



PROFITABILITY OF INSIDER TRADING: NEW ZEALAND EVIDENCE

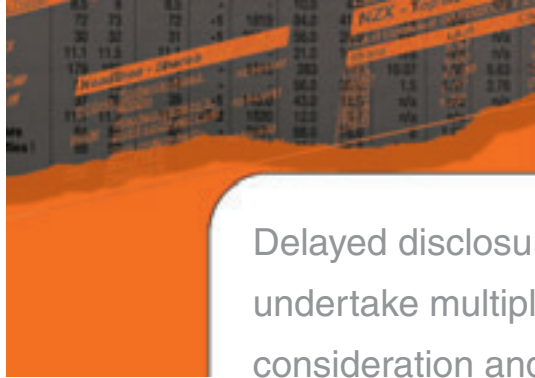


BY ALIREZA TOURANI-RAD, AHMAD ETEBARI AND AARON GILBERT

Corporate insiders often possess information that is not yet available to the market as a whole, which gives them the opportunity to make profitable trades. By purchasing shares in advance of price rises or selling before price drops insiders can exploit the information to make significant personal gains (Jaffe, 1974; Seyhun, 1986, 1998). Given timely disclosure of trades by insiders, the price effect of the information that insiders trade on becomes observable to the market and allows the market to act on the information more rapidly. While timely disclosure does not make the trading unprofitable, it does reduce the profitability of

the trades and removes the opportunity for ongoing profits (Huddart et al., 2001).

Until recently, the disclosure regime in New Zealand called for immediate filing of transactions for substantial share dealings only. Under the Securities Market Act 1988, only substantial shareholders, defined as those with a relevant interest in more than five per cent of the voting securities of a public issuer, were required to disclose their interest in the company promptly. If a substantial shareholder's interest changed by more than a cumulative one per cent since the last notice or dropped below the five per cent threshold, the substantial shareholder was required to disclose the details of the transaction within five days.



Delayed disclosures provide insiders with an opportunity to undertake multiple transactions that are relatively small in consideration and, hence, less likely to be subject to detection

Disclosure was made by the insider to the Stock Exchange which then released the information to the market as a daily announcement. Details of the disclosure included the price, number of shares, consideration and the date of the transaction.

Substantial shareholders include directors, controlling shareholders and other companies, all of whom either have board representation and, therefore, access to inside information or, as suggested in a theoretical model developed by Maug (1999), large shareholders may receive inside information from the managers to prevent them from intervening in the running of the company. The perception, and in some cases the reality, is that substantial shareholders have similar access to information as that of non-executive members of the board of directors. This gives substantial shareholders the ability to profit from their knowledge.

Because of the significance of the information they are perceived to have access to, substantial shareholders are required to disclose their trading immediately. Under the Securities Market Act 1988, no other class of insiders were required to disclose immediately. Directors were required to disclose their trading in their respective company annual report. Hence these disclosures could be delayed up to one year before they appeared in the reports. While the latter transactions on average tend to be smaller in size, they account for the majority of insider share dealings in New Zealand.

In New Zealand, concerns have arisen regarding the monitoring and enforcement of the prevailing laws and regulations. There has also been a general perception that the laws are less effectively policed and enforced than those in most other developed markets. A major reason that was frequently cited for this weakness was the lack of enforcement power of the New Zealand Securities Commission, the principal regulatory watchdog. The Securities Markets Amendment Act 2001 that came into effect in December 2002 has given the commission extra powers in an attempt to create a more effective investigatory and enforcement agency. In a major extension of the previous legislation, the new Act

requires continuous disclosure of trades by all insiders including the previously covered substantial shareholders as well as directors and company executives.

Our study is an investigation into the profitability of insider trading under the 1988 Act. Given the delays in disclosure under that Act, as well as the relatively relaxed enforcement record of the law, we would expect insiders to be able to make profitable trades in their own firm's securities. In particular, we would expect delayed disclosures by directors to be associated with greater profits. Delayed disclosures provide insiders with an opportunity to undertake multiple transactions that are relatively small in consideration and, hence, less likely to be subject to detection. Evidence from overseas studies supports this view (Barclay and Warner, 1993; Friederich et al., 2002).

We examined a sample of 1254 trades by insiders, consisting of 793 trades by directors and 461 trades by large-block holders for 33 listed firms from January 1995 to December 2000. Over the 250 trading days following the trade, insider purchases (sales) were associated with an abnormal gain of +6.64 per cent (-0.03 per cent). For the delayed disclosures, the abnormal returns were +10.33 per cent for purchases and -3.53 per cent for sales. Only the results for purchases were statistically significant. As for immediate disclosures by major shareholders, both purchases and sales had a positive market response, respectively of +2.82 per cent and +2.52 per cent, but neither result was statistically significant. Overall, the results suggest that insiders earn superior profits on their purchases and that such profits are especially large for directors.

The next section of this article reviews the literature on declared insider share dealings in New Zealand and foreign markets.

