Is there Information Content in Insider Trades in the Singapore Exchange?

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Abstract : Over the past decade, numerous studies have debated the usefulness of insider trading. One particularly important study relates to the informational role that insiders' transaction volumes have on trading activity in the equity market. In our paper, we examine whether insiders' purchases (sales) indicate positive (negative) earnings announcements. We argue that if insiders have early access to publicly announced information, then the issuance of good (bad) news should be preceded by insider buying (selling) activities. The results reveal that insiders' trading volume play an important role in the dissemination of private information to the investing public. In particular, insiders' purchases (sales) are found to be a good indication of good (bad) news. The information content in insiders' trades may be exploited, provided investors are able to realize returns within one, and at most two months, after the announcement date.

Keywords : *Insider purchases and sales; trading periods.*

1. INTRODUCTION

Since the publication of Manne (1996), a myriad of studies have emerged over the past decade regarding the usefulness of insider trading. Proponents of insider trading argue that insider trading leads to informationally efficient stock prices while critics question the merits of these arguments contending that insider trading leads to a loss of investor confidence in capital markets. In spite of this ongoing controversy, insider trading continues to interest investors, policy makers, regulators and the academic community.

Investors are mainly concerned with insider trading in terms of how it may be beneficial; policy makers, on the other hand, are more concerned in maintaining a level playing field for all investors. Regardless of the motivation behind the interests of the various groups, insider trading is a practice that is not necessarily motivated by informational reasons only. Other possible reasons include manipulation, liquidity, and portfolio diversification. While knowledge about insider trades may enable one to gain informational advantage, decrease one's risk exposure, or enable one to adopt a more aggressive stance in the market, the risks involved and particularly, the probability of success from imitating insiders is low.

Essentially, insider trading is defined as "the dealing by an 'insider' in listed securities" when the 'insider' is in possession of price sensitive information that is generally not available to the public. While many believe that insider trading is illegal, this is, in fact, a misconception. The law only prohibits certain specific transactions by insiders; a majority of insider trades actually fall within legal boundaries. Secondly, reported legal insider trades are believed not to contain any important information and are, therefore, not seen as a useful investment guide. This is because insiders tend to report only unprofitable transactions and are likely to camouflage transactions motivated by exploiting nonpublic information so as to avoid possible prosecution.

Regulators of various securities exchanges acknowledge that the presence of insider trading regulations gives some assurance to potential investors that the market is fair and transparent. In fact, the regulation of insider trading is usually justified on the grounds of fairness or equity. Yeo (2001) points out that there are three main theoretical foundations that form the legal

framework for the regulation of insider trading, namely, misappropriation theory, unfair advantage theory, and the market stability theory, which we examine in this paper.

We also attempt to investigate the mechanism by which insider information becomes incorporated into stock price and whether insiders' trades act as buying or selling signals for the average investor. Specifically, our study aims to determine whether insiders' purchases indicate positive corporate earnings announcement news and insiders' sales indicate negative corporate earnings announcement news. We compare the strength of these trading signals and determine their role in the information dissemination process. These results are also observed at four different time points to determine if the information effects of the insiders' trades persist. The data that we use comprise information on 74 companies listed on the Singapore Exchange over the period January 1994 to December 1998.

2. DATA

The data are collected from three main sources, namely InsideTrade Asia, the Pacific Basin Capital Markets Database (PACAP) and Datastream International, over the period January 1994 to December 1998. Information pertaining to insider trades in the Singapore market is obtained specifically from InsideTrade Asia while annual corporate earnings announcement dates are collected from the Pacific Basin Capital Markets Database (PACAP). Market returns based on historical stock prices are obtained from *Datastream International*.

The size of the firm is represented by the market value of its stock; the book to market ratio is computed using the book equity of the respective firm divided by its market equity. Beta estimates are obtained using the market model in which the Singapore All Equities Index (SNGALLS) is chosen as a proxy for the market portfolio. Several filter are employed to remove "unwanted trades. As the data comprise only present and previous balances, we only compute insider trading volume as net purchases and net sales. Two types of trading, namely, "Purchases" and "Sales" which refers to open market purchases and sales, respectively, are examined. All other types of transactions such as private purchases or sales, option exercises, grants, bonus issues, and stock splits, are excluded from our study. We also eliminate companies that do not trade in Singapore dollar to avoid the influence of foreign

exchange effects. Based on the filters we applied and having all relevant variables matched, we are left with a total number of 74 firms.

