Effects of Legal Insider Trading on Equity Returns

"…the SEC requires public companies to disclose meaningful financial and other information to the public, which provides a common pool of knowledge for all investors to use to judge for themselves if a company's securities are a good investment. Only through the steady flow of timely, comprehensive and accurate information can people make sound investment decisions"
-The SEC Website

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ABSTRACT

This paper examines the difference in returns between a passively managed portfolio and an actively managed portfolio tracking insider trades. Daily returns for the two portfolios are computed for the year of 2003. Contrary to expectations, tracking insider trades did not lead to a portfolio with significant higher returns: the actively managed portfolio returned 30.98% (σ=.099%), while the passively managed portfolio returned 29.07% (σ=1.01%; Z = .07, *ns*). The findings favor the Strong Form Efficient Market Hypothesis. In addition, there is more support that security prices adjust rapidly to the release of all public information.

INTRODUCTION

Investors are continually looking for stocks that will provide a return on their investment. When choosing securities to invest in, understanding finance and the concept of risk is what helps in the decision making process. One of the fundamentals of modern finance, The Efficient Market Hypothesis (EMH), states that prices adjust rapidly to the arrival of new information and current prices reflect all information about the security (Reilly and Brown, 2002). There are three forms of the EMH: the strong form, semi-strong form, and weak form. The *strong form* efficient market hypothesis theory contends that price reflects all public and private information. The market is an even playing field for all and information is cost free and available to everyone at the same time. In addition, no group of investors has monopolistic access to information relevant to the formation of prices. The *semi-strong form* states that security prices adjust rapidly to the release of all public information but does not cover private information. The *weak form* assumes current stock prices fully reflect all security market information, thus previous rates of return should be independent from future rates of return.

Insiders may be able to capitalize on their inside knowledge, questioning the strong form of the efficient market hypothesis. When insiders make a profit, investors lacking first-hand knowledge bear the cost. (Insiders are allowed to trade their companies stock *legally* once the market has had enough time to absorb the information. Following legal insider actions of buying and selling securities may be of interest for an average investor if it provides higher portfolio returns. This study seeks to determine if a portfolio tracking legal insider trading will lead to a higher return.)

BACKGROUND, REVIEW OF THE LITERATURE, AND HYPOTHESIS

Other Insider Trader Trackers

There are companies on the Internet who track legal insider trading. These companies promise great returns by investing with a strategy of following insider traders. Some companies give customers access to the software, but the customer is responsible for analyzing the data. Do these companies really generate higher returns than the market? Or are they trying to sell you fantasy? For a fee, they will highlight which insiders are trading and what stocks to buy. A study of portfolio returns will help determine if these are reliable sources for investment.

Previous Studies

It makes sense that corporate insiders would have an advantage over an average investor given the insiders' knowledge of the firm and future prospects. Previous research has mixed results on the topic of insider returns. A study based on 1998 data from the Oslo Stock Exchange, rejected the idea of a positive abnormal return made by insiders (Eckbo, 1999). The authors went on to say that an insider would have to trade on inside information in order to gain a higher return than a mutual fund. They concluded insiders on average do not outperform an average mutual fund (Eckbo, 1999). More recently, Jenter (2004) reported that insiders' returns are not much more than those of an average investor, and an average investor could have the same return as an insider if the average investor invested in small cap stocks with high yields and low price-earning ratios. Previous research has also shown insider buys tell more than insider sells: ten stocks that were heavily bought by insiders grew by 15% versus the Standard & Poors (S&P) average (=4%) of that same time period (Hough, 2005). A study by Harvard University separated the insider buys from sells, finding that portfolio holding buys' returns were greater than the market whereas the portfolio holding sells were not significantly abnormal from the market (Hough, 2005). Other studies have found that sells are significant: "Large sales that also

accounted for large percentages of insiders' holdings predicted significantly negative future abnormal returns. Small sales that accounted for small percentages of shares owned not only did not predict poor performance, but were correlated with significantly positive abnormal returns**"** (Scott, 2004).