LITERATURE REVIEW

Insider trading can be defined as trading in a company by people with superior information to that possessed by the market. Typically, insiders are board of directors, company executives and large shareholders who are required to disclose their

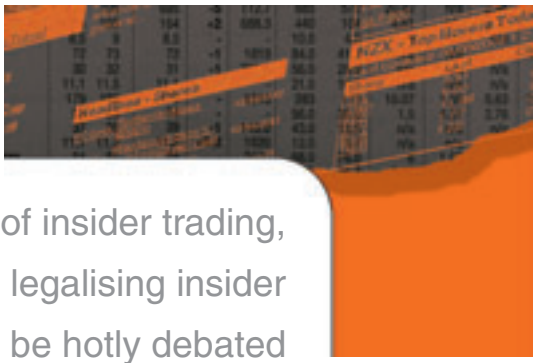
trading to the market (Beny, 2002). These insiders are widely followed in the markets due to the perception that when they trade it is driven by information asymmetry.

There has been a large amount of debate and literature about insider trading. Both the pros and cons of allowing insiders to trade in shares of their companies have been looked at in depth, along with the profitability of insider trading. The studies into the profitability of insider trading began in the 1960s with Lorrie and Neiderhoffer (1968). With a few exceptions (e.g., Eckbo and Smith, 1998; and Rozeff and Zaman, 1988), numerous studies have consistently shown that insiders make significant abnormal returns from their share transactions. This has been strongly supported by recent studies such as Friederich et al. (2002) and Lakonishok and Lee (2001), who found that insiders not only make significant abnormal returns, but can also time their transactions better than the market. Friederich et al. and Lakonishok and Lee also concluded that purchases are more informative than sales as there are a number of reasons to sell a stock including liquidity needs. The main reason for buying stocks, however, is profit. This is supported by Jeng et al. (1999) and Carpenter (2001).

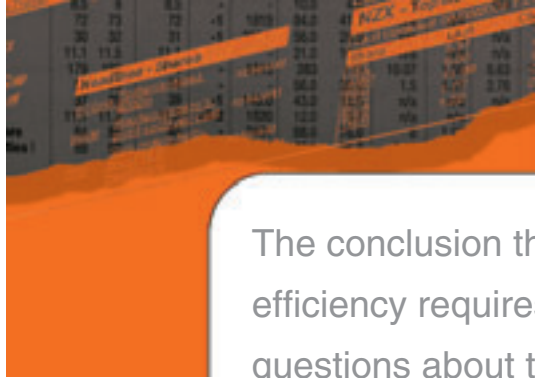
By contrast, insider trading in New Zealand has been the subject of very little research. Studies of insider trading are restricted to Duncan and Etebari (1990) and Etebari and Duncan (1997), who examined pre-announcement price run-ups in the years 1986 and 1993, and Casey and Tourani-Rad (2001), who directly tested data on directors' trades disclosed in annual reports for the period 1993-1999. These studies provided evidence that insiders made profitable trades. In particular, Casey and Tourani-Rad found that insiders could earn 15.63 per cent abnormal returns when they purchased, but made losses of 11.75 per cent when they sold

shares. This supports in part the evidence from other markets. The size and direction of abnormal sale returns and the size of the purchasers' profits, however, are vastly different to those recorded in other markets where returns of two to five per cent are the norm.

Given the profitability of insider trading, the pros and cons of legalising insider trading continue to be hotly debated. Significant costs are associated with insider trading such as increased bid-ask spreads (Kyle, 1985; Chung and Charoenwong, 1998), reduced investor confidence in the market (Ausbel, 1990; Bhattacharya and Daouk, 2002; and Leland, 1992), higher cost of capital (Bhattacharya and Daouk, 2002) and reduced liquidity (Friederich et al., 2002; Ausbel, 1990; and Repullo, 1999). On the other hand, insider trading can make the market more informationally efficient. The improved informational efficiency occurs as the market is able to discount the insiders' expectation of the future, act on this information by consummating trades and hence adjust price to its equilibrium value faster. This requires timely disclosure, however, as the market is unable to observe when an insider is trading (Chung and Charoenwong, 1998). Further, insiders may prefer to trade anonymously as disclosure reduces their informational advantage and profits (Kraakman, 1991). Friederich et al. (2002) found that clustered trades of mid-sized transactions led to the biggest price reaction as insiders avoided tipping off the market. Once the market is aware that an insider is trading, it can adjust the price and stop further trades from earning abnormal returns (Beny, 2002; Jain and Mirman, 1998). Huddart et al. (2001) argued that not only did timely disclosure reduce the ability of insiders to make ongoing profits, but that timely disclosure reduced the profitability of each trade, resulting in an overall reduction in insiders' profits. The



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implication is that timely disclosure not only improves market efficiency, but also results in smaller insider profits, therefore making the markets more equitable as well.

The conclusion that for insider trading to improve market efficiency requires timely disclosure raises a number of questions about the New Zealand disclosure regime where until recently only substantial shareholders were required to perform timely disclosure. The implication from the literature, therefore, is that insiders who are not subject to timely disclosure requirements should be able to make additional abnormal returns beyond those normally associated with insider trading. The delay also means that by the time of publication, the market is likely to have become aware of the information used by the insider, rendering the disclosures in the annual reports worthless.

DATA AND METHODOLOGY

Data

The study period ran from January 1995 through 2000. For this period, we collected a sample of companies that were listed on the New Zealand Stock Exchange. To be included in the sample, each company had to survive as a listed company and have complete price histories over the entire period of study that included an estimation period starting 250 days before each event and a test period that ended 250 days after each event. As such, only companies with complete price histories for the period 1994-2001 were included in the sample.