3. INFORMATION CONTENT HYPOTHESES

In this paper, we investigate the informational role
To capture the effect of insider trading, we track the cumulative trading volume of insiders over 1-, 3-, and 6-months before the restricted period[1]. We test for the information content in insiders' trades by analyzing the volume of insiders' purchases and sales. There is extensive evidence that insiders' trades provide information to market participants who act as informed traders buying (selling) in advance of stock price increase (decrease) (Jaffe, 1974; Penman, 1982; Seyhun, 1986). In particular, insiders with private information are found to purchase shares before the public release of private information that would increase prices (positive news of corporate earnings) and sell shares before the public release of private information that would decrease prices (negative news of corporate earnings). We, therefore, hypothesize that insiders' purchases lead to higher returns as compared to insiders' sales.

Hypothesis 1:

Stock returns from insiders' purchases portfolios are higher than stock returns from insiders' sales portfolios.

If purchases (sales) indicate good (bad) news, it is likely that there is a positive (negative) relation between insiders' purchases (sales) and returns, which we postulate as follows:

Hypothesis 2:

There is a positive (negative) relation between insiders' purchases (sales) volume and stock returns.

4. TRADING SIGNALS HYPOTHESIS

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[1] The restricted trading period occurs one month before the annual earnings announcement date. Within this month, insiders are not allowed to trade while outsiders are permitted to buy or sell their stocks.

Easley and O'Hara (1987) find that informed traders prefer to trade in large amounts while Petersen and Umlauf (1990) provide empirical support showing that other trade characteristics such as trade frequency or direction leads to the incorporation of inside information. Essentially, this suggests that the strength of a trading signal may be inferred from the volume of shares traded; the greater the number of shares transacted, the higher the possibility that transaction is information motivated. Hypothesis 3 is formulated below to test whether a "Strong Buy"/"Strong Sell" portfolio contains stronger information content as compared to a "Buy"/ "Sell" portfolio. If a "Strong Buy" portfolio does contain more information than a "Buy" portfolio, we expect that returns from the former would be higher.

Hypothesis 3:

The returns are higher in "Strong Buy (Sell)" portfolio as compared to a "Buy (Sell)" portfolio.

5. EVENT STUDY OF RESPONSE TO INSIDER TRADES

Prior studies document that the market is slow to account for the changes in stock prices. In this paper, we attempt to find out if this is also true for the Singapore market. We, therefore, track the trading volume of insiders closely relative to forthcoming annual corporate earnings announcements of the individual firms. The stock returns of the firm are observed at four different time points namely, one month before the announcement, the announcement day, one month after the announcement, and two months after the announcement, to determine how quickly new information is incorporated into stock prices (returns).

6. PORTFOLIO FORMATION AND REGRESSION RESULTS

Two main sample portfolios comprising the Purchases and Sales portfolios are created. The total number of buy/sell insider trades over the period of 1-, 3-, and 6-month trading periods are computed. For example, in the case of the Purchases portfolio, we accumulate all share transactions of the insiders' purchases over the period of one month, which is then ranked into the top 50% and the bottom 50% of all trades; we assume that the top 50% corresponds to a "Strong

Buy" while the bottom 50% corresponds to a "Buy" signal. This approach is also applied to the Sales portfolio in all three holding periods.

Using the Fama and French (1993) three-factor asset-pricing model, we test for the information content in insiders' purchases and sales over the four different time points, namely, one month before announcement day, the announcement day, one month after the announcement day, and, finally two months after the announcement day. We also examine the results based on trading periods of 1-, 3-, and 6-months.

Earlier studies find that insiders' trades provide information to market participants who then act as informed traders buying and selling in advance of stock price revisions. In this sense, Hypothesis 1 is formulated to test whether insiders' purchases signify good news whereas insiders' sales signify bad news. If this hypothesis is not rejected, we are able to find evidence that insiders' purchases lead to higher returns relative to insiders' sales.

From table 1, we find that the results, in general, seem to be insignificant when the differences in the mean monthly returns of purchases and sales are compared. This is true across the four different time points of returns as indicated by Panel A, B, C and D, respectively, and also across the insider trading volumes accumulated over 1-, 3- and 6- months in each respective panel. This suggests that insiders' trades do not necessarily provide information to market participants. Specifically, insiders' purchases are not found to be a reliable indicator of good news; similarly, insiders' sales are also not found to be a reliable indicator of bad news.

In panel B which summarizes the results for insider trades that occur on the corporate earnings announcement day, we find that the difference in mean returns between purchases and sales for the 1-month trading period is statistically significant. The average rate of return on insider purchases is –3.43% and –7.41% for insider sales. Although the mean returns for both purchases and sales are negative, the mean return for purchases is less negative as compared to sales. In Panel C, which presents the results for trades that occur one month after the announcement day, we find that there is a significant difference in the mean returns between purchases and sales for the one-month trading period; this difference is, however, negative. Insiders' purchases are found to yield a return of –6.28% while insiders' sales yield –2.70%, suggesting that both insiders' purchases and sales no longer provide meaningful earnings

signals. No significant estimates are available for all trading periods where returns are realised two months after the announcement day, indicating that the information content of insiders' trades does not persist beyond the announcement day.