Research has shown corporate insiders sell (postpone purchases) before significant stock-price decreases and buy (postpone sales) before significant price increases (Jaffe, 1974; Seyhun, 1986). A study by Seyhun and Bradley (1997) found that insiders sell shares prior to filing a bankruptcy petition to avoid capital losses. Typically, insiders begin selling 5 years prior to bankruptcy and increase selling nearer to bankruptcy. Seyhun and Bradley also found that insiders sell stock before prices fall and buy stock after prices have fallen. A later study (Seyhun, 1998) shows that stocks bought by insiders from their own company outperformed the total market by 8.9% over the next year. Conversely, this study also found that when insiders sold their shares; the stock underperformed the market by 5.4%. The relation between current aggregate insider trading and future corporate profits is positive (Seyhun, 1998). Higher returns relative to the market may be a reason why investors would like to track insider trading for their own investment purposes (Seyhun, 1998). Academic books in finance support the view that insider trading contributes to an inefficient market, thus implying that insiders make a higher profit due to non public information (e.g., Strong, 2001).

In summary, previous empirical evidence both supports and contradicts insider trades as a meaningful indication of higher portfolio returns.

Hypothesis:

Based on the above, it is expected that:

H1: A portfolio copying legal insider actions of buying and selling results in a higher return than a passively managed portfolio.

METHODOLOGY

Forms Used to Determine Portfolio Returns

The United States government helps facilitate fair-trading through the regulations of the Security Exchange Commission (SEC), and the implementation of the Securities and Exchange Acts of 1933 and 1934. **Insiders** (defined as corporate officers, directors, shareholders owning more than 10%, and any persons having access to or receiving information of a nonpublic nature on which trading is based for a public company) must file **form 4** with the SEC whenever there is an actual change in share ownership. The Sarbanes-Oxley Act of 2002 has now made the window in which insiders can file shorter. Insiders must file electronically via EDGAR within two business days of each transaction. Although there is a lag time of two days, this lag time is more efficient than the old rule stating insiders had until the tenth day of the following month to file. In the future, technological advances may permit instantaneous filings. The electronic filing documents are available at the SEC website for the public to view.

Information on who is considered an insider is public information and is available on the SEC website. The SEC requires all persons to file a **Form 3** when the individual becomes an insider. **Form 3** is the initial Statement of Ownership showing all holdings and must be filed immediately upon attaining insider status, even if no shares are owned initially. This form verifies the person has become an "insider". Once a person has become an "insider", each change of share ownership must be filed using the SEC **Form 4**. This form indicates when an "insider" has bought or sold shares of their company's stock. The SEC **Form 5** combines an insider's transactions together and is an annual statement of Changes in Beneficial Ownership. Insiders are barred from buying then selling or selling then buying their stock within a six month period. This rule helps prevent illegal insider trading from occurring. The above forms were used to determine the portfolio returns (see Table 1).

TABLE 1

Overview of SEC Acts/Rules and Relevant Definitions

Market Capitalization: Overall value of the company's stock. Taken by multiplying the stock price times the shares outstanding.

Shares Outstanding (Diluted): Number of shares the company has outstanding including options and convertible bonds.

Securities and Exchange Commission: United States Commission in charge of regulating the security markets.

Sarbanes Oxley Act of 2002: Shortens the window in which insiders can file from the tenth day of the following month to two business days after the trade.

EDGAR: Electronic filing system used by the SEC; contained at the SEC Website, www.sec.gov

Insider: Corporate officers, directors, shareholders owning more than 10%, and any persons having access to or receiving information of a nonpublic nature on which trading is based for a public company

Form 3: Initial Statement of Ownership showing all holdings and must be filed immediately upon attaining insider status, even if no shares are owned initially.

Form 4: Filed when there is a change in Share Ownership by an insider.

Form 5: Combines an insider's transactions together and is an annual statement of Changes in Beneficial Ownership.

Efficient Market Hypothesis: Prices adjust rapidly to the arrival of new information and current prices reflect all information about the security.

(1) Strong Form: Price reflects all public and private information.

(2) Semi-Strong Form: Security prices adjust rapidly to the release of all public information, but does not cover private information.

(3) Weak Form: Current stock prices fully reflect all security market information.

SEC CIK Codes: Classification Codes given by the SEC to differentiate companies

Active Portfolio Management: Investment manager seeks to improve the rate of return on the portfolio by anticipating events in the marketplace.

Passive Portfolio Management: Portfolio is largely left alone after its construction.