The overall sample consisted of two sub-samples of disclosures. The first sub-sample, delayed disclosures, consisted of directors' share dealings disclosed in their respective company annual reports. Disclosure of this information is required by statute and is, therefore, available for all companies. This sample consisted of 793 transactions including 461 buy and 332 sell transactions across 33 companies.

The second sub-sample, immediate disclosures, consisted of substantial shareholder disclosure (SSH) notices that were reported to the market for the period 1995-2000. We obtained these

announcements from Datex's database of corporate announcements. The sub-sample in this case, however, was limited to existing substantial shareholders who had changed their holding. This resulted in a final sub-sample of 257 buy and 204 sell transactions across 33 companies.

Events that resulted in disclosures being made in the annual reports and also in a SSH notice were removed from the delayed disclosure sub-sample. As they were previously disclosed in the SSH notices, little new information would be contained in the later disclosures. They were retained in the SSH sample, however, where the disclosures did pass on information to the market.

Our overall sample, combining both the immediate and the delayed disclosures, included 718 buy and 536 sell transactions covering 33 companies. Share price data for the study were obtained from the Datastream databases.

Methodology

Given the difference in the signals provided by purchases and sales, we examine them separately for each sub-sample.

We used event study methodology to estimate abnormal security returns due to insider trading. The estimation period used in this study was 190 trading days starting 250 trading days before each event, i.e., the date of each transaction. For each event, we estimated the market model over days $t = -250$ to $t = -61$, with the market model specified as follows:

$$R_{it} = \alpha_i + \beta_i R_{mt} + e_{it} \quad (1)$$

where R_{it} and R_{mt} are respectively the returns of stock i and the market portfolio on day t of the estimation period, defined by log of daily price relatives and calculated from prices adjusted for capital changes. We used the NZSE All Ordinaries Index to measure the market portfolio.

Using the estimates from (1) above, we then forecast daily abnormal returns of each security over a test period run from 60 trading days before the event date to 250 trading days after that date. We chose a long post-event window to show the long-

term effect of insider trading, although we also report the abnormal returns for shorter sub-periods surrounding the event date.

Daily abnormal return for security i for day t or the test period ($t = -60$ to $t = 250$) is given by the following equation¹:

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}) \quad (2)$$

Further, as in Etebari and Duncan (1997), we also measured the abnormal returns using market-adjusted returns. This measurement did not change our results; hence in this article we report the results from risk-adjusted procedures only.

Daily average abnormal returns were then calculated using the formula

$$AR_t = \frac{1}{n} \sum_{i=1}^n AR_{it} \quad (3)$$

and tested for their significance according to the following t-statistic:

$$t = \frac{AR_t}{\sigma_{EP}} \quad (4)$$

where σ_{EP} = standard deviation of the abnormal returns over the estimation period.

Daily average abnormal returns were then accumulated over the entire test period, as well as selected sub-periods, to give the cumulative

abnormal return (CAR). The CARs were standardised and tested for their significance according to the following formula:

$$t = \frac{CAR_t}{\sqrt{n} \cdot \sigma_{EP}} \quad (5)$$

Further, the difference in results between the delayed and immediate sub-samples was tested for its significance according to the following equation:

$$t = \frac{(CAR_1 - CAR_2)}{\sqrt{\frac{S_1^2}{n} + \frac{S_2^2}{n}}} \quad (6)$$

where $S_1 = \sqrt{n} \cdot \sigma_{AR1}$, $S_2 = \sqrt{n} \cdot \sigma_{AR2}$ and n = the number of observations.

Because the purpose of the SSH notices is to improve the speed with which the market reacts to insider trading and to prevent illegal transactions by insiders, it should follow that immediate disclosure reduces the opportunity for insiders to earn abnormal profits. A test of the difference in the abnormal returns between the two sub-samples would help to establish if the timing of disclosures has any effect on the insiders' ability to profit from private information.

Results

Table 1 reports summary statistics of the overall sample and the two sub-samples, delayed and immediate disclosures. As reported in the table, over the 1995-2000 period we studied a total of 718 buy

¹ This is a standard financial event study methodology as described by Brown and Warner (1985) and has been widely employed in empirical studies of insider trading such as Pope, Morris and Peel (1990), and Seyhun (1986, 1992).

TABLE 1 Summary statistics on insider transactions

	Delayed disclosure (annual reports)		Immediate disclosure (SSH notices)		Overall disclosures	
	Buy	Sell	Buy	Sell	Buy	Sell
No. of transactions	461	332	257	204	718	536
By year						
1995	114	74	49	28	163	102
1996	79	81	33	22	112	103
1997	83	53	46	31	129	84
1998	75	55	48	51	123	106
1999	58	36	46	35	104	71
2000	52	33	35	37	87	70
No. of companies	32	26	31	30	33	32
Stocks with >=1 trade	96.97%	78.79%	93.94%	90.91%	100%	96.97%
By index membership						
10	126	126	79	79	23	125
Excludes top 10	30	53	179	117	196	54
Excludes top 30	40	48	227	41	237	132
None	234	461	95	332	125	257
					97	204
					149	110
					107	163
					103	71
					359	192

The sample of transactions come from a variety of companies, from the largest firms in the NZSE 10 to the smallest firms that are not included in any of the major indices

and 536 sell transactions involving 33 companies. These transactions were split into 461 buys and 332 sales in the delayed disclosure sub-sample, and 257 buys and 204 sales in the immediate disclosures sub-sample. In both sub-samples there were more buys than sales and overall there were more delayed disclosure transactions than immediate disclosures.