In Table 2, we summarize the regression results between insiders' trades and volume. Panel A shows that insiders' trading volume, whether a purchase or sale, is not significant in explaining 1, 3-, and 6-month stock returns, except for sales which is significant in explaining 3-month returns. Investors do not appear to act on these trades; it is likely that investors do not believe that these insiders' trades contain information. This is primarily because investors may feel that insiders report only their unprofitable transactions and tend to camouflage profitable transactions to avoid prosecution. This is another indication that although investors do look to the trades executed by insiders for sources of private information, they nevertheless appear to act upon earnings announcement which serve as confirmation of the information presented by these insiders' trades.

Panel B presents results for insiders' volume on the announcement day itself. Generally, the results are significant and consistent with Hypothesis 2. Purchases over the 1- and 6-month periods are positive and significant, suggesting that purchases may serve as a signal of positive corporate earnings announcements. For purchases over a 1-month trading period, returns are found to increase by 2.42% while returns increase by 1.25% for purchases over a 6-month period. An examination of the R^2 suggests that the information content of the 1-month trading volume contributes more to the increase in returns as compared to trading volume over 6 months. This is consistent with our earlier findings that the 1-month trading volume has more information content as compared to other trading periods.

Easley and O'Hara (1987) suggest that in the process of trading, informed traders strategically select the size and timing of their trades so as to obtain good execution for their trades. There is also some support for Hypothesis 2 that insiders' sales indicate bad news; returns are found to fall by 1.74% over a 3-month trading period. We do not find any significant relation between insider trades and returns after the announcement, except for insider sales volumes with the 3-month returns, which is found to be significant at the 5% level. This is consistent with Seyhun (1988) who reports that the predictive content of insider transactions for subsequent market returns is no longer significant..

Although we do not report the estimates for explanatory variables other than volume[2], we noted some interesting results related to market capitalization (MV), book-to-market (BTMV), and beta. We observe that most of the estimates are not significant, a finding that is consistent with Wong and Lye (1990), who find that in the Singapore market, the size effect (market capitalization) has secondary importance relative to the E/P effect. Although small-sized and large-sized firms are found to perform well, by comparison, medium-sized firms perform better. We also find that beta is generally not significant across all our regressions, which is consistent with that in Fama and French (1992), who find that there is no positive relation between average stock returns and market beta.

7.   SUB-SAMPLE PORTFOLIO ANALYSIS

Hypotheses 3 examines whether there is a difference in the information content of insiders' trades as depicted by the strength of trading volume. Purchases and sales are segregated into two sub-samples based on trading volume. The sub-samples comprising a "Strong Buy" and "Strong Sell" account for the top 50% of trades, while both "Buy" and "Sell" sub-samples account for the bottom 50% of all trades. Since a "Strong Buy (Sell)" portfolio is more likely to indicate positive (negative) news relative to a "Buy (Sell)" portfolio, we expect that returns from the former would be somewhat higher (lower). Therefore, we postulate a significant difference in returns between a "Strong Buy (Sell)" and "Buy (Sell)" portfolio.

In Panel A of Table 3, we find that 1-, 3-, and 6-month trading period difference in mean returns for all insider trades one month before the announcement day are not statistically significant, except for insider sales volume over a 3-month trading period. A "Strong Sell" signal yields a return of -10.18% while a "Sell" signal yields a return of -3.20%, for a mean difference of -6.98% which is statistically significant at the 5% level. Unlike the results obtained one-month before announcements, the trading period difference in mean returns for all insider purchases made on the announcement date itself are significant. For insider sales, however, the difference in means is only significant for a 3-month trading period. The

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results are qualitatively similar for all trading periods one month after the announcement date.

8. CONCLUSION

The results from both the portfolio and regression analysis point to one distinct observation – insiders' trades do provide useful information to market participants. Specifically, insiders' purchases indicate positive news while insiders' sales point to bad news. We also find that out of the four different time periods of monthly returns, results are only statistically significant for monthly returns realized on the announcement day itself.

We observe that trades over a 1-month trading period before the restriction month tend to have stronger information content. In the context of Singapore, insiders are imposed a one-month restriction in trading prior to the earnings announcement day. Insiders' trades over the month prior to this restriction period may, therefore, present a relatively more accurate picture as insiders' step up their buying and selling efforts to exploit private information. During the restriction period, non-insiders are thus given sufficient time to analyze these insiders' trades; they may, therefore, exploit the information content provided to arrive at more informed trading decisions.