Procedure

To decide if following insider actions in the investment decision-making process are helpful, two portfolios were tracked from January 1, 2003 to year-end December 31, 2003. The universe of stocks was selected from the Standard & Poors 100 (S&P 100). The number of transactions over the course of the year 2003 for each company was found using the SEC CIK codes. The 100 companies were ranked in order of number of transactions. The 50 companies with the highest number of transactions were chosen to be included in the portfolio of stocks to track (see Table 2). To measure the difference in returns between active and a passive portfolio management, two portfolios were created. A *passive management strategy* was used in the first portfolio. The stocks were not traded and moved with the market. The second portfolio used an *active management strategy* to measure the difference in returns while tracking legal insider trading. The companies in each portfolio were weighted according to their Market Capitalization. To determine Market Capitalization, the stock price for each trading day January 2, 2003 to December 31, 2003 was multiplied by the average shares outstanding for the quarter. Each company's weight was determined dividing the daily market capitalization by the market capitalization of the portfolio.

[Insert Table 2 about here.]

The Passively Managed Portfolio

The daily returns for each stock were calculated using Holding Period Return:

(Ending Returns-Beginning Returns)/Beginning Returns.

The value of the index was calculated using the daily returns for a stock multiplied by the weight in the index. Each of the 50 company's daily returns was computed. These returns were combined using a weighted average approach, giving the daily portfolio return. Daily returns

were geometrically linked, starting at year beginning January 2, 2003 and ending on year end, December 31, 2003.

The Actively Managed Portfolio

Insider activity (buys and sells) were tracked and pulled from Edgar Online and the SEC website. Since some forms of stocks and derivatives cannot be purchased or used by a typical investor, these stocks and derivatives were not tracked: i.e., phantom stocks, deferred stocks, options (with the right to buy), and stock units were not tracked. Common stock (both purchase and disposure of) and exercised options were tracked.

It was necessary to compute a critical value that would determine at what amount the number of sells or buys become significant: 0.1% of the shares outstanding were used as a critical value. This number was used because a 0.1% buy or sell of a company's stock is high enough of a value to make an impact on the market. The critical value for each stock was computed.

It was then necessary to compute the percentage trade of the critical value. Each time an insider bought more shares than our critical value, the weight of that company was doubled in the portfolio. Each time an insider sold more share than the critical value, the stock was halved in our portfolio ($1/2 \leq x \leq 2$). If more than one transaction occurred on a given day, the net transaction was used. This was taken by subtracting the buys from sells and then dividing by the critical value. For example, IBM's critical value for the period was 863,000. On July 14th, 2003, 12,000 shares were bought while 4,006 shares were sold. The net effect for the day was as follows:

(12,000-4,600)/863,000 = **.009** (rounded to the nearest thousandth).

If a given day had only a buy or a sell, the percentage of the amount of shares bought or sold divided by the critical value was used.

It was then necessary to find a multiplier. Each daily percentage (computed above), was used as the exponent of 2. It was necessary for the multiplier to lie between ½ and 2 to ensure the portfolio was halved (in the case of net sells equal to or above the critical value) and doubled (in the case of net buys equal to or above the critical value), $½ \leq x \leq 2$. For example, in the example given above, the multiplier would be:

$$2^{.009} = 1.0064.$$

If there was a change in the multiplier on a given day, the new multiplier was geometrically linked to the old multiplier. This cycle continued starting at December 31, 2002 to the end of the year, December 31, 2003.

The next step in determining if an actively managed portfolio tracking insider trades leads to a higher portfolio return was to reconfigure each company's weight in the portfolio, using the multipliers. Multipliers were multiplied by each company's daily market capitalization. Each company's weight was computed by dividing the daily market capitalization by the portfolio capitalization. Daily return was multiplied by the new company's weight in the portfolio to calculate the Portfolio Returns. The daily change in Portfolio Returns was computed by geometrically linking the previous day's returns by the existing day. This cycle was continued from January 2, 2003 to year end December 31, 2003. The return on December 31, 2003 gave the portfolio return for the year.

The portfolio returns of the actively managed portfolio were then compared to the returns of the passively managed portfolio.

RESULTS

Following the procedure outlined above, the return for the passively managed portfolio was 29.07% (σ = 1.01%) and the actively managed portfolio returned 30.98% (σ = .99%), a

difference of 1.91%. Contrary to H1, the data indicate that the actively managed portfolio return was not significantly greater than that for the passively managed portfolio ($Z = .07$, *ns*).