The number of transactions was also distributed in a fairly uniform fashion across the years covered in the study, except for a large number of trades that occurred in 1995. This coincides with the first time period in which directors were required to disclose their trading. Trades were also spread fairly equally across weekdays. Twenty-two trades are reported on weekends. These trades most likely reflect transactions in overseas markets, such as ADRs in the US, or private off-market transactions.

Table 1 also shows that at least 78 per cent of the firms had at least one transaction in the sample period in a given trading category. The category with the lowest number of participant companies is the delayed disclosure sales, whereas delayed disclosure purchases have the largest number of participant companies – 96.97 per cent of the total sample. The immediate disclosure sub-samples show almost identical numbers of participating companies. The results also show that the sample of transactions come from a variety of companies, from the largest firms in the NZSE 10 to the smallest firms that are not included in any of the major indices. The transactions are also fairly evenly distributed by index membership, with all but the delayed sales

showing similar numbers of transactions between those companies included in a major index and those that are not. Having a disproportionately large number of transactions from small firms could bias the results because it has been shown that insider trading in smaller firms is associated with higher returns (Lakonishok and Lee, 2001). As the transactions are evenly spread, the results are unlikely to be biased.

Table 2 presents information on the market-to-book ratios and the market values of the sample companies. The average market-to-book value ratio for the sample companies was 1.72, with a median figure of 1.31. In addition, more than 80 per cent of the sample had a ratio in excess of one.

The average market value of the companies in the sample was \$827.4 million, but the median number was much smaller, a mere \$140.7 million. This is reinforced by the distribution of the market values, with 36 per cent of the companies having a market value of less than \$100 million, while 27 per cent had a market value of more than \$500 million. This shows that the sample companies had a large range of market values, from the very small to the largest in New Zealand.

In the remainder of this section we discuss the profitability of insider buy and sell transactions for the overall sample, as well as the two sub-samples. We will focus on the immediate effect, day $t = 0$, and the long-term effect, the 250 days following each event (days $t = -1$ to $t = +250$).

The results for the overall sample are reported in

TABLE 2 Market value and market-to-book statistics

	1995	1996	1997	1998	1999	2000	Overall
Market value (\$ millions)							
Average	787.33	843.91	869.48	819.79	930.24	713.70	827.41
Median	113.01	151.20	128.29	142.10	139.20	142.27	140.65
Market-to-book ratio							
Average	1.44	1.73	1.51	1.79	1.88	2.00	1.72
Median	1.24	1.51	1.21	1.26	1.43	1.36	1.31

Table 3. As shown in the table, for the buy sub-sample the abnormal returns at $t = 0$ are statistically significant. Further, over the 250 trading days following transactions, insider purchases are associated with a statistically significant abnormal return of 6.64 per cent (CAR over days -1 to +250). As can be seen from the data in Panel A, the average abnormal return results for purchases reflect the common response of the majority of the firms in the sub-sample and are not driven by a few outliers. The results, however, are mostly insignificant and for each day there are roughly equal numbers of positive and negative abnormal returns. Over the 250 trading days following transactions, those selling avoid an insignificant loss of -0.3 per cent. The ability (inability) of insiders to time increases (decreases) in the share price of their companies by buying (selling) is supported by existing evidence. In their study of the New Zealand market, Casey and Tourani-Rad (2001) reported similar results, i.e., that insiders could earn large abnormal returns on their purchases and that their sales had little informational value. Previous studies suggest that insiders sell for reasons other than profiting from inside information, such as liquidity or diversification.

Figure 1 gives graphic illustration of the results for the overall sample. It presents some interesting evidence on the ability of insiders to time their trades. For instance, insider sales typically occur during a period of increasing prices. Insiders tend

to capture only about half of this increase, however, selling out about 30 days before the run-up ending. As for their purchases, again insiders buy when the price is increasing. On average, they buy about 20 days into a significant price run-up that typically lasts three months.

The insider purchases and sales were separately analysed for delayed disclosures and immediate disclosures. As hypothesised earlier, we would

TABLE 3 Overall sample results

PANEL A ARs for overall purchase and sales				
Event date	Overall purchases		Overall sales	
	Abnormal returns	% of ARs negative	Abnormal returns	% of ARs negative
-5	0.0010	37.24%	0.0022*	51.04%
-4	0.0028*	36.96%	0.0021	49.34%
-3	0.0002	37.52%	0.0000	45.94%
-2	-0.0008	35.43%	-0.0005	52.93%
-1	0.0007	36.40%	0.0023*	50.47%
0	0.0029*	39.05%	-0.0021	52.55%
1	0.0011	37.38%	0.0015	50.85%
2	0.0023	39.33%	-0.0005	49.34%
3	0.0010	39.89%	-0.0002	51.23%
4	-0.0002	37.10%	0.0014	47.26%
5	0.0016	35.15%	0.0009	48.77%
6	-0.0011	35.43%	0.0011	49.91%
7	-0.0015	38.91%	0.0019	49.15%
8	-0.0006	36.82%	0.0003	47.64%
9	0.0009	37.94%	-0.0017	48.96%
10	0.0004	36.82%	0.0004	49.34%