The trading volume of insiders does provide information for the investors. We find that the size of trading volume is an important determinant of the information content in insiders' trades. Our results are, however, predicated on the earnings announcement date in which the stock returns are realized. Of the 4 time points of returns that were considered in this paper, only one time point, namely, the announcement day itself, is significant. Our findings suggest that the information content of insiders' trades needs to be confirmed by the content of the earnings announcement before any news is fully reflected in stock prices. Moreover, the degree to which these trades serve as useful indicators of private information also depends on many other factors.

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Table 1: Results of Portfolio Analysis

Trading Period	Type of Trade	Return	Diff in mean returns
Panel A: One month before Announcement			
1 month	Purchase	-0.012	-0.035
	Sale	0.0226	(-1.06)
3 months	Purchase	-0.006	-0.003
	Sale	-0.003	(-0.10)
6 months	Purchase	0.0064	0.0068
	Sale	-0.001	(0.33)
Panel B: Announcement Day			
1 month	Purchase	-0.034	0.040*
	Sal	-0.074	(1.41)
3 months	Purchase	-0.053	0.013
	Sale	-0.066	(0.54)
6 months	Purchase	-0.045	-0.005
	Sale	-0.040	(-0.24)
Panel C: One month after Announcement			
1 month	Purchase	-0.063	0.036*
	Sale	-0.027	(1.77)
3 months	Purchase	-0.045	0.002
	Sale	-0.046	(0.06)
6 months	Purchase	-0.038	-0.009
	Sale	-0.029	(-0.44)

Table 2: Regression Results

Trading Period	Type of Trade	LVOL	R²
Panel A: One month before Announcement			
1 month	Purchase	-0.007 (-0.08)	0.071
	Sale	-0.001 (-0.05)	0.163
3 months	Purchase	-0.004 (-0.60)	0.038
	Sale	-0.016* (-1.95)	0.116
6 months	Purchase	0.003 (0.56)	0.044
	Sale	-0.001 (-0.15)	0.023
Panel B: Announcement Day			
1 month	Purchase	0.024* (1.89)	0.103
	Sal	0.013 (1.13)	0.062
3 months	Purchase	0.005 (0.54)	0.041
	Sale	-0.017* (-2.18))	0.119
6 months	Purchase	0.013* (1.85)	0.079
	Sale	-0.004 (-0.54)	0.034
Panel C: One month after Announcement			
1 month	Purchase	-0.001 (-0.12)	0.274
	Sale	-0.008 (-1.21)	0.404
3 months	Purchase	-0.010 (-1.42)	0.040
	Sale	-0.017** (-2.33)	0.114
6 months	Purchase	-0.010* (-1.70)	0.032
	Sale	-0.003 (-0.49)	0.015

Table 3: Results of Subsample Portfolio Analysis

Trading period	Type of Trade	Trading Signal	Returns	Diff in Mean Returns
Panel A: One month before Announcement				
1 month	Purchase	Strong Buy	-0.028	0.013 (0.38)
		Buy	-0.041	
Table 3 (Continued)				
	Sale	Strong Sell	-0.068	-0.007 (-0.16)
		Sell	-0.061	
3 month	Purchase	Strong Buy	-0.046	0.015 (0.48)
		Buy	-0.060	
	Sale	Strong Sell	-0.102	-0.070* (-1.88)
		Sell	-0.032	
6 month	Purchase	Strong Buy	-0.033	0.023 (0.88)
		Buy	-0.056	
	Sale	Strong Sell	-0.034	0.003 (0.11)
		Sell	-0.037	
Panel B: Announcement Day				
1 month	Purchase	Strong Buy	0.036	0.100** (2.12)
		Buy	-0.064	
	Sale	Strong Sell	0.053	0.064* (1.37)
		Sell	-0.011	
3 month	Purchase	Strong Buy	0.019	0.051* (1.46)
		Buy	-0.031	
	Sale	Strong Sell	-0.008	-0.010 (-0.25)
		Sell	0.002	
6 month	Purchase	Strong Buy	0.043	0.073** (2.52)
		Buy	-0.030	
	Sale	Strong Sell	0.014	0.028 (0.95)
		Sell	-0.014	
Panel C: One month after Announcement				
1 month	Purchase	Strong Buy	-0.048	-0.056* (-1.54)
		Buy	0.009	
	Sale	Strong Sell	-0.047	-0.015 (-0.40)
		Sell	-0.032	
3 month	Purchase	Strong Buy	-0.032	-0.038* (-1.33)
		Buy	0.005	
	Sale	Strong Sell	-0.065	-0.041** (-1.80)
		Sell	-0.023	
6 month	Purchase	Strong Buy	-0.039	-0.043** (-1.83)
		Buy	0.004	
	Sale	Strong Sell	-0.023	-0.013 (-0.48)
		Sell	-0.010	

Notes to all tables:
LVOL is the natural log of volume* refers to significance at the 10% level; ** refers to significance at the 5% level.