), equation 4, in Tables 4 and 5, shows that this positive correlation exists for his sample.) For our sample, the coefficient on *LAMT*, the log of the dollar amount of insider trading during the intensive month, is negative in four of the regression models, significantly so three times. We have no satisfactory explanation for this finding.

Finally, the coefficients on *CB*, *DIR*, *OD*, and *OFF* are always positive and are significant in all cases but one. The positive coefficients imply that the trades of chairmen of the board, directors, officer-directors, and officers possess greater information content than the trades of large unaffiliated shareholders.

In sum, there is support for the notion of an information hierarchy, with those insiders more familiar with the firm's operations trading on more valuable information. Further, insiders of smaller firms and insiders who face higher transaction costs do not appear to trade on more valuable information. However, the adjusted R^2 of each regression in Table V is small, around one percent or less. As suggested by Seyhun (1986, p. 207), "One interpretation of the small coefficient of determination is that insider trading regulations deter insiders from trading freely on the basis of their privileged information."

III. Summary and Conclusions

In this paper, we examine the profitability of trading by corporate insiders in OTC/NASDAQ securities. The evidence demonstrates that insiders sell stock following periods of positive abnormal returns and buy after periods of negative abnormal returns. Further, the transactions of insiders have predictive content. Thus, insiders who have already decided to trade appear to be able to profit from using their information to time their transactions. However, the bid-ask spreads are sufficiently high to preclude insiders from realizing positive abnormal returns from an active trading strategy. By implication, outsiders have no opportunity to mimic profitably the transactions of insiders. These results suggest that the (low) profitability of insider trading in the OTC market is not much different from that in the organized exchanges, as examined by Seyhun (1986) and Rozeff and Zaman (1988).

We also explore the determinants of insiders' abnormal returns. The data are consistent with the notion of an information hierarchy among insiders. Specifically, insiders close to the operations of the firm (chairmen of the board, directors, officer-directors, and officers) trade on more valuable information than large unaffiliated shareholders.

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