DISCUSSION

The results of this study suggest that investors wishing to gain a higher return relative to a passively managed portfolio should consider not tracking insider trades. The findings reported here coincide with some of those reported elsewhere. For example, Eckbo (1999) concluded that insiders do not make more of a profit than an average mutual fund. Jenter (2004) reported insiders' returns are not much more than those of an average investor, and an average investor could have the same return as an insider, also consistent with my data. The results suggest insiders do not have monopolistic access to information relevant to the formation of prices, in agreement with the Strong Form Efficient Market Hypothesis. A drawback investors must consider before investing in insider trading is the time and money needed to track insiders. Investors may wish to review the cost of software and/or subscription services offered by companies tracking insider trading. If the cost is less than 1.91%, insider trading tracking may be beneficial.

The evidence suggests that a portfolio copying legal insider actions of buying and selling does not produce a higher return than a passively managed portfolio, inconsistent with Seyhun and Bradley's (1997) finding that insiders sell stock before prices fall and buy stock after prices have fallen. My study does not side with an inefficient market where insiders have knowledge to non public information, leading to higher returns, a finding touted by various academic finance books (e.g., Strong, 2001).

This study's findings may be impacted by the Securities and Exchange Commission and the Securities Act of 1934 Section 10(b), mandating insider trading. Perhaps the rules and laws are so strictly enforced: insiders wait until all information is made public to trade. Various traders

should be concerned with keeping the markets as fair and efficient as possible. If the rules imposed by the SEC were not in place, insiders could freely buy and sell on non public information. The markets would have a huge impact if insiders were allowed to trade on non public information. Some may argue that the markets would be more efficient; however non insiders would lose out. The company's stock price would move (upwards in the case of insider buying, downwards in the case of insider selling), impacting the returns non insiders receive. Return is based on the amount paid for the stock, which in the non insider case would be adjusted due to insider transactions. For example, suppose insider trading was legal and a R&D intensive pharmaceutical firm knew that its drug would be passed by the FDA in the following days to come. Numerous insiders buy the stock at the current price (e.g., $10). The large amount of buying forces price pressure on the stock, pushing it up to say $12. Numerous insider trader trackers follow this signal and start to buy, further pushing the stock price up (e.g., $15). Three days later the news is announced to the public. Now, the public can get the stock for $15 (or more as more people buy the stock) as opposed to insiders who got in on the stock at $10. This would repeat for numerous companies, allowing insiders to continually prosper, at average investors' disadvantage. The laws enforced by the SEC should remain intact to ensure the markets are an equal playing field for all investors, insiders or not.

Limitations

Any number of limitations could have lead to a different outcome. Limitations include using average market capitalization, altering the date on the data obtained from Edgar-Online, determining the critical value, not separating insider buys from insider sells, and the year data was chosen from.

To determine Market Capitalization, an average shares outstanding for the quarter was assumed. The shares outstanding were pulled from the company quarterly and annual reports.

The average shares outstanding were used because daily shares outstanding were not factually known. Although this figure does not give us an exact amount of shares outstanding for the date, it gives a very close estimate.

The data pulled from the Edgar-Online site reports transactions according to transaction date, not posted date. The average lag time between the transaction date and the posting date through the SEC is two days. The SEC Website (which investors can use as a tracking tool), uses posting date as their indicator of the date reported. Investors are unaware of the transaction until the transaction has been posted at the SEC Website. Due to the differences in dates, a two day lag time was assumed for data pulled from the Edgar-Online Website in an effort to be consistent with the SEC Website.

The use of 0.1% of the shares outstanding at year beginning 2003 determined the critical value. The use of a different critical value would alter the portfolio returns. One-tenth of one percent (0.1%) of shares outstanding is a large enough number to have that specific transaction impact the market. Future study can look at a lower (e.g., 0.05%) or higher amount (e.g., 0.25%), to determine portfolio return differences. Furthermore, in regards to a change in the critical value, had the method of halving at or below the critical value in the case of sells and doubling at or below the critical value in the case of buys been altered, the results would have changed.

The trades in this research project were not separated between buys and sells. Previous research indicates insider buying of the company's stock is a stronger indicator than insider selling (Hough, 2005). In the future, the data reported here can be used to determine the difference between insiders' buys and sells. Insiders may sell shares of stock to invest the money elsewhere, pay off loans, pay off mortgages, etc. Insiders would have little other incentive to buy the stock unless the individual thought the stock price would increase in the future.