PANEL B Event window CARs for overall purchases and sales		
Windows	Overall purchases	Overall sales
	Cumulative abnormal returns	Cumulative abnormal returns
-60, 250	0.0784***	0.0245
-1, 250	0.0664***	-0.0030
-1, 30	0.0243***	0.0187**
-1, 15	0.0133**	0.0092*
-1, 0	0.0036*	0.0002
-1, 1	0.0047*	0.0017

Insider sales typically occur during a period of increasing prices. As for their purchases, again insiders buy when the price is increasing

FIGURE 1

CARs for overall insider purchases and sales

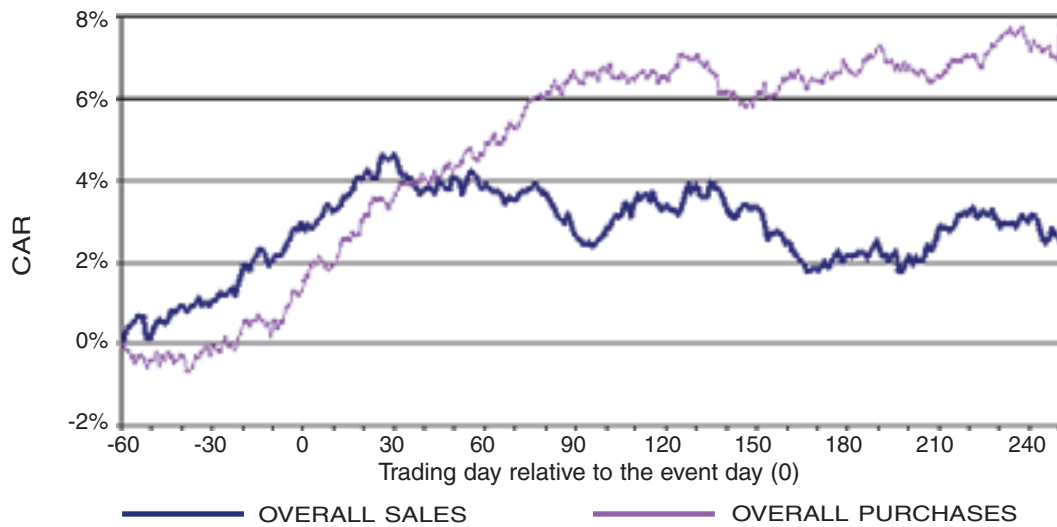


TABLE 4

Insider purchases: delayed v immediate disclosure

PANEL A ARs for delayed v immediate purchases				
	Delayed purchases		Immediate purchases	
Event date	Abnormal returns	% of ARs negative	Abnormal returns	% of ARs negative
-5	0.0001	36.23%	0.0019	51.17%
-4	0.0029	39.05%	0.0028*	49.22%
-3	0.0012	31.67%	-0.0007	51.17%
-2	-0.0022	36.66%	0.0006	52.73%
-1	0.0017	36.66%	-0.0002	46.88%
0	0.0056**	40.56%	0.0000	51.56%
1	0.0001	36.01%	0.0021	50.00%
2	-0.0016	40.56%	0.0064***	57.03%
3	0.0015	40.78%	0.0003	55.47%
4	0.0006	36.01%	-0.0011	54.30%
5	0.0004	32.54%	0.0028*	51.17%
6	-0.0017	34.49%	-0.0004	50.00%
7	-0.0021	36.88%	-0.0008	50.00%
8	0.0004	35.36%	-0.0016	48.44%
9	0.0027	36.23%	-0.0010	52.73%
10	-0.0021	31.67%	0.0030*	57.03%

PANEL B Event window CARs for delayed v immediate purchases		
	Delayed purchases	Immediate purchases
Windows	Cumulative abnormal returns	Cumulative abnormal returns
-60, 250	0.1116***	0.0441
-1, 250	0.1033***	0.0282
-1, 30	0.0247*	0.0239**
-1, 15	0.0118	0.0149**
-1, 0	0.0056	-0.0002
-1, 1	0.0057	0.0019

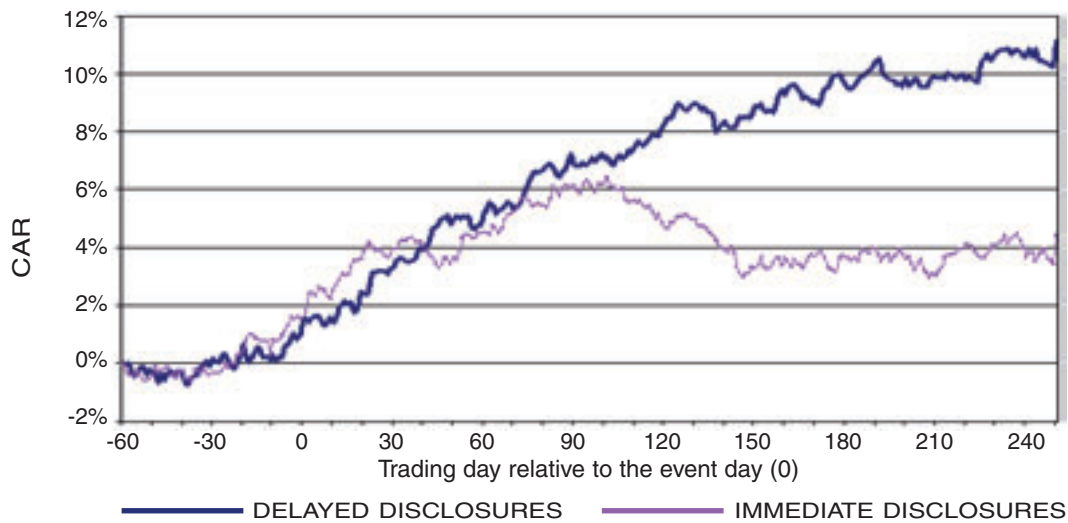
expect the returns to delayed disclosures to be significantly greater than the returns to immediate disclosures. These results are presented in Table 4.

The most noticeable feature of these results is the impact on abnormal returns of a delay in the announcement of an insider's trade. Over the period -1 to 250, the return to the delayed disclosures sub-sample is a statistically significant 10.33 per cent, compared with an insignificant return of 2.8 per cent to the immediately disclosures sub-sample. The average abnormal return at the event date, $t = 0$, is a statistically significant, 0.56 per cent for delayed disclosures, whereas there is little valuation effect for the immediate disclosures on that date. A subsequent positive reaction occurs for immediate disclosures at $t = +2$, but we cannot fully attribute this effect to the earlier transaction.

The average abnormal returns reported in Panel A of Table 4 seem to represent a general phenomenon in the sense that they reflect the

FIGURE 2

CARs for insider purchases: delayed v immediate disclosure



response of the majority of individual abnormal returns. The results in Panel B certainly appear to suggest a difference in the abnormal returns in the medium- to long-term interval due to delays in disclosure.

The results reported in Table 4 are illustrated in Figure 2, which depicts the cumulative returns for the delayed and the immediate purchases. From this figure, the two sub-samples tend to respond similarly for the period up to 100 days after the transaction, at which point the CARs for immediate disclosures drop before steadying out. The results for delayed disclosures, however, continue to increase right across the length of the sample, although they level off at the end of the test period. The figure also shows a spike at the end of both the delayed and immediate purchase samples. This spike can also be observed in the graph of the overall purchases. This is due to two different companies, one in each sub-sample, that had a final-day abnormal return of 25 per cent. But the overall CARs over the

TABLE 5

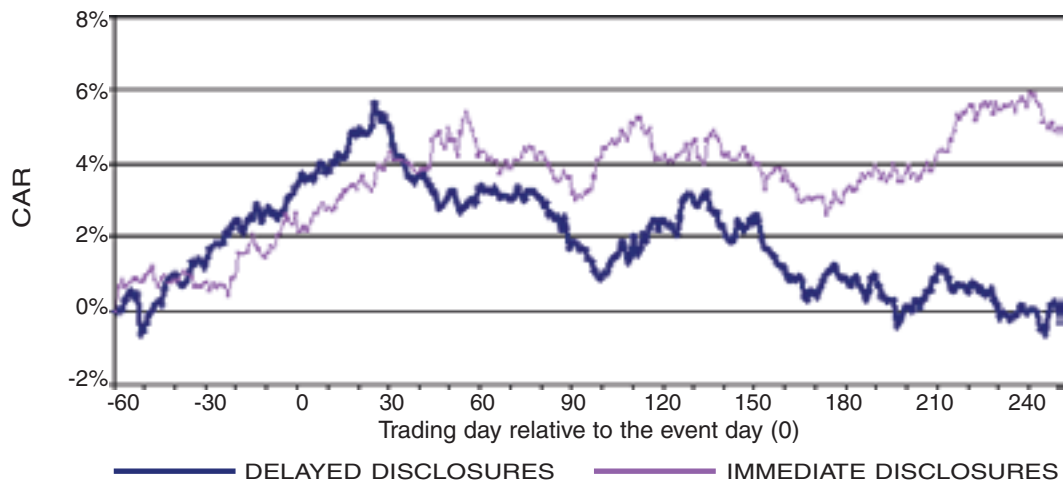
Insider sales: delayed v immediate disclosure

PANEL A				
ARs for delayed v immediate sales				
Event date	Delayed sales		Immediate sales	
	Abnormal returns	% of ARs negative	Abnormal returns	% of ARs negative
-5	0.0010	50.60%	0.0033*	51.78%
-4	0.0029	49.40%	0.0015	49.24%
-3	0.0007	46.99%	-0.0006	44.16%
-2	0.0007	52.41%	-0.0016	53.81%
-1	0.0016	50.30%	0.0030	50.76%
0	0.0014	54.22%	-0.0051***	49.75%
1	0.0025	53.61%	0.0007	46.19%
2	-0.0018	45.48%	0.0006	55.84%
3	0.0003	54.82%	-0.0007	45.18%
4	0.0004	45.48%	0.0023	50.25%
5	-0.0007	45.78%	0.0022	53.81%
6	0.0025	50.30%	-0.0001	49.24%
7	0.0021	46.08%	0.0017	54.31%
8	-0.0006	48.80%	0.0011	45.69%
9	-0.0017	47.89%	-0.0017	50.76%
10	0.0002	51.20%	0.0005	46.19%

PANEL B		
Event window CARs for delayed v immediate sales		
Windows	Delayed sales	Immediate sales
	Cumulative abnormal returns	Cumulative abnormal returns
-60, 250	-0.0034	0.0486
-1, 250	-0.0353	0.0250
-1, 30	0.0176	0.0197
-1, 15	0.0095	0.0090
-1, 0	0.0029	-0.0022
-1, 1	0.0054	-0.0015

FIGURE 3

CARs for insider sales: delayed v immediate disclosure



investigation period for these two companies were not significantly different than those of other companies, except on the final day. Both companies are small and it may be that low liquidity was the cause of these jumps.