Transaction costs in this study were not taken into account. An actively managed portfolio would incur higher trading costs than a passively managed portfolio. This could affect the outcome of the returns once transaction costs were taken into account, perhaps making the actively managed portfolio returns lower than the passively managed portfolio.

Finally, if more years had been added to the portfolio, (especially years before insider trading were highlighted by the media and public attention), it may have rendered insider trading tracking to be more valid.

Future Research

Researchers may wish to focus on separating insider sells and insider buys to determine if one signal is more effective than the other. Future studies might explore insider trading returns of R&D intensive firms compared to firms lacking R&D. It would be speculated that R&D intensive firms would have a higher return due to the sensitive nature of Research and Development and the use of R&D as a predictor of how the company will do in the future. Researchers may also perform industry or sector analyses to determine if insiders' transactions lead to higher portfolio returns for certain industries or sectors. Thus, the SEC and other regulatory bodies could determine if certain companies and/or industries/sectors should be monitored more closely than others. In addition, it may be of interest to compare the return made by insider trading over the past years to determine if the SEC has become more strict on policies in recent years with several high-profile public cases (e.g., Enron's Kenneth Lay and Martha Stewart). A sampling of trades in the years before these high profile cases may render significant insight in tracking insider trades.

TABLE 2

COMPANIES IN PORTFOLIOS 1 & 2*

Symbol	Company	Sector	SEC CIK #
SBC	SBC Communications Inc.	Telecommunications Services	732717
IBM	International Bus. Machines	Information Technology	51143
EXC	Exelon Corp.	Utilities	1109357
VZ	Verizon Communications	Telecommunications Services	732712
PFE	Pfizer, Inc.	Health Care	78003
HON	Honeywell Int'l Inc.	Industrials	773840
IP	International Paper	Materials	51434
BA	Boeing Company	Industrials	12927
MSFT	Microsoft Corp.	Information Technology	789019
NSC	Norfolk Southern Corp.	Industrials	702165
ETR	Entergy Corp.	Utilities	893928
C	Citigroup Inc.	Financials	831001
BAX	Baxter International Inc.	Health Care	10456
BUD	Anheuser-Busch	Consumer Staples	310569
GS	Goldman Sachs Group	Financials	886982
ONE	Bank One Corp.	Financials	1085158
BAC	Bank of America Corp.	Financials	70858
UTX	United Technologies	Industrials	101829
JNJ	Johnson & Johnson	Health Care	200406
EP	El Paso Corp.	Utilities	1066107
VIA	Viacom Inc.	Consumer Discretionary	813828
RSH	RadioShack Corp	Consumer Discretionary	96289
GE	General Electric	Industrials	40545
JPM	J.P. Morgan Chase & Co.	Financials	19617
XOM	Exxon Mobil Corp.	Energy	34088
MRK	Merck & Co.	Health Care	64978
AIG	American Int'l. Group	Financials	1000617
PG	Procter & Gamble	Consumer Staples	80424
EK	Eastman Kodak	Consumer Discretionary	31235
T	AT&T Corp. (New)	Telecommunications Services	5907
WFC	Wells Fargo	Financials	105598
AMGN	Amgen	Health Care	318154
SO	Southern Co.	Utilities	92122
MDT	Medtronic Inc.	Health Care	64670
F	Ford Motor	Consumer Discretionary	37996
NSM	National Semiconductor	Information Technology	70530
AA	Alcoa Inc	Materials	4281
AXP	American Express	Financials	4962
DOW	Dow Chemical	Materials	936498
ATI	Allegheny Technologies Inc	Materials	1018963
BNI	Burlington Northern Santa Fe C	Industrials	934612
GM	General Motors	Consumer Discretionary	40730
KO	Coca Cola Co.	Consumer Staples	21344
TXN	Texas Instruments	Information Technology	97476
HPQ	Hewlett-Packard	Information Technology	47217
ORCL	Oracle Corp.	Information Technology	777676
TOY	Toys R Us, Inc.	Consumer Discretionary	1005414
UIS	Unisys Corp.	Information Technology	746838
HCA	HCA Inc.	Health Care	860730
INTC	Intel Corp.	Information Technology	50863
MO	Altria Group, Inc.	Consumer Staples	764180

* Ordered by number of trades

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