The abnormal return results for insider sales for the two sub-samples are reported in Table 5. The results in the table show a difference in the end results for the two disclosure sub-samples, although the reported CAR value at $t = 250$ is statistically insignificant for both sub-samples. The delayed sample shows that insiders can avoid a statistically insignificant result of -3.53 per cent for the period -1 to 250, whereas insiders selling and disclosing immediately would avoid an opportunity loss of 2.5 per cent for the same period. Again, however, the sub-period results show that for $t = -1$ to 15 and $t = -1$ to 30, the two sub-samples followed nearly identical paths, both registering CARs of nearly one per cent for the first 15 days, and nearly two per cent for the first 30 days following the event day. At $t = 0$, the abnormal return for the immediate sub-sample, though small, is negative and statistically significant. However, this finding is due to the common response of less than one half of the firms in the sub-sample; hence, it is unlikely that the results reflect any general phenomenon (see the percentage of negative versus positive CARs in the table.)

Figure 3 further illustrates the similarity of the return patterns between the two sub-samples. Initially, the CARs for the two sub-samples follow the same pattern, but at $t = 170$ they diverge, with

the CAR for immediate disclosures posting a superior performance. Over the period $t = -60$ to 250, immediate disclosures post a return of 4.68 per cent, but the CAR for delayed disclosures is a small negative return of -.34 per cent. These results support the notion that delayed disclosure benefits insiders, but any such conclusions must be tempered by the fact that neither sample records a statistically significant CAR.

We tested the difference in the cumulative abnormal returns due to purchases between the delayed and immediate disclosure sub-samples for various intervals, with the results presented in Table 6. As the t-stats show, the difference between the samples is significant on day 0. Then the two samples converge and the differences become insignificant. This lasts for between 30 and 60 days, at which point the differences in CARs between the two samples become large and statistically significant. This divergence supports the hypothesis advanced in this article, that those insiders trading with delayed disclosure earn significantly higher returns than those having to disclose immediately.

Table 6 also provides further support to the notion that investors delaying sales disclosures can avoid greater losses than those required to disclose sales immediately. The results of the tests of the difference in the CARs for these groups indicate that although the two samples move together between 30 to 60 days after the event day, after this period the CARs for the two samples diverge. This divergence gets larger and then steadies until

between days 90 and 180, at which point the gap widens steadily until the end of the sample. Although insiders do not avoid statistically significant losses, they do perform better than insiders required to disclose trading immediately.

The overall results show that insiders, such as directors, earn abnormal profits from purchasing shares of their companies. Their ability to earn abnormal profits can be attributed to their privileged access to private information about their firms. Our results have implications for the regulatory regime in New Zealand, which aims to reduce the ability of insiders to profit from information asymmetry and make the market more transparent.

Our specific sub-sample results give clues as to the best way to reduce the profits of insiders: timely disclosure. The results show significant differences in the cumulative abnormal returns earned by insiders between delayed and immediate disclosures; insiders trading and delaying disclosure can earn significantly larger abnormal returns from their purchases and avoid losses from their sales, although the latter are insignificant. The levels of profits from insider purchases in New Zealand are also significantly higher than in other countries that encourage more timely disclosure by publishing weekly or monthly lists of insiders trading. Typically, studies in the US and UK have found abnormal returns of two to six per cent over the calendar year following due to insider purchases (Seyhun, 1986, 1992; Pope, Morris and Peel, 1990). For our sample of delayed disclosures, we find abnormal returns twice as large – +10.33 per cent – due to insider

purchases. This finding further supports the idea that delayed disclosure leads to extra abnormal profits. Furthermore, given the delays in disclosure in New Zealand, insiders could conceivably make multiple transactions without the market being informed, hence trading on information profitably for much longer than in countries with timely disclosure requirements. The longer delay could have harmed the price efficiency of the market, increased the cost of trading (e.g., bid-ask spread) and the cost of capital, reduced investor confidence and, ultimately, debased the liquidity of the market. The requirement for timely disclosure is, therefore, vital to make the market more informationally efficient and to offset any harm caused by insider trading. Timely disclosure also reduces the ability of insiders to exploit inside information over long periods and, therefore, results in a fairer market.

CONCLUSION

This article set out to examine the relationship between the timing of mandatory disclosures of share dealings by insiders and their ability to profit. This issue is of concern in New Zealand due to the general belief that insider trading is hurting the market's efficiency and its international reputation. This concern has caused the current New Zealand government to introduce a requirement for timely disclosure of trades by insiders, both those covered in the previous legislation as well as all directors and executives, a group not mentioned at all in the previous legislation.

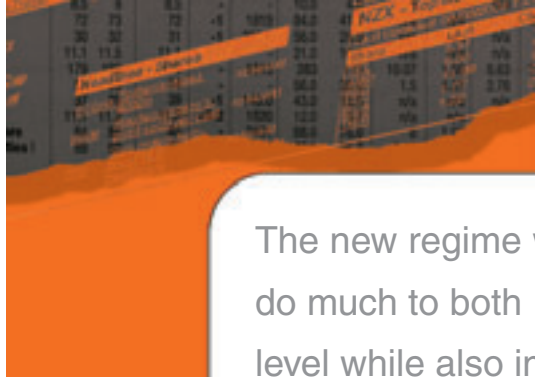
The previous situation was dire in New Zealand

TABLE 6 Differences in CARs between delayed and immediate disclosure

Event day	Purchases		Sales	
	Difference	T-stat of difference	Difference	T-stat of difference
0	0.75%	2.5668**	0.51%	1.9200*
5	-0.21%	-0.7334	0.07%	0.2680
15	-0.31%	-1.0516	0.05%	0.1918
30	0.08%	0.2600	-0.21%	-0.7930
60	1.49%	5.1098***	-1.81%	-6.8162***
90	1.38%	4.7211***	-2.15%	-8.1258***
120	4.29%	14.6600***	-2.60%	-9.8101***
150	6.35%	21.7138***	-2.22%	-8.3730***
180	6.69%	22.8882***	-3.31%	-12.4881***
210	7.58%	25.9178***	-4.01%	-15.1372***
250	7.50%	25.6483***	-6.04%	-22.7829***

* = significant at 10% level ** = significant at 5% level *** = significant at 1%

Difference in CARs calculated as delayed - immediate for CARs -1, 250



The new regime with mandated timely disclosure should, therefore, do much to both reduce the profits of insiders to an acceptable level while also improving the efficiency of the market overall.

due to the differences in the local regulatory regimes from those in other foreign jurisdictions. In particular are the differences in the disclosure regimes between New Zealand and countries such as the US and the UK. These countries have long had in place public documents produced on a regular basis that disclose insider share dealings, usually weekly or, at worst, monthly. In New Zealand, disclosure was either required immediately or not until the annual report was produced. Disclosures in the annual reports, therefore, represented a delay of at least several months while the reports were being printed and distributed. This delay in disclosure provided ample opportunity for directors to use their knowledge of the company to trade and potentially earn abnormal profits. Further, they could make multiple trades on that information before the market became aware of the information or the trading.

The purpose of this study was to examine whether this delay allowed insiders to make extra profits. The results have shown that insiders in New Zealand actively trade in their own companies' securities and that they can earn significantly large abnormal returns. Over the calendar year following each transaction, the abnormal return to insider purchases is a significantly large +6.64 per cent, while the abnormal return to insider sales is a small and insignificant return of .30 per cent. The results for insider purchases show that insiders in New Zealand are able to earn much greater returns than those reported for foreign markets in studies exploring the same issue. Further analyses of insider purchases reveal that much of the abnormal gain reported for overall share purchases is attributable to directors' purchases that are disclosed with a delay. That is, insiders able to delay disclosure of their purchases earned abnormally large profits of +10.33 per cent, whereas those required to disclose purchases immediately made insignificant abnormal returns of 2.82 per cent. The delayed sales sub-sample also showed that insiders were able to avoid larger losses by trading on their information, avoiding an insignificant loss of -3.53 per cent while the immediate disclosure sub-sample had abnormal

returns of 2.5 per cent, a loss to the sellers. The differences between both samples were also statistically significant although the significance did not emerge until between three and six months after the transaction. The results do, however, support the hypothesis that delays in disclosure allow insiders to earn extra abnormal profits.

These results show that the recent legislative changes have been correctly targeted at an area of concern. The delay in disclosure by directors, one of the groups with significant access to inside information, has given directors the ability to undertake multiple transactions and make abnormally large profits. The long delay in disclosure of trades by directors has also undermined the efficiency and the reputation of the New Zealand market. Literature has shown that delayed disclosures of directors' trades add to information asymmetry in the market, resulting in increased bid-ask spreads, reduced liquidity and increased cost of capital. The new regime with mandated timely disclosure should, therefore, do much to both reduce the profits of insiders to an acceptable level while also improving the efficiency of the market overall. The newly mandated uniform disclosure for both directors and substantial shareholders is a welcomed move. To produce tangible results, however, the newly mandated disclosure requirements must be effectively enforced and the insider share dealings better policed than in the past.

In a follow-up study examining a larger sample of transactions (Etebari, Tourani-Rad and Gilbert, 2003) we find that company size, analyst following, and insider position were significant determinants of the results we report for delayed disclosures. That is, small companies earned significantly higher returns than large companies; companies not included in a major stock index, i.e., those less followed by analysts, outperformed those listed in NZSE 10; and insiders privy to more information, such as managing directors and chairmen, earned higher abnormal returns than other classes of insiders. The results also showed that small transactions in terms of per cent of the insiders' holdings earned more significant returns than large

transactions, with the exception of full sales which outperformed partial sales. These findings should be of interest to securities trading regulators seeking to police insiders or companies for potentially improper trading and to investors attempting to infer relevant information from insiders' trades.

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